B.S. Abdur Rahman Crescent Institute of Science & Technology
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SSB1182

RRN | | | | | | | | | | | | |

SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B Tech(Common to all branches)
Semester : I& II Date & Session : 12/12/2019, FN
Course Code & Name : SSB1182,Sociology,Ethics &Human values
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Define Sociology.
2. What is Assimilation?
3. Define Social Change.
4. List out any four agencies of socialization.
5. Define Team.
6. Define Cooperation.
7. What is 'Achieved status'?
8. What is modernisation?
9. List out any four factors responsible for social change
10. Define Child labour.
11. Define Invention.
12. What is Formal Social control? Give example.

PART B (5 X 12 = 60 MARKS)

13.A (i) Write a short note on French revolution and its impact on society. (6)
(ii) Explain the role of various agencies of socialization. (6)

(OR)

B (i) Differentiate between Society and Community. (6)
(ii) Explain various means of social control with example. (6)

14.A (i) Compare and contrast Sanskritisation and Westernisation as processes of social change in Indian Society. (6)

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(ii) Explain the differences between Caste and class. (6)

(OR)

B (i) Discuss family as a basic fundamental social institution with its functions. (6)
(ii) "Women are not safe in Indian society".- Discuss this statement with various type of violence against women in India. (6)

15.A (i) Explain the different types of Team in an industry. (6)
(ii) Explain the types of planned and emergent groups with examples. (6)

(OR)

B. (i) Explain primary and secondary groups with characteristics and examples. (6)
(ii) Explain any four factors responsible for bringing social change in India. (6)

16.A (i) Discuss the various features of Urbanization and its impact on the society. (6)
(ii) Describe the various types of child labour. (6)

(OR)

B. (i) Explain the types and process of whistle blowing. (6)
(ii) Write down the causes of Modernization. (6)

17.A (i) List the differences between Invention and Innovation with suitable examples. (6)
(ii) Explain the concept of "Globalization" with any three advantages and disadvantages. (6)

(OR)

B. (i) Discuss various characteristics of Social Exclusion. (6)
(ii) Technological development has changed the face of India'- Comment. (6)

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PART C (1 X 16 = 16 MARKS)

18.A	(i)	'Joint family in modern Indian society is disintegrating' – Comment.	(8)
	(ii)	According to 2011census, the social status of women is lower than the status of men in Indian society'-Critically evaluate the statement citing various indicators that are used to .assess the status of women.	(8)
		(OR)	
B	(i)	Examine the role of assimilation and accommodation as associative social processes in the society.	(8)
	(ii)	Explain the role of engineers for sustainable development of the society.	(8)

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~~PHB 1181~~

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SEMESTER END EXAMINATIONS NOVEMBER 2019

Programme & Branch	: B.Tech (Common to all B ranches)		
Semester	: I	Date &Session	: 29/11/19 AN
Course Code & Name	: PHB 1181 Physics		
Duration	: 3 Hours	Maximum Marks	: 100

PART - A (12 x 2 = 24 MARKS)

1. What is elastic limit?.
2. Distinguish between streamline flow and turbulent flow.
3. Draw (1 0 1) and (1 1 1) planes in a simple cubic structure.
4. What is Burger vector?
5. State Rayleigh-Jean's law.
6. Mention the two physical significance of the wave function (ψ).
7. What is de-Broglie wavelength?
8. Write down the expression for the thickness of quarter wave plate.
9. List out the different pumping mechanisms in laser.
10. State the conditions for total internal reflection.
11. Mention the detection methods of ultrasonics.
12. What is sonar?

PART - B (5 x 12 = 60 MARKS)

13. a Derive an expression for the depression produced due to load hanging at the end of the cantilever. **(12)**

(OR)

b Arrive at an expression for the couple per unit angular twist of a wire when it is twisted. **(12)**

14. a Determine the atomic radius, coordination number and packing factor for bcc and fcc structures **(12)**

(OR)

b (i) Derive an expression for inter-planar spacing for (h k l) planes of a cubic structure. (8)

(ii) Write down the steps to determine Miller Indices. (4)

15. a Explain Compton effect and derive an expression for the wavelength of the scattered photon. (12)

(OR)

b (i) Write the properties of matter waves. (2)

(ii) Derive Schroedinger time independent wave equation of matter waves. (10)

16. a With necessary theory, derive an expression for the thickness of a thin wire using the air wedge. (12)

(OR)

b Discuss in detail about the theory of plane, circularly and elliptically polarized light. (12)

17. a Describe the construction, working and applications of CO_2 laser with a neat diagram. (12)

(OR)

b (i) Explain with a neat diagram, the production of ultrasonic waves using magnetostriction oscillator. (8)

(ii) Mention any four applications of ultrasonic waves. (4)

PART - D (1 x 16 = 16 MARKS)

18. a (i) Explain how a photo-elastic bench is useful in the stress analysis of engineering components. (8)

(ii) With a block diagram, explain the working of ultrasonic flaw detector. (8)

(OR)

b (i) With a neat diagram, describe in detail about the construction and reconstruction of a hologram. (12)

(ii) Distinguish between photography and holography. (4)

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SSB1181

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B. Tech. Common to all Branches
Semester : I & II Date & Session : 9/12/2019, AN
Course Code & Name : SSB1181, INTRODUCTION TO ECONOMICS
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Write the differences between open economy and closed economy.
2. Define supply.
3. Write any two determinants of demand.
4. Write any two differences between microeconomics and macroeconomics.
5. Explain any two types of money.
6. Define barter system.
7. Define Development banks.
8. List out the differences between joint demand and cross demand.
9. Define microeconomic equilibrium.
10. Write any two objectives of Government Budget.
11. Outline any two aims with which LPG was introduced in India.
12. State the differences between Money market and Capital market.

PART B (5 X 12 = 60 MARKS)

13.a (i) State and explain the Law of Demand. (6)
(ii) Explain any three sectors of the economy with examples. (6)

(OR)

b (i) State and explain the Law of Supply. (6)
(ii) Write a short note on price elasticity of demand. (6)

14.a (i) Explain GDP, GNP and per capita income. (6)
(ii) Explain the difficulties in measuring national income in India. (6)

(OR)

b	(i)	Trace any three causes of inflation and three measures to tackle inflation.	(6)
	(ii)	Why do you think computing national income is important for a nation?	(6)
15.a	(i)	Differentiate between Central bank and Commercial banks.	(6)
	(ii)	Explain the differences between Monetary Policy and Fiscal Policy.	(6)

(OR)

b	(i)	Discuss the types of external trade with examples.	(6)
	(ii)	Write the differences between Public sector and Private sector.	(6)
16.a	(i)	Explain the functions of money.	(6)
	(ii)	How is economic growth different from economic development?	(6)

(OR)

b	(i)	Elucidate the types of direct taxes with examples.	(6)
	(ii)	Discuss any three types of non tax revenue sources of the government.	(6)
17.a	(i)	Explain any three classifications of Public Expenditures with examples.	(6)
	(ii)	What measures were taken to liberalize Indian economy in 1991?	(6)

(OR)

b	(i)	Write a short note on New Industrial Policy 1991.	(6)
	(ii)	Write a note on Monetary Policy.	(6)

PART C (1 X 16 = 16 MARKS)

18.a	(i)	How can fiscal policy bring stability in the economy with its various instruments?	(8)
	(ii)	Engineers have a responsible role to play in economic growth. Explain.	(8)

(OR)

b	(i)	Discuss the advantages and disadvantages of Privatization in India.	(8)
	(ii)	Discuss the merits and demerits of Globalization on the economy of India.	(8)

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PHC 1182

RRN

SEMESTER END EXAMINATIONS – NOVEMBER 2019

Programme & Branch : B.Tech Common to all Branches
Semester : I Date & Session : 29/11/2019 AN
Course Code & Name : PHC 1182 Physics I
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Define space lattice.
2. Draw the Miller indices for the planes (110) and (111) of cubic system.
3. What is acoustical grating?
4. Determine the depth of a sea if the time interval between the emitted signal and the echo received is 5 second in sonar studies. Assume that velocity of sound in the sea water is 1450 ms^{-1}.
5. Write down the conditions for interference of the light waves.
6. Define population inversion.
7. Brief about total internal reflection.
8. Mention the properties of optical fibre.
9. State Rayleigh-Jean's law.
10. What is de Broglie's matter wave?
11. Define pseudo elasticity in shape memory alloys.
12. List out the applications of bio materials.

PART B (5 X 12 = 60 MARKS)

13.a Arrive at an expression for number of atoms per unit cell, atomic radius and packing factor of simple cubic and body centered cubic cells. (12)

(OR)

b Outline the HCP structure and determine the atomic radius, number of atoms per unit cell and atomic packing factor. (12)

14.a (i) Define piezoelectric effect. (2)

(ii) With a neat illustration, discuss in detail how ultrasonic waves are (10)

produced by using piezo electric oscillator and mention its advantages and disadvantages.

(OR)

b Demonstrate the Lee disc method to determine the thermal conductivity of a bad conductor with suitable theory. (12)

15.a Describe the construction and working of Michelson interferometer with the necessary theory. How can this be used for measuring the wavelength of monochromatic light. (12)

(OR)

b (i) Define pumping mechanism. (2)

(ii) Explain the construction and working of CO_2 gas laser with a neat sketch and mention its applications. (10)

16.a (i) Deduce an expression for acceptance angle and numerical aperture of an optical fiber. (10)

(ii) The refractive index of core and cladding of optical fiber are 1.55 and 1.4 respectively. Determine the acceptance angle of the fiber. (2)

(OR)

b (i) Specify the optical fiber with neat sketch. (2)

(ii) Discuss the various types of optical fibers based on materials, modes of propagation and refractive index profile. (10)

17.a Derive an expression for Planck's quantum theory of black body radiation and hence deduce the Wien's displacement law and Rayleigh-Jean's law. (12)

(OR)

b (i) Write down the significant of black body. (4)

(ii) Express in detail the experiment and energy spectrum of black body with neat sketch (8)

PART C (1 X 16 = 16 MARKS)

18.a Elaborate in detail about the types of metallic glasses, any two method of production, properties and applications. (16)

(OR)

b Give a detailed account of working of shape memory alloys, their types, properties, advantages and applications with necessary diagram. (16)

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11.a A square pyramid of base side 40 mm and axis height 50 mm is mounted centrally on the top of a square slab of side 60 mm and thickness 20 mm. Draw the isometric view of the combined solids. **(15)**

(OR)

b Draw the perspective view of a cube of side 30 mm, when it rests on the ground plane (GP). A vertical face is touching the picture plane (PP) and rest of the solid behind it. The station point is situated at a distance of 60 mm in front of the PP, 60 mm above the GP and lies in the central plane which is 40 mm to the right to the axis of the cube. **(15)**

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GEB 1101

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch	: **B. Tech - (common to all branches except bio-tech)**		
Semester	: **I**	Date & Session	: **06/12/2019 AN**
Course Code & Name	: **GEB 1101 – Engineering Graphics**		
Duration	: **3 Hours**	Maximum Marks	: **100**

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1. Mention the size of A2 drawing sheet.
2. Write the position of components kept at third quadrant.
3. Define trace of a line.
4. A segment of the circle is the lateral surface development of a _____.
5. The isometric view of a sphere is _____ and that of a circle is _____.

PART B (6 X 15= 90 MARKS)

6.a A flower bed in a botanical garden is elliptical in shape. Major and minor axes are 120 mm and 80 mm respectively. Draw the profile of a flower bed. **(15)**

(OR)

b Construct an involute of a circle of diameter 40 mm for one convolution. Draw also the tangent and normal at a point on the involute 75 mm from the center of the circle. **(15)**

7.a Make free hand sketch of front, top and right side view of the object shown in the figure 1. **(15)**

(OR)

b Make free hand sketch of front, top and left side view of the object shown in the figure 2. **(15)**

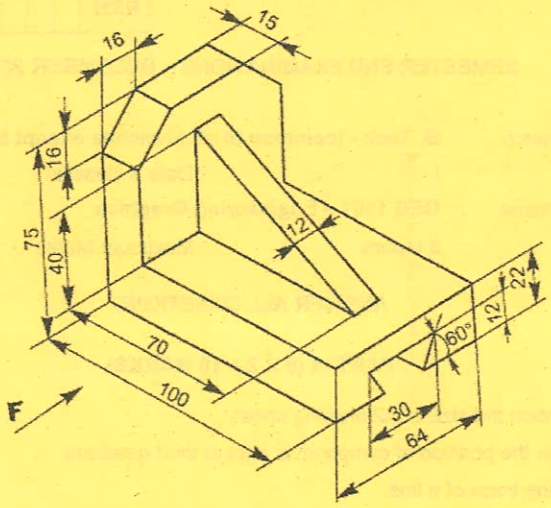

Figure 1

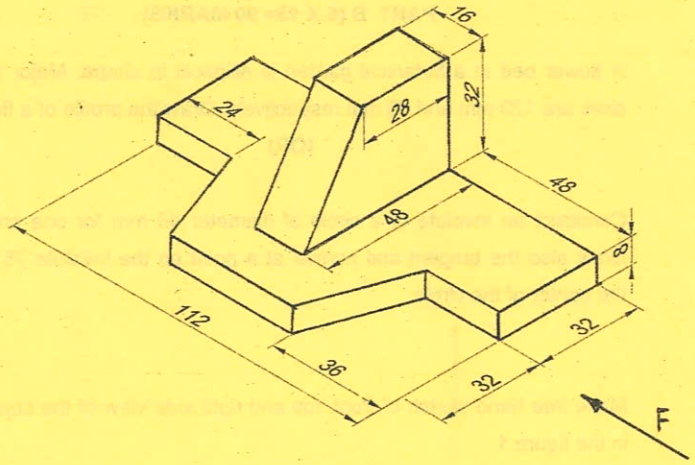

Figure 2.
(All Dimensions are in mm)

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GEB 1101

8.a A line LM 70 mm long has its end L 10 mm above HP and 15 mm in front of VP. The top view and front view measures 60 mm and 40 mm respectively. Draw the projections of the line and determine its inclination with HP and VP. Also mark its traces. **(15)**

(OR)

b A pentagonal plate of side 30 mm is resting on one of its sides in HP and the resting side is inclined at 35° to VP. Its surface of the plate is inclined at 40° to HP. Draw its projections. **(15)**

9.a A cone of base diameter 30 mm and axis length 70 mm is freely suspended by means of a string from one of its base circumference point with its axis parallel to VP. Draw its projections. **(15)**

(OR)

b A hexagonal prism with side of base 25 mm and axis 60 mm long is resting on one of its rectangular faces on HP. Draw the projections of the prism when its axis is inclined at 45° to VP. **(15)**

10.a A cylinder of diameter 50 mm and altitude 60 mm is kept vertically on the ground. It is cut by a plane perpendicular to VP, 30° inclined to HP and bisecting the axis. Draw its sectional plan and true shape of section. **(15)**

(OR)

b A hexagonal prism of side 30 mm and height 60 mm is resting on HP on its base with a rectangular face parallel to VP. It is cut by a plane inclined at 30° to HP, perpendicular to VP and bisecting the axis. Draw the lateral surface development of the truncated prism. **(15)**

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GEC1102

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B.Tech (common to All) / CIVIL / MECH / Poly / EEE / EIE / IT / AERO / AUTO
Semester : I Date & Session : 06/12/2019 AN
Course Code & Name : GEC1102 ENGINEERING DESIGN
Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Give an example for process design and justify.
2. What is the objective of product design?
3. Write any two principles of software design.
4. List the constraints to be considered while designing bicycle for kids.
5. State the importance of need analysis.
6. How technology reduces the manual work in our day-to-day life?
7. Draw the picture of a smart phone that is both aesthetic and ergonomic.
8. Name any two safety product used for rescue operations during natural disaster.
9. Differentiate systematic change and incremental change.
10. What are the ways to drive innovation in engineering design?

PART B (4 X 20 = 80 MARKS)

11.a Describe any one product design methodology followed in the industry with an example. **(20)**

(OR)

b (i) Indicate the factors that affect the process design considering a suitable example. **(10)**

(ii) Write down the basic steps required to design software for any product. **(10)**

12.a	(i)	Teachers are facing health problems due to inhalation of chalk powder while cleaning the black board. Develop new concepts to solve this issue.	(10)
	(ii)	In the end of every academic year our institution produces a large quantity of paper wastes even after preventive measures are taken. Suggest few ideas to reduce the paper consumption.	(10)
		(OR)	
b	(i)	Classify the information required in need analysis for designing a product.	(10)
	(ii)	Prepare a questionnaire to collect the customer requirements for any product of your choice.	(10)
13.a	(i)	Explain the importance of ergonomic design with suitable example.	(10)
	(ii)	Innovation plays a major role for the sustainable growth of an organization. Justify with a real life example.	(10)
		(OR)	
b		Give a case study on the various designs of wristwatches and their incremental changes over the years. Draw neat diagrams.	(20)
14.a	(i)	Design an innovative toothbrush to attract kids. Show simple sketches and justify your concepts.	(10)
	(ii)	Explain the different types of innovation with suitable example.	(10)
		(OR)	
b	(i)	Design and draw a study table to be used in your room. Consider all the necessary requirements of a sophisticated table.	(10)
	(ii)	Design a smart product to help farmer increase the productivity in agriculture.	(10)

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PHC 1182

RRN

SEMESTER END EXAMINATIONS – NOVEMBER 2019

Programme & Branch : B.Tech Common to all Branches
Semester : I Date & Session : 29/11/2019 AN
Course Code & Name : PHC 1182 Physics I
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Define space lattice.
2. Draw the Miller indices for the planes (110) and (111) of cubic system.
3. What is acoustical grating?
4. Determine the depth of a sea if the time interval between the emitted signal and the echo received is 5 second in sonar studies. Assume that velocity of sound in the sea water is 1450 ms^{-1}.
5. Write down the conditions for interference of the light waves.
6. Define population inversion.
7. Brief about total internal reflection.
8. Mention the properties of optical fibre.
9. State Rayleigh-Jean's law.
10. What is de Broglie's matter wave?
11. Define pseudo elasticity in shape memory alloys.
12. List out the applications of bio materials.

PART B (5 X 12 = 60 MARKS)

13.a Arrive at an expression for number of atoms per unit cell, atomic radius and packing factor of simple cubic and body centered cubic cells. (12)

(OR)

b Outline the HCP structure and determine the atomic radius, number of atoms per unit cell and atomic packing factor. (12)

14.a (i) Define piezoelectric effect. (2)

(ii) With a neat illustration, discuss in detail how ultrasonic waves are (10)

produced by using piezo electric oscillator and mention its advantages and disadvantages.

(OR)

b Demonstrate the Lee disc method to determine the thermal conductivity of a bad conductor with suitable theory. (12)

15.a Describe the construction and working of Michelson interferometer with the necessary theory. How can this be used for measuring the wavelength of monochromatic light. (12)

(OR)

b (i) Define pumping mechanism. (2)

(ii) Explain the construction and working of CO_2 gas laser with a neat sketch and mention its applications. (10)

16.a (i) Deduce an expression for acceptance angle and numerical aperture of an optical fiber. (10)

(ii) The refractive index of core and cladding of optical fiber are 1.55 and 1.4 respectively. Determine the acceptance angle of the fiber. (2)

(OR)

b (i) Specify the optical fiber with neat sketch. (2)

(ii) Discuss the various types of optical fibers based on materials, modes of propagation and refractive index profile. (10)

17.a Derive an expression for Planck's quantum theory of black body radiation and hence deduce the Wien's displacement law and Rayleigh-Jean's law. (12)

(OR)

b (i) Write down the significant of black body. (4)

(ii) Express in detail the experiment and energy spectrum of black body with neat sketch (8)

PART C (1 X 16 = 16 MARKS)

18.a Elaborate in detail about the types of metallic glasses, any two method of production, properties and applications. (16)

(OR)

b Give a detailed account of working of shape memory alloys, their types, properties, advantages and applications with necessary diagram. (16)

****

B (i) The standard reduction potentials of different elements are given in the table. Calculate the E_{cell} of any four cells by combining any two pair of electrodes from the list. (8)

Half-cell reaction	Voltage, E*
$K^+ + e \rightarrow K$	-2.93
$Ca^{2+} + 2e \rightarrow Ca$	-2.87
$Na^+ + e \rightarrow Na$	-2.71
$Mg^{2+} + 2e \rightarrow Mg$	-2.37
$Al^{3+} + 3e \rightarrow Al$	-1.66
$Zn^{2+} + 2e \rightarrow Zn$	-0.76
$Fe^{2+} + 2e \rightarrow Fe$	-0.44
$Ni^{2+} + 2e \rightarrow Ni$	-0.25
$Sn^{2+} + 2e \rightarrow Sn$	-0.14
$Pb^{2+} + 2e \rightarrow Pb$	-0.13
$2H^+ + 2e \rightarrow H_2$	-0.00
$Cu^{2+} + 2e \rightarrow Cu$	0.34
$Hg_2^{2+} + 2e \rightarrow 2Hg$	0.79
$Ag^+ + e \rightarrow Ag$	0.80
$Au^{3+} + 3e \rightarrow Au$	1.50

(ii) a) When a substance A is exposed to light, 7×10^{23} molecules reacted by absorbing 3×10^6 photons. Calculate the quantum yield of the reaction. (8)

b) Calculate the energy possessed by the photons with wavelength (a) 0.01 nm (b) 1×10^{13} Å.

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CHC1181

RRN

SEMESTER END EXAMINATIONS - NOVEMBER / DECEMBER 2019

Programme & Branch : B.Tech. R2017 All Branches except Biotech.
R2018 Biotech.

Semester : I | Date & Session : 04.12.2019 AN

Course Code & Name : CHC1181 Chemistry

Duration : 3 Hours | Maximum Marks : 100

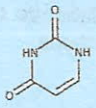
Answer All Questions

Part-A (12 X 2 = 24 Marks)

1. What is the role of ammonia buffer in EDTA titration?
2. Define the term breakpoint chlorination.
3. List out any two limitations of renewable sources of energy.
4. Match the following.

a.	Wind Energy	i.	Thermal Stratification
b.	Nuclear Energy	ii.	Tuticorin
c.	Thermal Energy	iii.	Muppandal
d.	OTEC	iv.	Kalpakkam

5. List out any two advantages of conductometric titrations.
6. What are ion selective electrodes? Give an example.
7. State Grotthus Draper Law.
8. What is meant by singlet state and triplet state?
9. Mention the possible electronic transitions takes place in uracil in the presence of UV light.



10. State Beer Lambert's law.

11. What are nanomaterials?

12. How is nanomaterials classified? Give an example for each.

Part-B (5 X 12 = 60 Marks)

13. A (i) Explain the process of ion-exchange treatment with a neat diagram. Mention the advantages and disadvantages of it. (8)

(ii) Write a short note on priming and foaming in boilers. (4)

(OR)

B (i) Elaborate the process of domestic water treatment with a flowchart. (8)

(ii) Write a brief note on the following in water treatment. (4)
(a) carbonate conditioning (b) calgon conditioning.

14. A (i) Explain the process of biogas production by anerobic digestion of biomass with a neat diagram. (6)

(ii) Describe the principle and working of photovoltaic cell with a diagram. (6)

(OR)

B (i) With a neat diagram, elaborate the components present in a nuclear reactor with its function. (8)

(ii) Write a short note on ocean thermal energy conversion (OTEC). (4)

15. A (i) Explain the determination of hydrochloric acid present in a given solution by conductometric titration. (6)

(ii) With a neat diagram, describe standard hydrogen electrode with its halfcell reaction. (6)

(OR)

B (i) How is the EMF of a cell determined using Poggendorff's compensation principle? (6)

(ii) With a neat diagram, elaborate the construction of Weston cadmium cell and mention the cell reactions. (6)

16. A (i) Describe the hydrothermal process to prepare nanomaterial. (6

(ii) Write a brief note on any three properties of nanomaterials. (6

(OR)

B (i) Discuss the photochemical decomposition of HI and derive its quantum efficiency. (6

(ii) Illustrate photosensitisation and quenching with mechanism. (6

17. A (i) Elaborate the estimation of Fe^{3+} ions present in a solution by colorimeter. (6

(ii) Cytosine has a molar extinction coefficient of 6×10^3 L mol^{-1} cm^{-1} at 270 nm. Calculate the absorbance of 1×10^{-3} M cytosine solution in 1 cm cell. (6

(OR)

B (i) With the principle, explain the process of estimating Na^+ ions present in the given sample of water by flame photometry. (8

(ii) a) Arrange the following in the increasing order of wavelength. (4
Radio wave, IR, UV-Visible

b) What are the changes takesplace in the molecule is irradiated with the above waves/lights?

Part-C (1 X 16 = 16 Marks)

18. A (i) In an estimation of alkalinity in water, 50 ml of a water sample consumed 17.8 ml of N/100 sulphuric acid with phenolphthalein indicator and 23.1 ml of the same acid for methyl orange indicator. Calculate the phenolphthalein and methyl orange alkalinity present in the water sample. (8
Also predict the alkalinity causing ions present in the given water sample.

(ii) Calculate the mass defect and energy released in the following nuclear reactions. (8

Reaction-1 $^{235}_{92}U + ^{1}_{0}n \rightarrow ^{137}_{52}Te + ^{97}_{40}Zr + 2^{1}_{0}n$

Reaction-2 $^{239}_{94}Pu + ^{1}_{0}n \rightarrow ^{137}_{55}Cs + ^{89}_{39}Y + 4^{1}_{0}n$

Exact atomic masses of $^{235}_{92}U$ = 235.04 amu, $^{137}_{52}Te$ = 136.91 amu, $^{97}_{40}Zr$ = 96.91 amu, $^{239}_{94}Pu$ = 239.05 amu, $^{137}_{55}Cs$ = 136.91amu, $^{89}_{39}Y$ = 88.91 amu, $^{1}_{0}n$ = 1.01 amu.

Based on your answer, which is the better nuclear fuel? Why?

(OR)

B.S. Abdur Rahman
Crescent
Institute of Science & Technology
Deemed to be University u/s 3 of the UGC Act, 1956

<MAC 1181>

RRN

SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch : B.Tech Common to all branches except Biotechnology
Semester : I Date & Session : 02/12/2019 AN
Course Code & Name : MAC 1181 Differential Calculus and Geometry
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Find the eigen values of the matrix $\begin{bmatrix} -2 & 2 \\ 2 & 1 \end{bmatrix}$.
2. State Cayley-Hamilton theorem.
3. Find the direction cosines of the line joining the points $(1,-1,3)$ and $(2,3,4)$.
4. Find the equation to the plane through $(1,2,3)$ and parallel to the plane $2x+3y-5z=0$.
5. Find the curvature of the curve $2x^2+2y^2-8x+6=0$.
6. Find the envelope of the family of straight lines $y=mx+am^2$ where m is the parameter.
7. If $x=r\cos\theta,\ y=r\sin\theta, z=z$, find the Jacobian of x,y,z in terms of r,θ,z.
8. Find $\frac{dy}{dx}$ if $x^2+xy+y^2=0$.
9. Find the complementary function of $(D+1)(D-2)y=0$.
10. Find the particular integral of $(D^2-9)=e^{3x}$
11. Write the equivalence relation between electrical and mechanical systems.
12. State the basic assumptions made on bending of beams.

PART B (5 X 12 = 60 MARKS)

13.a Reduce the matrix $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 3 & -1 \\ 0 & -1 & 3 \end{bmatrix}$ to diagonal form by orthogonal transformation. **(12)**

(OR)

b Verify Cayley Hamilton theorem and hence find the inverse of the matrix $\begin{bmatrix}1 & 2 & -1\\ 3 & -3 & 1\\ 2 & 1 & -2\end{bmatrix}$ (12)

14 a (i) Find the equation of the plane through $(2,-1,2)$ and $(1,1,2)$ and perpendicular to the plane $x+2y-z=4$. (6)

(ii) Prove that the line $\frac{(x-4)}{1}=\frac{(y+3)}{-4}=\frac{(z+1)}{7}$ and $\frac{(x-1)}{2}=\frac{(y+1)}{-3}=\frac{(z+10)}{8}$ are coplanar and hence find the point of intersection of the plane containing them. (6)

(OR)

b Find the length and equations of the shortest distance between the lines $\frac{x-3}{3}=\frac{y-8}{-1}=\frac{z-3}{1}$ and $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-6}{4}$. (12)

15 a (i) Find the radius of curvature at the point $\left(\frac{a}{4},\frac{a}{4}\right)$ on the curve $\sqrt{x}+\sqrt{y}=\sqrt{a}$. (8)

(ii) Find the envelope of straight lines $x\cos\theta+y\sin\theta=p$ where θ is the parameter. (4)

(OR)

b Find the evolute of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$. (12)

16.a (i) Expand x^2y+y^3-2 in powers of $(x-1)$ and $(y+2)$ using Taylor's expansion. (8)

(ii) Examine $f(x,y)=x^3+y^3-12x-3y+20$ for its extreme values (4)

(OR)

b A rectangular box open at the top is to have volume of 32 cubic metre. Find the dimensions of the box that requires the least material for its construction. (12)

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17.a (i) Solve: $(D^2-D-20)y=3e^{5x}+x+1$ (8)

(ii) Solve $(D^2+9)y=\cos 3x$ (4)

(OR)

b Solve: $\frac{dx}{dt}+y=e^t$

$\frac{dy}{dt}+x=\cos t$ (12)

PART C (1 X 16 = 16 MARKS)

18.a For a beam loaded and supported in a certain manner, (16)

$$EI\frac{d^2y}{dx^2}=\frac{\omega}{2}\left(\frac{l^2}{2}-x^2\right)-k$$

Where k is an unknown constant. Find y in terms of x given that $\frac{dy}{dx}=0$ When $x=0$ and $x=\frac{l}{2}$ and that $y=0$ when $x=\frac{l}{2}$. Find the value of k.

(OR)

b (i) A condenser of capacity C is charged through an inductance L and a resistance R in series and the charge q at time t satisfies the equation $L\frac{d^2q}{dt^2}+R\frac{dq}{dt}+\frac{q}{C}=0$. Obtain the general solution of 'q' interms of t if $\frac{1}{LC}>\frac{R^2}{4L^2}$. (12)

(ii) Solve: $L\frac{di}{dt}+Ri=E$ with the initial condition $i=0,\ t=0.E$ is a constant. (4)

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MSB 4182
[Students admitted in 2015-2016]

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch : B.Tech (Common to all Branches)
Semester : VII Date & Session : 28/12/2019 AN
Course Code & Name : MSB 4182- Social Entrepreneurship
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. How "Finding his/her flow" is helpful for an entrepreneur?
2. Differentiate Causation and Effectuation.
3. Define customer.
4. What is segmentation?
5. List the five principles used in effectuation.
6. If you create a food product for babies allergic to nuts, it is an example of which marketing strategy? Define.
7. What is positioning?
8. What do you mean by Unique Value Proposition?
9. Differentiate Variable cost and Fixed cost.
10. Identify the market type for the following:
    (i) Red Bus (ii) Uber (iii) Swiggy (iv)PizzaHut
11. Differentiate Blue Ocean and Red Ocean strategy.
12. Mention any four important characteristics of a leader.

PART B (5 X 12 = 60 MARKS)

13.a List the entrepreneurship styles and explain with examples. **(12)**

(OR)

b (i) Kannan is planning to launch his own gaming company. For that, he **(06)**

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MSB 4182
[Students admitted in 2015-2016]

first takes stock of his means and finds out exactly how much he can invest in his venture. He then goes for an in-depth risk analysis to ensure that he gets no unpleasant surprises when he eventually launches his venture. This action of Kannan's contradicts which effectuation principle used by several successful entrepreneurs? Discuss.

(ii) Amudha runs a catering service from home, which is doing well. She now wants to expand her business and rents space in an office neighborhood. Since she cannot afford the rent, she goes looking out for external funding. Which principle of Effectuation is Amudha neglecting here? Discuss. **(06)**

14.a State the five phases of Design thinking and explain. **(12)**

(OR)

b (i) List the types of Market and Explain. **(06)**

(ii) Coca-Cola, the most well-known brand in the world, has always exemplified innovative thinking. Their mark t penetration and sales strategies have been quite unique and awe-inspiring for other budding entrepreneurs. They created a new product by adding some flavoured variants like Cherry-flavoured syrup to resell their product in the market in order to meet customer needs more closely and to outperform market competition. What type of market did Coca-Cola new product enter into? **(06)**

15.a What is Value proposition Canvas (VPC)? With neat illustration, explain VPC. **(12)**

(OR)

b Melvin started an upscale, premium Italian gelato ice-cream café in his neighborhood mall. Due to the high rentals that Melvin had to pay to the mall authorities, the ice-cream prices were high. As a result, not all who came to visit the mall could afford Melvin's ice-creams, among them largely college-goers. Robin, a young entrepreneur in the neighborhood decided to solve this problem. **(12)**
(i) Robin set up a shop adjacent to the mall, designed it to appeal to youngsters, and opted for fans instead of air-conditioners.
(ii) He decided to do away with seating provision.
(iii) Melvin's café served ice-creams in 200ml, 300ml, and 350ml quantities. Robin decided to serve ice-cream in 125ml, 150ml, and

200ml quantities.
Which element of the Four Actions Framework has Robin adopted in the above cases? Explain.

16.a For any new business, startup cost has to be reduced as much as possible. – Comment on the statement with proper explanations. **(12)**

(OR)

b Explain the steps of one to one selling process. **(12)**

17.a Explain the role of Positioning and Branding in any business activity. **(12)**

(OR)

b List any five types of channels available to reach the customers. Also, identify the advantages and drawbacks of them. **(12)**

PART C (1 X 16 = 16 MARKS)

18.a If you are willing to set up an ice cream parlor in our campus, as an entrepreneur analyze the problem and develop a business model. **(16)**

(OR)

b Sarala, a retired school teacher kept her passion of teaching alive by starting a coaching centre to teach Maths for students around her locality at a concessional rate. She started with 9 students in the beginning. In order to reach more students, she created a Facebook page with the same name as her venture, "Maths can be fun" and posted details about her classes. Apart from using Facebook as a social media to create awareness and thereby to attract customers, what else can she do to promote her business and increase enrolments? Discuss in detail. **(16)**

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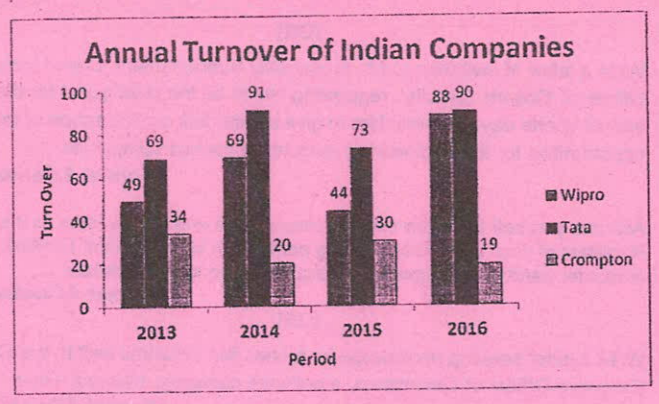
(OR)

(b) The chart given below shows the annual turnover (in Billion rupees) of four Indian companies over a four year period. Interpret the data by comparing the Annual turnover in a paragraph of about 150 words. **(1x12=12)**



17. (a) Write a paragraph in about 200 words on 'Should Students get limited access to the Internet?' **(1x12=12)**

(OR)

(b) Write a paragraph in about 200 words on the statement "Save trees and save lives". **(1x12=12)**

PART C (1 X 16 = 16 MARKS)

18. (A) **(i) Develop the following hints into a readable passage and give a suitable title.** **(1x8=8)**

Better to prevent something disastrous before it happens- students – study daily lessons – work – regularly – avoid scoring less – family - save money – avoid getting into debts – take care of health – avoid disease – save money – rather than spending on medicines.

(ii) Read the passage and answer the questions given below:

A hybrid vehicle is a vehicle which uses two or more kinds of propulsion. Most hybrid vehicles use a conventional gasoline engine as well as an electric motor to provide power to the vehicle. These are usually called hybrid-electric-vehicles, or HEVs. Hybrids use two types of propulsion in order to use gasoline more efficiently than conventional vehicles do. Most hybrid vehicles use the gasoline engine as a generator which sends power to the electric motor. The electric motor then powers the car. In conventional vehicles, the gasoline engine powers the vehicle directly.

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ENB 1181/ENC 1181

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	B.Tech. All Branches & Bio.Tech.			
Semester	:	I	Date & Session	:	27/11/2019. A.N
Course Code & Name	:	ENB 1181/ENC 1181 - English			
Duration	:	3 Hours	Maximum Marks	:	100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. **Fill in the blanks with the correct form of the word by adding a suitable prefix or suffix:** **(4X1/2=2)**
   a. She was sitting .....(comfort) in her seat in the train.
   b. The road was too narrow. So they had to.....(wide) it.
   c. Let us look at this information again. We should ..... (view) it before the test.
   d. I saw Allison just a moment ago, but now I can't find her! It seems that she ..... (appeared).

2. **Write the appropriate tense forms of the words given within brackets:** **(4X1/2=2)**
   a. While she .....(live) in London, she met many friendly people.
   b. We .....(visit) our grant parents every summer.
   c. This month they .....(work) on a new project.
   d. The child .....(suffer) from pneumonia since last week.

3. **Fill in the blanks with suitable prepositions:** **(4X1/2=2)**
   a. The child has been missing ..... yesterday.
   b. An old feud existed .....the two families.
   c. She is good ..... dancing.
   d. ..... Peter and John, there were three other boys present.

4. **Fill in the blanks with suitable connectives:** **(4X1/2=2)**
   (when; than; though; unless; however; because)
   a. He was not punished ..... he was guilty.
   b. You will not get the prize ..... you deserve it.
   c. No sooner did he see the tiger ..... he fainted.
   d. Hardly had he reached the platform ..... the train arrived.

5. **Fill in the blanks with the correct verb given in brackets:** **(4X1/2=2)**
   a. The dog or the cats ..... (is/are) Outside.
   b. George and Tamara..... (doesn't/don't) want to see that movie.
   c. One of my sisters ..... (are/is) going on a trip to France.
   d. The players, as well as the captain .....(want /wants) to win.

6. **Fill in the blanks with appropriate phrasal verbs given in brackets:** **(4X1/2=2)**
(keep up; carried away ; put up with; called off, break out)
a. A friend of mine has ..... her wedding.
b. I got ..... by his enthusiasm.
c. His mother can't ..... his terrible behavior anymore.
d. Your website has helped me a lot to ..... the good work.

7. **Write the correct modal verb in the given blanks:** **(4X1/2=2)**
a. This is impossible, it ..... (may/must) be a mistake!.
b. They .....(could/ought to) have filled the car with petrol before they set off.
c. You .....(may not/ should not) leave your door unlocked when you go out.
d. She .....(should/might) sell her home because she needs money.

8. **Frame suitable questions using "Wh-words":** **(2x1 = 2)**
a) Natasha lives in Miami. b) He lost his phone yesterday.

9. **Choose the appropriate meaning of the idioms as used in the sentences:** **(2x1 = 2)**
i. His arrogant behavior with others has left him **high and dry**.
a) To be very famous. b) Isolated. c) To be penniless.
ii. The chairman of the corporation **plays a second fiddle** to the minister.
a) To be very polite. b) To have a strict control over all.
c) To have a subordinate role.

10. **Fill in the blanks with appropriate 'if clause':** **(2x1 = 2)**
a. If.....,your classmates would understand you.
b. If.....,he would have answered her questions.

11. **Write a slogan in your own words for the products given below:** **(2 x1 = 2)**
a) Pepsi. b) Amazon.

12. **Rewrite the given sentences into impersonal passive voice :** **(2 x1 = 2)**
a. They are constructing a new airport.
b. We should follow traffic rules strictly.

PART B (5 X 12 = 60 MARKS)

13. (a) Write a letter of complaint to the editor of a newspaper about the alarming air pollution in Delhi city. Your letter should suggest suitable solutions to deal with the problem. **(1x12=12)** **(Format-4, Content-8)**

(OR)

(b) Assume that the road in your locality is badly damaged and the people of the entire locality are facing the difficulty to travel. Write a letter to the editor of a newspaper about this issue and suggest suitable solutions to overcome the problem. **(1x12=12)** **(Format-4,Content-8)**

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14. (a) Write a letter of invitation to Mr.Chandrasekaran, the chairman of the Indian Tata Motors, requesting him to inaugurate the Symposium organized by your institute and also give a talk on 'Multinational Automobile Designing and Manufacturing'. Discuss other relevant details. **(1x12=12)** **(Format-4,Content-8)**

(OR)

(b) Write a letter of invitation to Mr. Ganapathy Subramaniam, Chief Executive Officer of 'Cosmic Circuits', requesting him to be the chief guest for the annual sports day. Request him to give a short talk on 'the scope of job opportunities for the engineering students in various companies'. **(1x12=12)** **(Format 4,Content-8)**

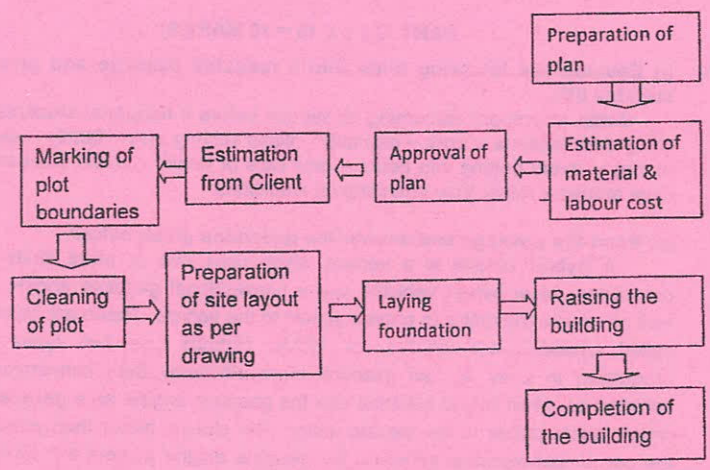
15. (a) Assume yourself to be the class representative and draft a letter to the Registrar of your University seeking permission to visit Cyient Limited, a computer hardware company, Hyderabad. Give relevant details. **(1x12=12)** **(Format-4,Content-8)**

(OR)

(b) Write a letter seeking permission for a one- day industrial visit to the Chief Executive Officer of Datamatics, a software company, Mumbai. Give reasons for your visit. **(1x12=12)** **(Format-4,Content-8)**

16. (a) The following flowchart presents the process of constructing a residential building. Write a paragraph of about 150 words explaining the process using appropriate sequence words: **(1x12=12)**

Residential Building Construction



b) **State whether the following statements are true or false:** **(4x1=4)**

i. A hybrid vehicle is a vehicle which uses two or more kinds of propulsion.
ii. In regenerative braking systems, the energy lost in braking is sent back into the electrical battery for use in powering the vehicle.
iii. When the vehicle is put back in gear, the engine comes back on.
iv. To properly dispose the battery in a hybrid car, substantial effort is not essential.

(OR)

(B) **(i) Develop the following hints into a readable passage and give a suitable title.** **(1x8=8)**

Choosing a dream job – career guidance – who should select – parent – teacher – relatives – neighbours or the person himself – course choice leading to career choice – machines – matter or men – maths- a science and arts – make career pleasure.

ii) Read the passage and answer the questions given below:

The United States Postal Service (also known as USPS, the Post Office, informally as the P.O., or the U.S. Mail) is the third largest employer in the United States, after the Department of Defense and Wal–Mart. It employs over 785,000 workers in over 14,000 U.S. postal facilities.

The Postal Service has certainly grown and changed since 1775 when the first Postmaster General – Benjamin Franklin – was named to head the Post Office Department, the forerunner of the current USPS. At that time, members of the Second Continental Congress agreed that the Postmaster General headquarters, or most important offices, would be stationed in Philadelphia, and that the Postmaster would be paid $1,000 a year for his or her service.

As the country grew westward, it became necessary for the railroad system to carry the mail. The Railway Mail Service (RMS) was initiated in 1862. The RMS workers sorted mail on the train, and became some of the fastest workers in the system. They sorted about 600 pieces of mail per hour. All the mail had to be sorted before the train reached the first stop, since some of the mail was destined for that first stop on the route.

By 1918, the Post office took over air mail from the U.S. Army. The first airplanes used in U.S. air mail were surplus planes from World War I. The Post Office started with only four pilots flying these leftover planes in August 1 918, but by the end of that year, the Post Office had hired 36 more pilots. By 1920, over 49 million air mail letters had been delivered.

The Post Office has used alternate methods of transmission during its history. It owned and operated the first telegraph lines from 1884 to 1887 – when the lines were privatized. It utilized "V– Mail" (Victory Mail) during World War II when U.S. military mail was put on microfilm in the U.S. and printed near its destination, in order to save space on military transport. During the 1980s, Electronic Computer Originated Mail, called ECOM, was

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used for some bulk mailings. Computer generated mail was printed near its destination, and bore a blue ECOM logo on its special envelopes.

In 1970, the Postal Reorganization Act, signed by President Richard Nixon, replaced the Post Office Department (a Cabinet–level department) with the independent US Postal Service.

The independent US Postal Service has streamlined its workload and modernized operations. Today's multi–line optical character readers (MLOCRs) can read the entire address on an envelope, print a barcode on the envelope, and sort the mail at the rate of nine letters per second.

(a) Choose the correct answer from the options given below: **(4x1=4)**

i. What is another name for the United States Post Office?
a)The P.O b) The U.S.A. Mail c) The Ministry of Mail
d) The Mail Department

ii. How much did Benjamin Franklin earn as Postmaster General?
a) $100 per year b) $500 per year c) $1000 per year
d) $14,000 per year

iii. What technological innovation did the Post Office use during World War II?
a) Telegraph lines b) Surplus airplanes c) Mail on microfilm
d) Computer–originated mail

iv. When was the Post Office removed from the Executive Cabinet?
a)1847 b) 1918 c) 1920 d) 1970

(b) State whether the following statements are true or false: **(4x1=4)**

i. United States Postal Service employs over 785,000 workers in over 14,000 U.S. postal facilities.
ii. The Railway Mail Service (RMS) was initiated in 1860.
iii. The first airplanes used in U.S. air mail were surplus planes from World War I.
iv. The Independent US postal service has made the postal system simpler and effective.

Since the main purpose of using a hybrid system is to efficiently use resources, most hybrid vehicles also use other efficient systems. Most hybrid vehicles have regenerative braking systems. In conventional vehicles, the gasoline engine powers the brakes, and the energy used in braking is lost. In regenerative braking systems, the energy lost in braking is sent back into the electrical battery for use in powering the vehicle. Some hybrid vehicles use periodic engine shutoff as a gas–saving feature. When the vehicle is in idle, the engine temporarily turns off. When the vehicle is put back in gear, the engine comes back on. Some hybrids use tires made of a stiff material which rolls easily and prevents drag on the vehicle.

Although hybrid vehicles do represent a marked improvement in environmentally conscious engineering, there still remains one significant potential drawback: battery disposal. Batteries are difficult to dispose of in an environmentally safe manner. To properly dispose of the battery in a hybrid car requires substantial effort. If the battery is not disposed of properly, the environmental impact of a hybrid car can be equal, if not greater than, that of a regular gas only car. Since hybrid vehicles use less gasoline than conventional vehicles, they put fewer emissions into the atmosphere than conventional vehicles do. As hybrids become more popular, conventional vehicles are being used less, and the level of emissions being put into the air is decreasing. Hybrid vehicles are an example of an energy-efficient technology that is good for both consumers and the environment.

(a) Choose the suitable answers from the given options: **(4x1=4)**

i. According to the passage, which of the following statements is/are true?
i) Two braking systems are used in most hybrid vehicles.
ii) Approximately 30% of vehicles on the road are hybrid vehicles.
ii)Some HEVs have engines which turn off when the vehicle is not moving.
a) I only b) II only c) III only d) I and II only

ii. According to the passage, HEVs use two types of propulsion mainly in order to
a) go faster b) use gasoline efficiently c) provide a comfortable ride
d) provide a safe driving experience.

iii. In line 9, **regenerative** most closely means
a) electric b) gasoline c) powerful d) restorative

iv. Hybrid vehicles are an example of an energy-efficient technology that is good
a) for both consumers and the environment b) the environment
c) the consumers d) none of the above.

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LNC 1182

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch : B.Tech –(Common to all departments except Civil)

Semester : I Date & Session : 27/11/2019 AN

Course Code & Name : **LNC 1182 German**

Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Write any 4 Feminine Noun in German with their English Meanings
2. Write any 4 Masculine Noun in German with their English Meanings
3. Write any 4 Neutral Noun in German with their English Meanings
4. Write any 4 Plural Noun in German with their English Meanings
5. Write the English meaning for the following German verbs
   1.Wohnen 2.Spielen 3.Brauchen 4.Suchen
6. Write the English meaning for the following German Adjectives
   1.Schwarz 2.Dunkel 3.Lachen 4.Leben
7. Write any 4 Directions in German with their English Meanings
8. Write the English meaning for the following German Prepositions
   1.Um 2.Am
9. Write any 4 Questions words in German with their English Meanings
10. Write any 4 Greetings in German with their English Meanings
11. Write English meaning for the following German Pronouns
    1.Ich. 2.Sie 3.Wir 4.Er,Sie,Es
12. Write any 4 Irregular verbs in German with their English Meanings

PART B (5 X 12 = 60 MARKS)

13.a. (i) Introduce yourself and Your Family in German **(12)**

(OR)

b. (i) Write the German equivalent Number in word format for the following Numbers **(12)**
1.3 ,2.7,3.8,4.18,5.40,6.100,7.121,8.140,9.172,10.188,11.194,12.200

14.a. (i) Write any 3 Months,weekdays,Daytimings and Seasons in German **(12)**

(OR)

b.. (i) Translate the following paragraph into German **(12)**
Hello,Good Morning.My Name is Faizal.How are you? I am fine.
I am studying Mechanical engineering in Crescent Uniiversity in Chennai. Where are you Studying?. I am learning German, Arbic,Urdu,Tamil and English in my University. I like German language and Crescent university .I am coming from Delhi.and where are you coming from? Thank You.

15.a (i) Conjugate the Following German Regular verbs in present tense in German **(12)**
1.Machen 2.Singen 3.Sagen 4.Studieren

(OR)

b. (i) Conjugate the Following German irregular verbs in present tense in German **(12)**
1.Lesen 2.Werden 3.Haben 4.Sein

16.a (i) Fill in the Blanks with the Suitable German Prepositions **(12)**
1._____ 2017 , 2._____ April, 3.____ Montag, 4.____ 7 Uhr
5._____ Chennai 6._____ Winter, 7.___ Abend 8.____ Sommer
9._____ Freitag ,10.____ Delhi ,11.___ Elf Uhr ,12.___ 2000

(OR)

b. (i) German Registration Form Filling. **(12)**
You would like to Join German Language Course (Course Code CRE20GER1) in Crescent University. Please Understand the German registration Form Columns .Fill the answers in English
Crescent University.

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German language Course Registration Form

1.Name. : _____. 5.Adresse : _____
2.Vater Name : _____. 6.Handy Nummer: _____
3.Geburtstag: _____. 7.Alter : _____
4.Abteilung : _____. 8.KursNummer: _____

17.a (i) Write the Opposite word for the following German Adjectives **(12)**
1.Langweilig × _____, 2.Modisch × _____, 3.Hubsch× _____
4.Lieben × _____ ,5.Heiraten × _____,6.Geben × _____

(OR)

b. (i) Write the Opposite word for the following German Adjectives **(12)**
1.Kalt × _____ ,2.Trocken × _____,3.Finden × _____,
4.Sitzen × _____, 5.Schreien × _____, 6.Leben ×_____.

PART C (1 X 16 = 16 MARKS)

18.a (i) 1.Was ist dein Name? **(16)**
2.Ist Crescent University in Vandalur,Chennai?
3.Wo Studieren Sie?
4.Hat einen Aufzug BSBLOCK?
5.Was sind deine Hobbies?
6.Ist Zimmernummer BS206 in LSBlock?
7.Was ist deine Handy Nummer ?
8.Woher Kommst du?

(OR)

b. (i) Write any 8 Family Members in German. **(8)**

(ii) 1.Was ist deine Mutter Name? **(8)**
2.Wo ist Mech B Klassenzimmer?
3.Wie geht es dir?
4.Wo wohnst du?

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GEC 1101

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	**B.Tech (Civil, Mech, Poly, EEE, E&I, IT, Aero & Auto)**		
Semester	:	I	Date & Session	: 07/12/2019 & AN
Course Code & Name	:	GEC1101 – Engineering Graphics		
Duration	:	3 Hours	Maximum Marks	: 100

(All Dimensions are in mm)

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1 What is hypocycloid?

2 Trace of a circular lamina is always a ----------.

3 Draw the projections of a point 'B' which is 10 mm in front of VP and 20 mm below HP.

4 A cone is obtained by revolving a ----------.

5 What is the difference between isometric projection and isometric view?

PART B (6 X 15 = 90 MARKS)

6.A. Construct a parabola which has the distance between directrix and vertex as 15 mm. Also draw a tangent and normal at any point on the parabola. **(15)**

(OR)

B. A cycle wheel of 1 m diameter rolls on a straight line without slipping. Trace the locus of point P on the circumference of the wheel which is rolling for one complete revolution. Draw tangent and normal at any point on the curve. Use appropriate scale. **(15)**

7.A. Make free hand sketch of front, top and left side view of the object shown in figure 1. **(15)**

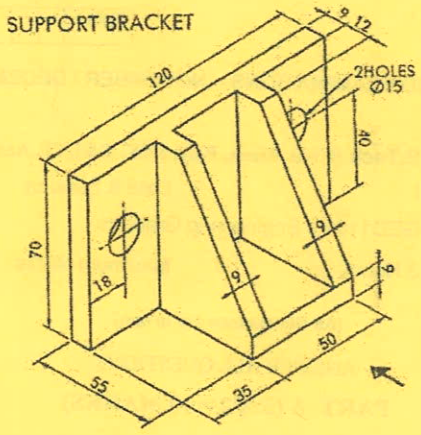

Figure 1

(OR)

B. Make free hand sketch of front, top and left side view of the object shown in the figure 2. **(15)**

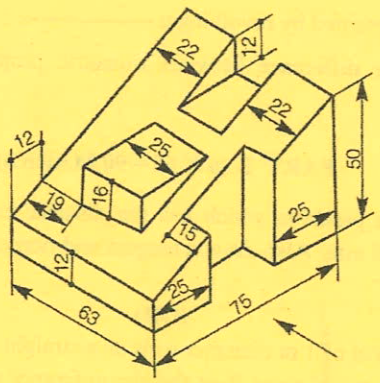

Figure 2

8.A. The mid-point M of a straight line AB is 60 mm above HP and 50 mm in front of VP. The line measures 80 mm and inclined at an angle of 30° to HP and 45° to VP. Draw its projections. **(15)**

(OR)

B. A rectangular plate of size 50 mm × 25 mm is resting on its shorter side on HP and inclined at 30° to VP. Its surface is inclined at 60° to HP. Draw its projections. **(15)**

9.A. A pentagonal pyramid of base side 30 mm and axis height 60 mm is resting on HP with one of its base sides. Draw its projections when the axis of the solid is inclined at 40° to HP and parallel to VP. **(15)**

(OR)

B. A cylinder of base diameter 50 mm and axis 70 mm long is resting on HP with one of its generators in such a way that the axis is inclined at 40° to VP. Draw its projections. **(15)**

10.A. A hexagonal pyramid, side of base 30 mm and height 65 mm is resting on its base on HP with a base edge parallel to VP. It is cut by a plane perpendicular to VP, inclined at 45° to HP and intersects the axis at a point 25 mm above the base. Draw the sectional top view and true shape of the section. **(15)**

(OR)

B. A vertical chimney of 400 mm diameter joins a roof of an industry, sloping at 35° with the horizontal. The shortest portion over the roof is 500 mm. Obtain the shape of the sheet metal from which the chimney can be fabricated. Use appropriate scale. **(15)**

11.A. Draw the isometric view of a hopper which is in the form of a frustum of a cone having a base diameter 400 mm and top base diameter 600 mm. The height of the hopper is 600 mm. Use scale 1:10. **(15)**

(OR)

B. Draw the perspective view of a cube of 40 mm side rests on ground plane (GP) on a face such that a vertical face is parallel to, 10 mm infront of the picture plane (PP) and rest of the cube behind it. The station point is 40 mm in front of the PP, 50 mm above the GP and lies in the central plane which is 65 mm to the right of the center of the cube. **(15)**

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<MAC 1181>

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch : B.Tech Common to all branches except Biotechnology
Semester : I Date & Session : 02/12/2019 AN
Course Code & Name : MAC 1181 Differential Calculus and Geometry
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1 Find the eigen values of the matrix $\begin{bmatrix} -2 & 2 \\ 2 & 1 \end{bmatrix}$.

2 State Cayley-Hamilton theorem.

3 Find the direction cosines of the line joining the points $(1,-1,3)$ and $(2,3,4)$.

4 Find the equation to the plane through $(1,2,3)$ and parallel to the plane $2x+3y-5z=0$.

5 Find the curvature of the curve $2x^2+2y^2-8x+6=0$.

6 Find the envelope of the family of straight lines $y=mx+am^2$ where m is the parameter.

7 If $x=r\cos\theta$, $y=r\sin\theta, z=z$, find the Jacobian of x,y,z in terms of r,θ,z.

8 Find $\frac{dy}{dx}$ if $x^2+xy+y^2=0$.

9 Find the complementary function of $(D+1)(D-2)y=0$.

10 Find the particular integral of $(D^2-9)=e^{3x}$

11 Write the equivalence relation between electrical and mechanical systems.

12 State the basic assumptions made on bending of beams.

PART B (5 X 12 = 60 MARKS)

13 a Reduce the matrix $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 3 & -1 \\ 0 & -1 & 3 \end{bmatrix}$ to diagonal form by orthogonal transformation. **(12)**

(OR)

b Verify Cayley Hamilton theorem and hence find the inverse of the matrix $\begin{bmatrix}1 & 2 & -1\\3 & -3 & 1\\2 & 1 & -2\end{bmatrix}$ (12)

14 a (i) Find the equation of the plane through $(2,-1,2)$ and $(1,1,2)$ and perpendicular to the plane $x+2y-z=4$. (6)

(ii) Prove that the line $\frac{(x-4)}{1}=\frac{(y+3)}{-4}=\frac{(z+1)}{7}$ and $\frac{(x-1)}{2}=\frac{(y+1)}{-3}=\frac{(z+10)}{8}$ are coplanar and hence find the point of intersection of the plane containing them. (6)

(OR)

b Find the length and equations of the shortest distance between the lines $\frac{x-3}{3}=\frac{y-8}{-1}=\frac{z-3}{1}$ and $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-6}{4}$. (12)

15 a (i) Find the radius of curvature at the point $\left(\frac{a}{4},\frac{a}{4}\right)$ on the curve $\sqrt{x}+\sqrt{y}=\sqrt{a}$. (8)

(ii) Find the envelope of straight lines $xcos\theta+ysin\theta=p$ where θ is the parameter. (4)

(OR)

b Find the evolute of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$. (12)

16 a (i) Expand x^2y+y^3-2 in powers of $(x-1)$ and $(y+2)$ using Taylor's expansion. (8)

(ii) Examine $f(x,y)=x^3+y^3-12x-3y+20$ for its extreme values (4)

(OR)

b A rectangular box open at the top is to have volume of 32 cubic metre. Find the dimensions of the box that requires the least material for its construction. (12)

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17 a (i) Solve: $(D^2-D-20)y=3e^{5x}+x+1$ (8)

(ii) Solve $(D^2+9)y=cos3x$ (4)

(OR)

b Solve: $\frac{dx}{dt}+y=e^t$
$\frac{dy}{dt}+x=cost$ (12)

PART C (1 X 16 = 16 MARKS)

18 a For a beam loaded and supported in a certain manner, (16)

$$EI\frac{d^2y}{dx^2}=\frac{\omega}{2}\left(\frac{l^2}{2}-x^2\right)-k$$

Where k is an unknown constant. Find y in terms of x given that $\frac{dy}{dx}=0$ When $x=0$ and $x=\frac{l}{2}$ and that $y=0$ when $x=\frac{l}{2}$. Find the value of k.

(OR)

b (i) A condenser of capacity C is charged through an inductance L and a resistance R in series and the charge q at time t satisfies the equation $L\frac{d^2q}{dt^2}+R\frac{dq}{dt}+\frac{q}{C}=0$. Obtain the general solution of 'q' interms of t if $\frac{1}{LC}>\frac{R^2}{4L^2}$. (12)

(ii) Solve: $L\frac{di}{dt}+Ri=E$ with the initial condition $i=0,\ t=0$. E is a constant. (4)

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PHCX 01

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B.Tech. (Common for Mech, Aero & Auto)
Semester : II Date & Session : 16/12/2019 FN
Course Code & Name : PHCX 01 Fundamentals of Engineering Materials
Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Define Fermi energy.
2. What is an extrinsic semiconductor?
3. Write down the expression for the electrical conductivity of extrinsic semiconductor.
4. Define dielectric constant.
5. How does the orientational polarization vary with temperature?
6. Define the magnetic susceptibility.
7. Draw the spin alignment of ferromagnetic and antiferromagnetic materials.
8. What are soft magnetic materials?
9. List out the properties of nanomaterials.
10. Mention four uses of nanomaterials.

PART B (4 X 20 = 80 MARKS)

11.a Based on Fermi-Dirac distribution function, deduce an expression for the density of energy states and hence obtain the expression for the carrier concentration at 0 K. **(20)**

(OR)

b (i) Illustrate the n-type and p-type semiconductors with suitable diagrams. **(6)**

(ii) Arrive at the expression for the Fermi level and carrier concentration of n-type semiconductor. **(14)**

12.a	(i)	Derive the expression for local field in dielectric materials based on Lorentz method and hence deduce the Clausius –Mossotti equation.	**(16)**
	(ii)	If the polarizability of oxygen atoms in air is 9.7 X 10^{-41} C-m^2 / V, find the average distance of the center of negative charge cloud from the nucleus.	**(4)**
		(OR)	
b	(i)	What are the characteristics of good dielectric materials?	**(4)**
	(ii)	Explain in detail about the various mechanisms of dielectric breakdown.	**(16)**
13.a	(i)	Illustrate about the dia, para and ferromagnetic materials in detail with necessary diagrams.	**(12)**
	(ii)	Distinguish between antiferromagnetism and ferrimagnetism.	**(8)**
		(OR)	
b	(i)	Explain about crystal anisotropy energy and magnetostriction energy.	**(8)**
	(ii)	Draw the ferromagnetic hysteresis loop and explain about the loop on the basis of domain theory.	**(12)**
14.a	(i)	Elucidate the size dependent properties of nanomaterials in detail.	**(14)**
	(ii)	Explain about the 2D, 1D and 0D nanostructured materials with necessary diagrams.	**(6)**
		(OR)	
b	(i)	Explain the types and properties of CNT.	**(14)**
	(ii)	Elaborate the applications of CNT.	**(6)**

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GEC1212

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : All branches (except biotech)
Semester : II Date & Session : 30/12/2019 & FN
Course Code & Name : GEC1212 & Environmental Studies
Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. What is organic farming?
2. List any two ecological benefits of forests.
3. Define soil erosion.
4. What is meant by hot-spots of biodiversity? Give an example.
5. Give two examples for each of the following:
   (a) endangered species (b) extinct species
6. Classify ecosystem.
7. Point out any two causes of marine pollution.
8. List any two ill-effects of fireworks.
9. Give any two examples of chemicals added in packed foods that lead to health risks like cancer to human health.
10. Mention any two objectives of women welfare programme.

PART B (4 X 20 = 80 MARKS)

11.a (i) Explain the various causes and effects of deforestation. Mention different ways to prevent deforestation. **(10)**

(ii) Describe the various effects on over utilization of surface and ground water. Describe the different strategies used for water conservation. **(10)**

(OR)

b (i) Enumerate on the various environmental effects due to modern agriculture. **(10)**

(ii) Discuss the benefits and problems associated in the construction of dams. **(10)**

12.a (i) Describe the characteristic features, structure and functions of the following ecosystem: (a) Forest ecosystem and (b) Ocean ecosystem **(10)**

(ii) What is ecological succession? Discuss the various stages involved in the process of ecological succession. **(10)**

(OR)

b (i) Explain any four methods of conservation of biodiversity with relevant examples for each. Comment on the advantages of *in-situ* method of conservation over *ex-situ* method of conservation. **(10)**

(ii) Discuss in detail on the various threats like habitat loss, man-wildlife conflicts and poaching for the loss of biodiversity in an ecosystem. **(10)**

13.a (i) Explain the sources and effects of different air pollutants. Mention few ways to prevent these pollutants in air. **(10)**

(ii) Define thermal pollution. Illustrate the methods adopted by the power plants to prevent thermal pollution. **(10)**

(OR)

b (i) Explain the causes, effects and control measures of noise pollution. **(10)**

(ii) With a flow chart, explain the steps involved in urban solid waste management and discuss briefly on any two disposal methods. **(10)**

14.a (i) What is flood? Enunciate its causes, effects and the preventive measures to be taken to mitigate the disaster. **(10)**

(ii) Explain the salient features of the following: **(10)**
(a) water-borne diseases (b) human rights

(OR)

b (i) Discuss the variation of population based on age structure. **(10)**

(ii) What is meant by sustainable development? Explain various approaches adopted for bringing sustainable development in a nation. **(10)**

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MAB1282

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SEMESTER END EXAMINATIONS - NOVEMBER / DECEMBER 2019

Programme & Branch : B.Tech (Common to All Branches Except Bio-Tech)
Semester : II Date & Session : 14/12/2019 FN
Course Code & Name : MAB 1282 – Advanced Calculus
Duration : 90 minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Sketch roughly the region of integration for $\int_0^1 \int_{\sqrt{y}}^{y} f(x,y)dxdy$.
2. Evaluate $\int_1^b \int_1^a \frac{dxdy}{xy}$.
3. Find the limits for the integral $\iiint f(x,y,z)\,dx\,dy\,dz$ over the first octant of the sphere $x^2+y^2+z^2=1$.
4. Evaluate $\int_0^1 \int_0^1 \int_0^1 e^{x+y+z}\,dx\,dy\,dz$.
5. If $\vec{F}=x^2\hat{i}+xy^2\hat{j}$, evaluate the line integral $\int \vec{F}.\overline{dr}$ from $(0,0)$ to $(1,1)$ along the path $y=x$.
6. If $\vec{F}=curl\vec{A}$, then prove that $\iint_S \vec{F}.\overline{ds}=0$.
7. Verify whether the function $f(z)=\bar{z}$ is analytic or not.
8. Find the critical points of the transformation $w^2=(z-\alpha)(z-\beta)$.
9. Evaluate $\int_C \frac{z-1}{(z+1)^2}dz$, where C is $|z+2|=1$.
10. Find the residue of the function $f(z)=\frac{1}{(z-1)^2}-\frac{3}{z}+5(z+1)^2$ at a simple pole.

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MAB1282

11. Write the complete integral of the partial differential equation $z=px+qy-\sqrt{pq}$, where $p=\frac{\partial z}{\partial x}$ & $q=\frac{\partial z}{\partial y}$.
12. Solve $\left(D^2+5DD'+6D'^2\right)z=0$.

PART B (5 X 12 = 60 MARKS)

13.a (i) Evaluate $\int_0^{2\pi} \int_2^{4\sin\theta} 2r\,dr\,d\theta$. (4)

(ii) Change the order of integration $\int_0^{\infty} \int_x^{\infty} \frac{e^{-y}}{y}dydx$ and hence evaluate (8)

(OR)

b Find the area included between the parabolas $y^2=4ax$ and $x^2=4ay$. (12)

14.a Find the volume of the tetrahedron included between the positive coordinate planes and $x+y+z=1$. (12)

(OR)

b Evaluate the double integral $\iint_R x^p y^q\,dx\,dy$ by using beta and gamma functions, where R is the region bounded by $x=0$, $y=0$ and $x+y=1$. (12)

15.a Show that the function $v=(x-y)(x^2+4xy+y^2)$ is harmonic and find the corresponding analytic function $f(z)=u+iv$. (12)

(OR)

b Find the bilinear transformation, which maps the points $-1, 0, 1$ of z-plane into the points $1, -1, \infty$ of w-plane. Also, find the invariant points. (12)

16.a (i) Obtain the Taylor's series expansion for $\frac{1}{(z+2)(z+3)}$ in the region $|z|<2$. (6)

(ii) Using Cauchy integral formula evaluate $\int_C \frac{z}{(z-1)(z-2)^2}dz$, where $C:|z-2|=\frac{1}{2}$. (6)

(OR)

b By contour integration evaluate $\int_{-\infty}^{\infty} \frac{dx}{(x^2+1)(x^2+4)}$. (12)

17.a (i) By eliminating the arbitrary constants a, b form the partial differential equation from the relation $z=(x^2+a)(y^2+b)$. (6)

(ii) Solve $(3z-4y)p+(4x-2z)q=2y-3x$, where $p=\frac{\partial z}{\partial x}$ & $q=\frac{\partial z}{\partial y}$. (6)

(OR)

b Solve $\frac{\partial^2 z}{\partial x^2}-4\frac{\partial^2 z}{\partial x \partial y}+4\frac{\partial^2 z}{\partial y^2}=e^{x-2y}+\sin(2x-y)$. (12)

PART C (1 X 16 = 16 MARKS)

18.a Verify the Gauss divergence theorem for $\vec{F}=4xz\hat{i}-y^2\hat{j}+yz\hat{k}$ taken over the cube bounded by $x=0, x=1, y=0, y=1, z=0$ and $z=1$. (16)

(OR)

b. Verify the Stoke's theorem for $\vec{F}=(x^2+y^2)\hat{i}-2xy\hat{j}$ taken around the rectangle bounded by the lines $x=\pm a, y=0$ and $y=b$. (16)

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GE107

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SEMESTER END EXAMINATIONS – DECEMBER 2019

(Assume any missing data suitably)

Programme & Branch : **B.Tech (common to all branches except bio-tech)**

Semester : **II** Date : **16.12.19 FN**

Course Code & Name : **GE 107 – Engineering Mechanics**

Duration : **3 Hours** Maximum Marks : **100**

ANSWER ALL QUESTIONS

PART- A (8 X 2 = 16 MARKS)

1. State the Newton's law of gravitation.
2. A force F= 5i+6j+4k (N) passes through a point which has a position vector r = -2i+3j+4k (m). What is the moment of the force about the origin?
3. Represent a fixed support with its reactions.
4. Give an example for a uniformly varying load and uniformly distributed load.
5. Write the parallel axis theorem.
6. Define friction angle.
7. What is central impact?
8. The motion of the particle is defined by the relation $s = 2t^3 - 3t^2 - 8$, where's' is expressed in meters and 't' is in seconds. Determine the acceleration when t = 3s.

PART- B (6 X 14 = 84 MARKS)

12. A (i) Determine the resultant of the three forces shown in figure 1. **(7)**

(ii) The members of a truss are pin connected at joint *O* .Determine the magnitude of F_1 and its angle θ for equilibrium as shown in figure 2. Set F_2 = 6 kN.

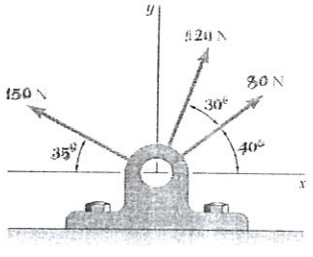

Figure 1

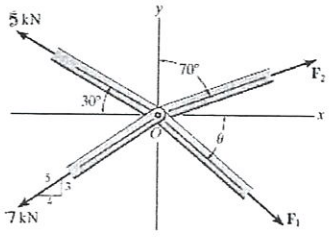

Figure 2

(7)

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GE107

(OR)

12.B (ii) Determine the tension in cables *AB*, *BC*, and *CD* necessary to support the 10-kg and 15-kg traffic lights at *B* and *C* respectively as shown in figure 3. Also, find the angle θ.

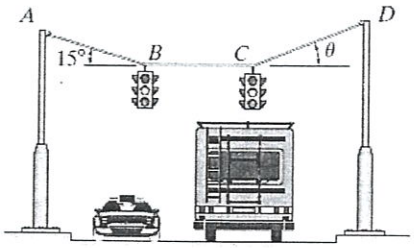


Figure 3 **(14)**

13. A Three cables are used to tether a balloon as shown in figure 4. Determine the vertical force P exerted by the balloon at A knowing that the tension in cable AD is 481 N. **(14)**

(OR)

B A crate is supported by three cables as shown in figure 5. Determine the weight of the crate knowing that the tension in cable AB is 750 N.

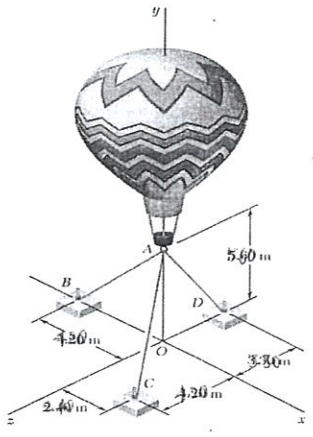


Figure. 4

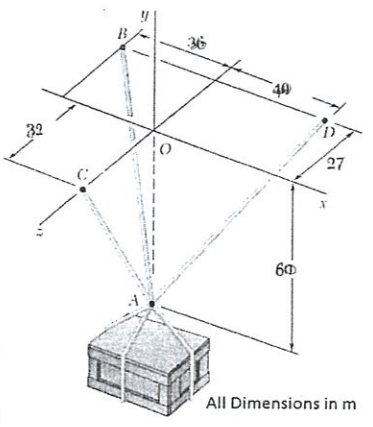
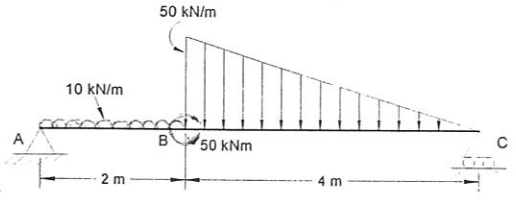


Figure. 5 **(14)**

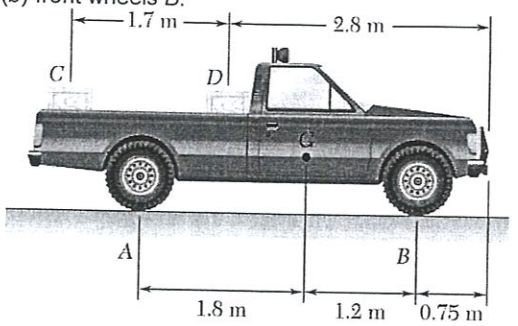
14.A Find the reactions at support A and C for the beam shown in the figure.



(14)

(OR)

14.B Two crates, each of mass 350 kg, are placed as shown in the bed of a 1400-kg pickup truck. Determine the reactions at each of the two (*a*) rear wheels *A*, (*b*) front wheels *B*.



(14)

15.A Find the centroid for the composite area shown in the figure 6. (14)

(OR)

B Find the moment of inertia about the centroidal axes for the section shown in the figure 7.

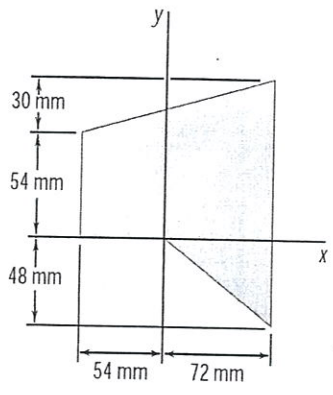


Figure 6

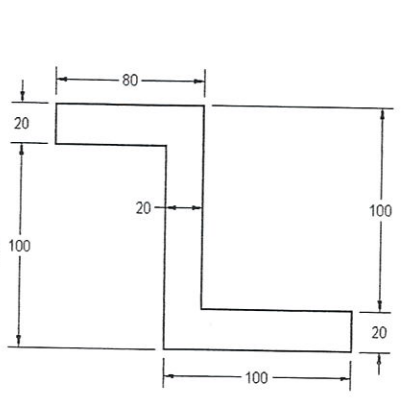
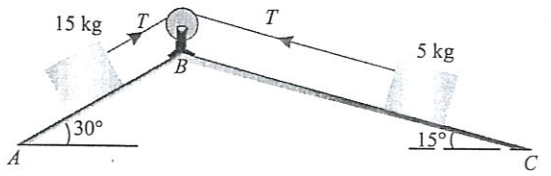


Figure 7

(14)

16.A Two rough planes inclined at 30° and 15° to the horizontal and of the same height are placed back to back. Two bodies of masses of 15 kg and 5 kg are placed on the faces and connected by a string over the top of the planes If the coefficient of friction be 0.3 find from fundamentals the resulting acceleration.



(14)

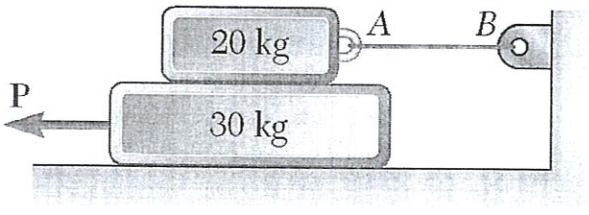
(OR)

16.B Three balls A,B and C masses 12.5 kg, 25 kg and 50 kg respectively move along the same straight line and in the same directions with velocities of 16 m/s, 4 m/s and 3 m/s. If 'A' collides with 'B' and subsequently 'B' collides with C, find the final velocities. Assume perfectly elastic impacts. (14)

17.A A ladder 5 m long and of 250 N weight is placed against a vertical wall in a position where its inclination to the vertical is 30°. A man weighing 800 N climbs the ladder. At what position will be inducing slipping, when the co-efficient of friction for both the contact surfaces of the ladder with the wall and floor is 0.2. (14)

(OR)

B The coefficient of friction is 0.40 between all surfaces of contact. Determine the smallest force 'P' required to start the 30-kg block moving if cable *AB* (*a*) is attached as shown in figure.



(14)

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Deemed to be University u/s 3 of the UGC Act, 1956
GST Road, Vandalur, Chennai-600 048

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : **B. Tech. Common to AERO, CSE, EEE, ECE & IT**
Semester : **II** Date & Session : **19/12/2019 FN**
Course Code & Name : **PHB 1283 - PHYSICS OF ENGINEERING MATERIALS**
Duration : **3 Hours** Maximum Marks : **100**

ANSWER ALL QUESTIONS

PART- A (12 X 2 = 24 MARKS)

1 Define electrical conductivity.
2 Give any two drawbacks of classical theory.
3 Distinguish between elemental and compound semiconductor.
4 Define drift and diffusion current.
5 What are the different types of dielectric polarization?
6 Mention the uses of dielectric materials.
7 Define magnetic dipole moment.
8 List out the applications of magnetic materials.
9 Define superconductivity.
10 What is the principle of SQUID?
11 Mention the optical properties of semiconductor.
12 What do you mean by nano phase materials?

PART- B (5 X 12 = 60 MARKS)

13. a (i) Explain the merits and drawbacks of classical theory. **(6)**

(ii) Obtain the equation for the force on a charged particle under parallel electric and magnetic field. **(6)**

(OR)

b Define Fermi energy and classify the solids into conductors, semiconductors and insulators on the basis of band theory. **(12)**

14. a Derive an expression for the density of charge carriers in an intrinsic semiconductor. **(12)**

(OR)

b Experimentally how you will determine the band gap of a given semiconducting materials? **(12)**

15.a What is meant by internal field in dielectrics? Derive an expression for an internal field in a dielectric material and hence deduce Clausius – Mossotti equation. **(12)**

(OR)

b With necessary diagram explain electronic and ionic polarizations. **(12)**

16. a Elucidate the different types of magnetic materials in detail. **(12)**

(OR)

b (i) Explain the properties of superconducting materials. **(6)**

(ii) Differentiate between type – I and type – II superconducting materials. **(6)**

17. a Discuss the properties, preparation and applications of shape memory alloys. **(12)**

(OR)

b Explain in detail about the synthesis, properties and applications of nano-phase material. **(12)**

PART- C (1 X 16 = 16 MARKS)

18. a (i) List out any four applications of Hall effect. **(4)**

(ii) Describe how the Hall effect setup can be used to measure the Hall coefficient experimentally. **(12)**

(OR)

b (i) How the dielectric materials are used as a capacitor and a transformer? **(8)**

(ii) List out the properties and applications of metallic glasses. **(8)**

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PHCX 05

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SEMESTER END EXAMINATIONS DECEMBER 2019

Programme & Branch : **B.Tech (Common to EEE, EIE & POLYMER Branches)**
Semester : **II** Date & Session : **16/12/2019 FN**
Course Code & Name : **PHCX 05 Materials Science**
Duration : **2 Hours and 30 Minutes** Maximum Marks : **100**

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Write down the expression for Fermi distribution function.
2. What are extrinsic semiconductors? Give an example.
3. Mention any four advantages of semiconducting materials.
4. Distinguish between Lorentz and Coulomb force in dielectrics.
5. Enumerate the different types of insulating materials with examples.
6. What is meant by Bohr magneton?
7. What are Ferrites? Give an example.
8. What is meant by an exciton?
9. Distinguish between light emitting diode and laser diode.
10. Differentiate fluorescence and phosphorescence.

PART B (4 X 20 = 80 MARKS)

11.a (i) List out the importance of quantum free electron theory of metals. **(4)**

(ii) Define the term density of energy states. Derive an expression for the density of energy states and hence deduce the expression for Fermi energy at absolute temperature. **(16)**

(OR)

b (i) Derive an expression for the carrier concentration and Fermi energy in n-type semiconductor. **(16)**

(ii) With a neat sketch explain how the Fermi level varies with impurity concentration and temperature in a n-type semiconductor. **(4)**

12.a	(i)	Define internal field in a dielectric material. Obtain the expression for internal field using Lorentz method and hence deduce the Clausius-Mosotti relation	(16)
	(ii)	Write a note on frequency dependence of polarization in dielectrics.	(4)
		(OR)	
b	(i)	Discuss in details about the different types of dielectric breakdown mechanisms.	(14)
	(ii)	What is meant by dielectric loss? Obtain the expression for power factor in a dielectric material.	(6)
13.a	(i)	Describe in detail about the properties of dia, para, ferro and antiferro magnetic materials.	(16)
	(ii)	List out the differences between soft and hard magnetic materials.	(4)
		(OR)	
b	(i)	Explain the origin of domain theory of ferromagnetism. Using this explain the phenomenon of hysteresis in ferromagnetic materials.	(16)
	(ii)	Explain briefly about the magnetic data storage.	(4)
14.a	(i)	Explain in detail about the construction and working of light emitting diode and injection laser diode with necessary diagrams.	(16)
	(ii)	List out the differences between LED and LCD.	(4)
		(OR)	
b	(i)	Describe the construction and working of twisted nematic liquid crystal display with neat diagram.	(8)
	(ii)	With a neat sketch, explain in detail about the traps, recombination centre and colour centre.	(12)

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PHCX 09

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B.Tech. (Common to ECE, CSE & IT Branches)

Semester : II Date & Session : 16/12/2019 FN

Course Code & Name : PHCX09 & Semiconductor Physics and Optoelectronics

Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Differentiate between elemental and compound semiconductor.
2. Define Fermi energy.
3. Determine the resistivity of intrinsic silicon if $n_i=4.7 \times 10^{19}\ m^{-3}$, $e= 1.6 \times 10^{-19}$ C, $\mu_e = 0.41\ m^2/Vs$ and $\mu_h = 0.21\ m^2/Vs$.
4. What is white LED?
5. What are the advantages of heterojunction laser diodes over homojunction laser diodes?
6. Define electro-optics effect.
7. Name two materials used in Kerr and Pockel's effect.
8. List out three physical processes involved in photo detection.
9. What are the differences between photodiode and phototransistor?
10. Mention the working principle of photo voltaic cell. .

PART B (4 X 20 = 80 MARKS)

11.a Obtain an expression for carrier concentration in an intrinsic semiconductor. **(20)**

(OR)

b (i) Derive an expression for carrier concentration in P-type semiconductor. **(12)**

(ii) Arrive at an expression for Hall coefficient of a semiconducting material with necessary theory. **(8)**

12.a	(i)	Illustrate in detail the construction and working of light emitting diode.	**(10)**
	(ii)	Explain in detail the working of a laser diode with necessary diagram.	**(10)**
		(OR)	
b	(i)	Mention the three types of liquid crystal with suitable diagram.	**(6)**
	(ii)	Provide the construction and working of dynamic scattering and twisted nematic LCD with neat illustration.	**(14)**
13.a	(i)	Describe in detail the principle, construction and working of semiconductor laser with necessary diagram.	**(10)**
	(ii)	Elaborate in detail the working of electro absorption modulators with suitable illustration.	**(10)**
		(OR)	
b	(i)	Review with theory, the principle, construction and working of electro optical amplitude modulator with suitable illustration.	**(12)**
	(ii)	Express in detail the function of magneto optics modulator with neat sketch.	**(8)**
14.a	(i)	Provide the construction and working of PIN photodiode with suitable sketch.	**(10)**
	(ii)	Stipulate in detail the construction and working of avalanche photodiode with diagram.	**(10)**
		(OR)	
b	(i)	Describe the principle, construction and working of solar cell with suitable diagrams.	**(14)**
	(ii)	Mention the advantages and challenges of silicon in photovoltaic cells.	**(6)**

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PHCX 05

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SEMESTER END EXAMINATIONS DECEMBER 2019

Programme & Branch : B.Tech (Common to EEE, EIE & POLYMER Branches)
Semester : II Date & Session : 16/12/2019 FN
Course Code & Name : PHCX 05 Materials Science
Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Write down the expression for Fermi distribution function.
2. What are extrinsic semiconductors? Give an example.
3. Mention any four advantages of semiconducting materials.
4. Distinguish between Lorentz and Coulomb force in dielectrics.
5. Enumerate the different types of insulating materials with examples.
6. What is meant by Bohr magneton?
7. What are Ferrites? Give an example.
8. What is meant by an exciton?
9. Distinguish between light emitting diode and laser diode.
10. Differentiate fluorescence and phosphorescence.

PART B (4 X 20 = 80 MARKS)

11.a (i) List out the importance of quantum free electron theory of metals. (4)

(ii) Define the term density of energy states. Derive an expression for the density of energy states and hence deduce the expression for Fermi energy at absolute temperature. (16)

(OR)

b (i) Derive an expression for the carrier concentration and Fermi energy in n-type semiconductor. (16)

(ii) With a neat sketch explain how the Fermi level varies with impurity concentration and temperature in a n-type semiconductor. (4)

12.a	(i)	Define internal field in a dielectric material. Obtain the expression for internal field using Lorentz method and hence deduce the Clausius-Mosotti relation	(16)
	(ii)	Write a note on frequency dependence of polarization in dielectrics.	(4)
		(OR)	
b	(i)	Discuss in details about the different types of dielectric breakdown mechanisms.	(14)
	(ii)	What is meant by dielectric loss? Obtain the expression for power factor in a dielectric material.	(6)
13.a	(i)	Describe in detail about the properties of dia, para, ferro and antiferro magnetic materials.	(16)
	(ii)	List out the differences between soft and hard magnetic materials.	(4)
		(OR)	
b	(i)	Explain the origin of domain theory of ferromagnetism. Using this explain the phenomenon of hysteresis in ferromagnetic materials.	(16)
	(ii)	Explain briefly about the magnetic data storage.	(4)
14.a	(i)	Explain in detail about the construction and working of light emitting diode and injection laser diode with necessary diagrams.	(16)
	(ii)	List out the differences between LED and LCD.	(4)
		(OR)	
b	(i)	Describe the construction and working of twisted nematic liquid crystal display with neat diagram.	(8)
	(ii)	With a neat sketch, explain in detail about the traps, recombination centre and colour centre.	(12)

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PHCX 01

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B.Tech. (Common for Mech, Aero & Auto)
Semester : II Date & Session : 16/12/2019 FN
Course Code & Name : PHCX 01 Fundamentals of Engineering Materials
Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Define Fermi energy.
2. What is an extrinsic semiconductor?
3. Write down the expression for the electrical conductivity of extrinsic semiconductor.
4. Define dielectric constant.
5. How does the orientational polarization vary with temperature?
6. Define the magnetic susceptibility.
7. Draw the spin alignment of ferromagnetic and antiferromagnetic materials.
8. What are soft magnetic materials?
9. List out the properties of nanomaterials.
10. Mention four uses of nanomaterials.

PART B (4 X 20 = 80 MARKS)

11.a Based on Fermi-Dirac distribution function, deduce an expression for the density of energy states and hence obtain the expression for the carrier concentration at 0 K. **(20)**

(OR)

b (i) Illustrate the n-type and p-type semiconductors with suitable diagrams. **(6)**

(ii) Arrive at the expression for the Fermi level and carrier concentration of n-type semiconductor. **(14)**

12.a	(i)	Derive the expression for local field in dielectric materials based on Lorentz method and hence deduce the Clausius –Mossotti equation.	(16)
	(ii)	If the polarizability of oxygen atoms in air is 9.7 X 10^{-41} C-m^2 / V, find the average distance of the center of negative charge cloud from the nucleus.	(4)
		(OR)	
b	(i)	What are the characteristics of good dielectric materials?	(4)
	(ii)	Explain in detail about the various mechanisms of dielectric breakdown.	(16)
13.a	(i)	Illustrate about the dia, para and ferromagnetic materials in detail with necessary diagrams.	(12)
	(ii)	Distinguish between antiferromagnetism and ferrimagnetism.	(8)
		(OR)	
b	(i)	Explain about crystal anisotropy energy and magnetostriction energy.	(8)
	(ii)	Draw the ferromagnetic hysteresis loop and explain about the loop on the basis of domain theory.	(12)
14.a	(i)	Elucidate the size dependent properties of nanomaterials in detail.	(14)
	(ii)	Explain about the 2D, 1D and 0D nanostructured materials with necessary diagrams.	(6)
		(OR)	
b	(i)	Explain the types and properties of CNT.	(14)
	(ii)	Elaborate the applications of CNT.	(6)

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CHCX03

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SEMESTER END EXAMINATIONS – Dec 2019 (ARREAR)

Programme & Branch	:	B.Tech, ECE,CSE,EEE, IT			
Semester	:	II	Date & Session	:	19/12/2019, FN
Course Code & Name	:	CHCX03, Electrical Materials and Batteries			
Duration	:	2 Hours and 30 Minutes	Maximum Marks	:	100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. How does a polymer blend differ from a polymer alloy?
2. Point out the differences between novolac and resole.
3. Write the full form of EPDM and mention any one of its use.
4. Mention any two applications of gold as an electrical conductor.
5. Why dielectric strength of insulators should be high for high voltage applications than low voltage applications?
6. Classify batteries and give one example for each.
7. Mention the anode, cathode and electrolyte of lead-acid battery.
8. Distinguish between electrochemical and electrolytic cell.
9. How are fuel cells classified based on temperature? Give an example for each.
10. Write the cell reactions of solid oxide fuel cell.

PART B (4 X 20 = 80 MARKS)

11.a (i) How are Nylon-6,6 and urea formaldehyde prepared? Mention their properties and uses. **(12)**

(ii) Compare LDPE and HDPE. Write the preparation, properties and uses of polyethylene. **(8)**

(OR)

b (i) Write the preparation, properties and uses of PVC and polycarbonates. **(10)**

(ii) Expand PTFE and ABS. Write the properties and uses of them. **(10)**

12.a	(i)	Why is copper superior to aluminium as an electrical conductor? In detail, discuss the applications of both.	(10)
	(ii)	Subdivide the magnetic materials used for electrical applications. Explain them and give examples for each.	(10)
		(OR)	
b	(i)	How are n-type and p-type semiconductors prepared? Discuss the four types of lattice defects in solids.	(10)
	(ii)	Briefly account on the uses of plastics, mica, rubber and ceramics as insulators.	(10)
13.a	(i)	How does a dye-sensitized solar cell differ from a solar cell? Describe the construction and working of both the cells with neat diagrams.	(12)
	(ii)	Dry cell has some limitations compared to an alkaline cell. Justify and explain the construction and working of dry cell with a neat diagram.	(8)
		(OR)	
b	(i)	Lithium ion battery is available as both primary and secondary battery. Support your answer listing out their uses. Also explain the construction and working of any one lithium ion battery. Mention the advantages and disadvantages of it.	(10)
	(ii)	Elaborate the construction and working of nickel-cadmium battery with a diagram. How does it act as a secondary battery? Mention its uses.	(10)
14.a	(i)	Illustrate the construction and working of a polymer electrolyte membrane fuel cell. List out its characteristic features, advantages, drawbacks and uses.	(10)
	(ii)	Draw a molten carbonate fuel cell and explain its construction and working. Mention the characteristic features, advantages, disadvantages and uses of it.	(10)
		(OR)	
b	(i)	Describe the construction and working of a phosphoric acid fuel cell with a neat diagram. Mention its characteristic features, merits, demerits and uses.	(10)
	(ii)	Identify the fuel cell which is more suitable for space applications and elaborate its construction and working with a neat diagram. List out its characteristic features, advantages and disadvantages. Why is it not suitable for terrestrial applications?	(10)

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SSCX03

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SEMESTER END EXAMINATIONS – NOVEMBER 2019

Programme & Branch	:	B.Tech(Common to all branches)		
Semester	:	III	Date & Session	: 28/11/2019 ,AN
Course Code & Name	:	SSCXO3, Sociology of Indian Society		
Duration	:	2 Hours and 30 Minutes	Maximum Marks	: 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Define the concept of Unity in Diversity.
2. List down the causes of social problems.
3. What is monogamy and polygamy?
4. Bring out the two benefits of living in joint family.
5. Define Caste system.
6. What is Invention? Give two examples.
7. What is technological Unemployment?
8. Define Corruption.
9. What is Communalism?
10. What is Urbanisation?

PART B (4 X 20 = 80 MARKS)

11.a (i) Explain main features of rural society in India. (10)

(ii) What are the different types of family in India? (10)

(OR)

b (i) Discuss diversity in Indian society and examine the features of its synthesis. (10)

(ii) Describe the distinctive features of tribal communities in India. Discuss the factors affecting tribal identity. (10)

SSCX03

12.a	(i)	Define family. Describe its various primary and secondary functions.	(10)
	(ii)	"Caste system is a more rigid form of social stratification". Explain the statement with various features of caste system.	(10)
		(OR)	
b	(i)	What factors are responsible for the instability of the Indian joint family? Will the joint family survive the present crisis in modern society?	(10)
	(ii)	Bring out the objectives and functions of Indian marriage.	(10)
13.a	(i)	Explain the different types and causes of Child labour	(10)
	(ii)	Elaborate the types, causes and effects of Unemployment.	(10)
		(OR)	
b	(i)	Analyse the socio-cultural consequences of corruption and suggest remedial measures for curbing it.	(10)
	(ii)	What are the social consequences of Urbanisation? Explain with suitable examples.	(10)
14.a	(i)	Explain the concept of "Globalization" with advantages and disadvantages.	(10)
	(ii)	Give the differences between Invention and Innovation with suitable examples.	(10)
		(OR)	
b	(i)	Discuss the process and causes of Modernisation.	(10)
	(ii)	Discuss the implications of rapid growth of population in India.	(10)

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SSCX01

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SEMESTER END EXAMINATIONS – NOVEMBER 2019

Programme & Branch	:	B. Tech. (Common to All Branches)			
Semester	:	III	Date & Session	:	28/11/2019 AN
Course Code & Name	:	SSCX01, Fundamentals of Economics			
Duration	:	2 Hours and 30 Minutes	Maximum Marks	:	100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1 Enumerate any two difficulties faced by the enumerators in estimating national income in India.

2 What is the distinction between GDP and GNP?

3 Write any two measures adopted in India to support the process of Liberalization.

4 How is cost push inflation different from demand pull inflation?

5 Cite two differences between micro economics and macro economics.

6 Write the differences between monetary policy and fiscal policy.

7 Write the main features of FRBM Act.

8 Write the differences between personal income and private income.

9 Explain any two objectives of Government Budget.

10 What is monetary policy and cite various monetary policy instruments used in India?

PART B (4 X 20 = 80 MARKS)

11.A (i) State and explain the law of demand with suitable diagram. **10**

(ii) With well labelled diagrams, explain the five types of price elasticity of demand. **10**

(OR)

B (i) State and explain the law of supply. **10**

(ii) What do you understand by macroeconomic equilibrium? Explain. **10**

12.A (i) Analyze the various causes of inflation in India. **10**

(ii) What are the suggestions you would cite to control inflation in India? **10**

(OR)

B (i) Assuming yourself as an entrepreneur producing a variety of products for different sections of the society, elucidate with examples some of the pricing strategies you will adopt to price your products. **10**

(ii) Why is the study of national income important? **10**

13. A (i) Explain briefly how money overcomes the problems of barter system. **10**

(ii) Central bank is different from Commercial Banks." Explain this statement. **10**

(OR)

B (i) Discuss in details the objectives and instruments of Fiscal policy. **10**

(ii) Suppose you are two friends. One is saying that privatization has hurt our country's development. The other is telling that privatization is helping India develop. How would you react to these arguments? **10**

14. A (i) What do you mean by Government expenditure? Explain the different types of government expenditures. **10**

(ii) Discuss the types of tax revenue sources of the government. **10**

(OR)

B (i) Mention the major economic reforms in India since 1991. How have these reforms affected Indian economy? **10**

(ii) Engineers have a responsible role to play in economic growth. Explain. **10**

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SSC X02

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SEMESTER END EXAMINATIONS – NOVEMBER 2019

Programme & Branch : B.Tech(Common to all branches)
Semester : III Date & Session : 28/11/2019 AN
Course Code & Name : SSCXO2,Principles of Sociology
Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Define the term 'Sociology'.
2. What are the different types of Co-operation?
3. Define Assimilation.
4. What is 'Ascribed status'?
5. What are the types of culture
6. Define the concept of Inequality.
7. Define and differentiate between sex and gender.
8. Define Globalization.
9. What you mean by Social Change?
10. Define Social Stratification.

PART B (4 X 20 = 80 MARKS)

11.a (i) Examine the historical factors that led to the development of Sociology. **(10)**

(ii) Define society and Community. Give the difference between Society and Community. **(10)**

(OR)

b (i) Critically explain the associative and dissociative social processes in the society. **(10)**

(ii) Critically evaluate the various theoretical perspectives in the sociology. **(10)**

12.a	(i)	"Culture is a unique possession of man". Explain the statement with various characteristics and types of culture.		**(10)**
	(ii)	Define Social Control. What are the forms of Social Control?		**(10)**
		(OR)		
b	(i)	In what way is the process of Socialisation helpful in the development of personality? Describe the Role of family and Education in the process of socialization		**(10)**
	(ii)	Describe the theory of 'cultural lag' with suitable example from Indian Society.		**(10)**
13.a	(i)	Is patriarchy a universal phenomenon? Critically examine gender related issues in India with suitable examples.		**(10)**
	(ii)	"Caste system is a more rigid form of social stratification". Explain the statement with various features of caste system.		**(10)**
		(OR)		
b	(i)	Discuss in detail atrocities on Indian women and suggest annihilative measures for them.		**(10)**
	(ii)	Do you think that, the Supreme Court verdict on Sabarimala women entry and section 377 is upholding the Constitutional morality and Gender equality? Explain.		**(10)**
14.a	(i)	Explain the advantages and disadvantages of Globalization.		**(10)**
	(ii)	Describe the various factors of Social change in the modern society		**(10)**
		(OR)		
b	(i)	Discuss various characteristics and mechanism of Social Exclusion.		**(10)**
	(ii)	Explain the brief history of development of Globalization in India.		**(10)**

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SEMESTER END EXAMINATIONS – NOV/DEC 2019

Programme & Branch : B.Tech (Common for CIVIL/MECH/PT/AERO/AUTO/EEE/ECE/EIE/CSE/IT)
Semester : III and IV Date & Session : 28/11/2019 AN
Course Code & Name : LSB2181 Biology for Engineers
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Differentiate between saturated and unsaturated fatty acid.
2. Write down the main principles of cell theory as coined by Schleiden and Schwann
3. Write the significance of biological buffers.
4. Illustrate the structure of purines.
5. Differentiate dominant and recessive allele.
6. Write the significance of DNA methylation.
7. Define exocytosis
8. Write the examples of macronutrients.
9. Write advantages of microbial bioremediation.
10. Define plasmid.
11. Write the examples of bionics in engineering.
12. Write the applications of bioinformatics.

PART B (5 X 12 = 60 MARKS)

13.a (i) List down the differences between prokaryotic and eukaryotic cell. (6)
(ii) Differentiate plant and animal cells with diagrams (6)

(OR)

b (i) Describe Fluid Mosaic model of membrane with a neat sketch (6)
(ii) Elaborate on the structure and functions of endoplasmic reticulum with a neat diagram. (6)

14.a (i) Elaborate on the classification of carbohydrates. (6)
(ii) Provide a detailed account on DNA. (6)

(OR)

b	(i)	Summarize on the structure of proteins with suitable examples.	(6)
	(ii)	Write the applications of Genetic engineering in Biopharma industry.	(6)
15.a	(i)	Discuss in detail about mitochondrial and chloroplast genome	(6)
	(ii)	With a neat sketch describe the Epigenetic Mechanism	(6)

(OR)

b	(i)	Elaborate on the five kingdom classification of living things.	(6)
	(ii)	Elaborate on continuous fermentation process with a neat diagram.	(6)
16.a	(i)	Elaborate on the types of fermentation process.	(6)
	(ii)	Write the advantages and disadvantages of Bioremediation.	(6)

(OR)

b	(i)	Elaborate on epidemiology and its applications.	(6)
	(ii)	Explain Bioremediation and write down its advantages and disadvantages	(6)
17.a	(i)	Explain the various stages of digestion.	(6)
	(ii)	Elaborate the mechanism of osmoregulation with a neat diagram.	(6)

(OR)

b	(i)	Elaborate the working mechanism of biosensors.	(6)
	(ii)	Write the applications of biomedical engineering with suitable examples.	(6)

PART C (1 X 16 = 16 MARKS)

18.a	(i)	Justify the following statement with suitable examples. "Genetically modified microorganisms have an impact on agriculture and pharmaceutical industries".	(16)

(OR)

b	(i)	Develop a novel commercial product using any concept of bioengineering with necessary background information and elaborate each step involved in product development process.	(16)

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SEMESTER END EXAMINATIONS – NOVEMBER/ DECEMBER 2019

Programme & Branch : **B.Tech, Common to all branches except Biotechnology**
Semester : **III** Date & Session : **30/11/2019 AN**
Course Code & Name : **MAC 2181, Partial Differential Equations and Transforms**
Duration : **3 Hours** Maximum Marks : **100**

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Form the PDE by eliminating the arbitrary constants a and b from $z = ax + a^2y^2 + b$.
2. Find complete integral of $z = px + qy + 2pq$.
3. Find b_n of Fourier series for the function $f(x) = k$, $0 \le x \le 2\pi$.
4. Obtain the R.M.S value for the function $f(x) = x$ in $(0, \pi)$
5. Classify the PDE $U_{xx} + 4U_{xy} + U_{yy} + 2U_x - 3U_y = 0$
6. A rod 60cm long with insulated sides has its ends A and B kept at 20° C and 80° C resp. Find the steady state temperature distribution of the rod.
7. If F(s) is the Fourier Transform of f(x), then prove that $F[f(x-a)] = e^{ias} F(s)$
8. Fine the sine transform of 1/x
9. State the convolution theorem for Laplace transforms.
10. Find the Laplace transform of $(1+t)^3$
11. Find $Z\{a^n\}$
12. Find $Z(n^2)$

PART B (5 X 12 = 60 MARKS)

13.a Solve $z = px + qy + \sqrt{16 + p^2 + q^2}$ (12)

(OR)

b (i) Solve the partial differential equation $(3z - 4y)p + (4x - 2z)q = (2y - 3x)$. (6)

(ii) Solve $(D^2 + 4DD' - 5D'^2)\, z = \sin(x + 2y)$. (6)

14.a Find the Fourier series of period 2π for the function $f(x) = \begin{cases} 1 \text{ in } (0,\pi) \\ 2 \text{ in } (\pi,2\pi) \end{cases}$ and hence find the sum of the series $1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \cdots \infty$. (12)

(OR)

b Find the first three harmonics of function f(x) of period 2π defined by means of the following table (12)

x	0	π/3	2π/3	π	4π/3	5π/3	2π
y	1.8	0.30	0.50	2.16	1.3	1.76	1.8

15.a Find the Fourier Transform of $f(x) = \begin{cases} 1-|x|, & |x|<1 \\ 0, & |x|>1 \end{cases}$. Hence evaluate $\int_0^\infty \frac{\sin^2 t}{t^2}\,dt$ and $\int_0^\infty \left(\frac{\sin t}{t}\right)^4 dt$. (12)

(OR)

b Find the Fourier sine and cosine transform of e^{-ax} and hence evaluate $\int_0^\infty \frac{1}{(n^2+x^2)^2}\,dx$ and $\int_0^\infty \frac{x^2}{(a^2+x^2)^2}\,dx$ using Parseval's identity. (12)

16.a (i) Find Laplace Transform of $e^{-4t}\sin 3t$ (4)

(ii) Find the Inverse Laplace transform of (8)

$$\frac{s}{(s^2+4)(s^2+1)}$$

(OR)

b Solve the following differential equation using Laplace transform (12)

$x'' + 4x' + 3x = 10\sin t, x(0) = x'(0) = 0$

17.a (i) Find the Z–transforms of (i) $\sin\left(\frac{n\pi}{2}\right)$ and (ii) $\cos\left(\frac{n\pi}{2}\right)$ (6)

(ii) Find the inverse Z-transforms of the following function (6)

$$\frac{z^2-3z}{(z+2)(z-5)}$$

(OR)

b Solve the equation $y_{n+2} + 4y_{n+1} + 3y_n = 2^n$ given $y_0 = 0$, $y_1 = 1$ using Z – transform. (12)

PART C (1 X 16 = 16 MARKS)

18.a A string of length 50cm is fixed at both ends. It is subjected to a constant tension. It starts vibrating from the initial positions $y(x,0) = 50x\text{-}x^2$. Find the function y(x,t) of the subsequent motion, x being the distance from one end and t time. (16)

(OR)

b A rod of length 'l' has its ends A and B kept at temperatures 40^0 and 90^0 respectively, until steady state condition prevails. If the temperature at each end is then suddenly reduced to 0^0 and maintained so, find the temperature distribution at a distance from A at time 't'. (16)

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SEMESTER END EXAMINATIONS – NOVEMBER 2019

Programme & Branch	:	B. Tech. (Common to All Branches)			
Semester	:	III	Date & Session	:	28/11/2019 AN
Course Code & Name	:	SSCX01, Fundamentals of Economics			
Duration	:	2 Hours and 30 Minutes	Maximum Marks	:	100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1 Enumerate any two difficulties faced by the enumerators in estimating national income in India.

2 What is the distinction between GDP and GNP?

3 Write any two measures adopted in India to support the process of Liberalization.

4 How is cost push inflation different from demand pull inflation?

5 Cite two differences between micro economics and macro economics.

6 Write the differences between monetary policy and fiscal policy.

7 Write the main features of FRBM Act.

8 Write the differences between personal income and private income.

9 Explain any two objectives of Government Budget.

10 What is monetary policy and cite various monetary policy instruments used in India?

PART B (4 X 20 = 80 MARKS)

11.A (i) State and explain the law of demand with suitable diagram. **10**

(ii) With well labelled diagrams, explain the five types of price elasticity of demand. **10**

(OR)

B (i) State and explain the law of supply. 10

(ii) What do you understand by macroeconomic equilibrium? Explain. 10

12.A (i) Analyze the various causes of inflation in India. 10

(ii) What are the suggestions you would cite to control inflation in India? 10

(OR)

B (i) Assuming yourself as an entrepreneur producing a variety of products for different sections of the society, elucidate with examples some of the pricing strategies you will adopt to price your products. 10

(ii) Why is the study of national income important? 10

13. A (i) Explain briefly how money overcomes the problems of barter system. 10

(ii) Central bank is different from Commercial Banks." Explain this statement. 10

(OR)

B (i) Discuss in details the objectives and instruments of Fiscal policy. 10

(ii) Suppose you are two friends. One is saying that privatization has hurt our country's development. The other is telling that privatization is helping India develop. How would you react to these arguments? 10

14. A (i) What do you mean by Government expenditure? Explain the different types of government expenditures. 10

(ii) Discuss the types of tax revenue sources of the government. 10

(OR)

B (i) Mention the major economic reforms in India since 1991. How have these reforms affected Indian economy? 10

(ii) Engineers have a responsible role to play in economic growth. Explain. 10

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SEMESTER END EXAMINATIONS – NOVEMBER/ DECEMBER 2019

Programme & Branch	:	**B.Tech, Common to all branches except Biotechnology**		
Semester	:	III	Date & Session	: **30/11/2019 AN**
Course Code & Name	:	**MAB 2181, Transforms and Applications**		
Duration	:	**3 Hours**	Maximum Marks	: **100**

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. State the initial and final value theorem for Laplace transforms.
2. Find the Laplace transform of $(1+t)$
3. Find a_0 of Fourier series for the function $f(x) = k$, $0 \le x \le 2\pi$.
4. Obtain the R.M.S value for the function $f(x) = 2x$ in $(0, \pi)$
5. Classify the PDE $U_{xx} + 4U_{xy} + 3U_{yy} + 2U_x - 3U_y = 0$
6. A rod 20 cm long with insulated sides has its ends A and B kept at 20° C and 80° C resp. Find the steady state temperature distribution of the rod.
7. If F(s) is the Fourier Transform of f(x), then prove that $F[f(x-a)] = e^{ias} F(s)$
8. Fine the sine transform of e^{2x}
9. Find $Z\{a^n\}$
10. Find $Z(n^2)$
11. Expand $L(y'')$
12. Expand $Z(y_{n+2})$

PART B (5 X 12 = 60 MARKS)

13.a Find the Laplace transform of the function f(t) defined by (12)

$$f(t) = \begin{cases} k, & 0 < t < a \\ -k, & a < t < 2a \end{cases}$$ where f(t+2a) = f(t)

(OR)

b (i) Find Laplace Transform of $e^{-4t}\sin 3t$ (6)

(ii) Find the Inverse Laplace transform of (6)

$$\frac{s}{(s+4)(s+1)}$$

14.a Find the Fourier series of $f(x) = x^2$ in the interval $(0, 2\pi)$ (12)

(OR)

b Find the first two harmonics of function f(x) of period 2π defined by means of the following table (12)

x	0	$\pi/3$	$2\pi/3$	π	$4\pi/3$	$5\pi/3$	2π
y	1.8	0.30	0.50	2.16	1.3	1.76	1.8

15.a Find the Fourier Transform of $f(x) = \begin{cases} 1, & |x| < a \\ 0, & |x| > a \end{cases}$ Hence evaluate (12)

$\int_0^\infty \frac{\sin x}{x} dx$ and $\int_0^\infty \left(\frac{\sin x}{x}\right)^2 dx$

(OR)

b Find the Fourier sine and cosine transform of e^{-ax} and hence evaluate (12)

$\int_0^\infty \frac{1}{(a^2+x^2)^2} dx$ and $\int_0^\infty \frac{x^2}{(a^2+x^2)^2} dx$ using Parseval's identity.

16.a (i) Find the Z–transforms of (i) $\sin\left(\frac{n\pi}{4}\right)$ and (ii) $\cos\left(\frac{n\pi}{4}\right)$ (12)

(OR)

b Find the inverse Z-transforms of the following functions (12)

(i) $\frac{z^2-3z}{(z+2)(z-5)}$ (ii) $\frac{14z^2}{(7z-1)(2z-1)}$

17.a Solve the differential equation using Laplace transform

$y'' - 2y' + y = (t+1)^2, y(0) = 4\ y'(0) = 0$ (12)

(OR)

b Solve the equation $y_{n+2} + 4y_{n+1} + 3y_n = 2^n$ given $y_0 = 0$, $y_1 = 1$ using Z – transform. (12)

PART C (1 X 16 = 16 MARKS)

18.a A string of length 20cm is initially at rest in its equilibrium position and motion is started by giving each of its points a velocity given by (16)

$v = \begin{cases} x & in\ 0 \le x \le 10 \\ 20 - x & in\ 10 \le x \le 20 \end{cases}$

Find the displacement function y(x,t).

(OR)

b A rod of length '*l*' has its ends A and B kept at temperatures 40^0 and 90^0 respectively, until steady state condition prevails. If the temperature at each end is then suddenly reduced to 0^0 and maintained so, find the temperature distribution at a distance from A at time 't'. (16)

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SEMESTER END EXAMINATIONS – NOVEMBER/ DECEMBER 2019

Programme & Branch	: B.Tech, Common to all branches except Biotechnology		
Semester	: III	Date & Session	: 30/11/2019 AN
Course Code & Name	: MAC 2181, Partial Differential Equations and Transforms		
Duration	: 3 Hours	Maximum Marks	: 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Form the PDE by eliminating the arbitrary constants a and b from $z = ax + a^2y^2 + b$.
2. Find complete integral of $z = px + qy + 2pq$.
3. Find b_n of Fourier series for the function $f(x) = k, 0 \le x \le 2\pi$.
4. Obtain the R.M.S value for the function $f(x) = x$ in $(0, \pi)$
5. Classify the PDE $U_{xx} + 4U_{xy} + U_{yy} + 2U_x - 3U_y = 0$
6. A rod 60cm long with insulated sides has its ends A and B kept at 20° C and 80° C resp. Find the steady state temperature distribution of the rod.
7. If F(s) is the Fourier Transform of f(x), then prove that $F[f(x-a)] = e^{ias} F(s)$
8. Fine the sine transform of 1/x
9. State the convolution theorem for Laplace transforms.
10. Find the Laplace transform of $(1+t)^3$
11. Find $Z\{a^n\}$
12. Find $Z(n^2)$

PART B (5 X 12 = 60 MARKS)

13.a Solve $z = px + qy + \sqrt{16 + p^2 + q^2}$ (12)

(OR)

b (i) Solve the partial differential equation $(3z - 4y)p + (4x - 2z)q = (2y - 3x)$. (6)

(ii) Solve $(D^2 + 4DD' - 5D'^2)z = \sin(x + 2y)$. (6)

14.a Find the Fourier series of period 2π for the function $f(x) = \begin{cases} 1 \text{ in } (0,\pi) \\ 2 \text{ in } (\pi,2\pi) \end{cases}$ and hence find the sum of the series $1-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}+\cdots\infty$. (12)

(OR)

b Find the first three harmonics of function f(x) of period 2π defined by means of the following table (12)

x	0	π/3	2π/3	π	4π/3	5π/3	2π
y	1.8	0.30	0.50	2.16	1.3	1.76	1.8

15.a Find the Fourier Transform of $f(x) = \begin{cases} 1-|x|, & |x|<1 \\ 0, & |x|>1 \end{cases}$. Hence evaluate (12)

$\int_0^\infty \frac{\sin^2 t}{t^2}\,dt$ and $\int_0^\infty \left(\frac{\sin t}{t}\right)^4 dt$.

(OR)

b Find the Fourier sine and cosine transform of e^{-ax} and hence evaluate $\int_0^\infty \frac{1}{(n^2+x^2)^2}\,dx$ and $\int_0^\infty \frac{x^2}{(a^2+x^2)^2}\,dx$ using Parseval's identity. (12)

16.a (i) Find Laplace Transform of $e^{-4t}\sin 3t$ (4)

(ii) Find the Inverse Laplace transform of (8)

$$\frac{s}{(s^2+4)(s^2+1)}$$

(OR)

b Solve the following differential equation using Laplace transform (12)

$x'' + 4x' + 3x = 10\sin t, x(0) = x'(0) = 0$

17.a (i) Find the Z–transforms of (i) $\sin\left(\frac{n\pi}{2}\right)$ and (ii) $\cos\left(\frac{n\pi}{2}\right)$ (6)

(ii) Find the inverse Z-transforms of the following function (6)

$$\frac{z^2-3z}{(z+2)(z-5)}$$

(OR)

b Solve the equation $y_{n+2}+4y_{n+1}+3y_n = 2^n$ given $y_0 = 0$, $y_1 = 1$ using Z – transform. (12)

PART C (1 X 16 = 16 MARKS)

18.a A string of length 50cm is fixed at both ends. It is subjected to a constant tension. It starts vibrating from the initial positions $y(x,0) = 50x-x^2$. Find the function y(x,t) of the subsequent motion, x being the distance from one end and t time. (16)

(OR)

b A rod of length 'l' has its ends A and B kept at temperatures 40^0 and 90^0 respectively, until steady state condition prevails. If the temperature at each end is then suddenly reduced to 0^0 and maintained so, find the temperature distribution at a distance from A at time 't'. (16)

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SEMESTER END EXAMINATIONS – NOVEMBER/ DECEMBER 2019

Programme & Branch	: B.Tech, Common to all branches except Biotechnology		
Semester	: III	Date & Session	: 30/11/2019 AN
Course Code & Name	: MAB 2181, Transforms and Applications		
Duration	: 3 Hours	Maximum Marks	: 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. State the initial and final value theorem for Laplace transforms.
2. Find the Laplace transform of $(1+t)$
3. Find a_0 of Fourier series for the function $f(x) = k$, $0 \le x \le 2\pi$.
4. Obtain the R.M.S value for the function $f(x) = 2x$ in $(0, \pi)$
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6. A rod 20 cm long with insulated sides has its ends A and B kept at 20^o C and 80^0 C resp. Find the steady state temperature distribution of the rod.
7. If F(s) is the Fourier Transform of f(x), then prove that $F[f(x-a)] = e^{ias} F(s)$
8. Fine the sine transform of e^{2x}
9. Find $Z\{a^n\}$
10. Find $Z(n^2)$
11. Expand $L(y'')$
12. Expand $Z(y_{n+2})$

PART B (5 X 12 = 60 MARKS)

13.a Find the Laplace transform of the function f(t) defined by (12)

$$f(t) = \begin{cases} k, & 0 < t < a \\ -k, & a < t < 2a \end{cases}$$ where f(t+2a) = f(t)

(OR)

b (i) Find Laplace Transform of $e^{-4t}\sin 3t$ (6)

(ii) Find the Inverse Laplace transform of (6)

$$\frac{s}{(s+4)(s+1)}$$

14.a Find the Fourier series of $f(x) = x^2$ in the interval $(0, 2\pi)$ (12)

(OR)

b Find the first two harmonics of function f(x) of period 2π defined by means of the following table (12)

x	0	$\pi/3$	$2\pi/3$	π	$4\pi/3$	$5\pi/3$	2π
y	1.8	0.30	0.50	2.16	1.3	1.76	1.8

15.a Find the Fourier Transform of $f(x) = \begin{cases} 1, & |x| < a \\ 0, & |x| > a \end{cases}$ Hence evaluate (12)

$\int_0^\infty \frac{\sin x}{x} dx$ and $\int_0^\infty \left(\frac{\sin x}{x}\right)^2 dx$

(OR)

b Find the Fourier sine and cosine transform of e^{-ax} and hence evaluate (12)

$\int_0^\infty \frac{1}{(a^2+x^2)^2} dx$ and $\int_0^\infty \frac{x^2}{(a^2+x^2)^2} dx$ using Parseval's identity.

16.a (i) Find the Z–transforms of (i) $\sin\left(\frac{n\pi}{4}\right)$ and (ii) $\cos\left(\frac{n\pi}{4}\right)$ (12)

(OR)

b Find the inverse Z-transforms of the following functions (12)

(i) $\frac{z^2 - 3z}{(z+2)(z-5)}$ (ii) $\frac{14z^2}{(7z-1)(2z-1)}$

17.a Solve the differential equation using Laplace transform (12)

$y'' - 2y' + y = (t+1)^2, y(0) = 4\ y'(0) = 0$

(OR)

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< MAB 2181>

b Solve the equation $y_{n+2} + 4y_{n+1} + 3y_n = 2^n$ given $y_0 = 0$, $y_1 = 1$ using Z – transform. (12)

PART C (1 X 16 = 16 MARKS)

18.a A string of length 20cm is initially at rest in its equilibrium position and motion is started by giving each of its points a velocity given by (16)

$v = \begin{cases} x & in\ 0 \le x \le 10 \\ 20 - x & in\ 10 \le x \le 20 \end{cases}$

Find the displacement function y(x,t).

(OR)

b A rod of length '*l*' has its ends A and B kept at temperatures 40^0 and 90^0 respectively, until steady state condition prevails. If the temperature at each end is then suddenly reduced to 0^0 and maintained so, find the temperature distribution at a distance from A at time 't'. (16)

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch	:	**B.Tech (Common to All Branches)**		
Semester	:	**III & IV**	**Date & Session**	: **16/12/2019 FN**
Course Code & Name	:	**SSB2181, LAW FOR ENGINEERS.**		
Duration	:	**3 Hours**	**Maximum Marks**	: **100**

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. How do you explain the Constitutional amendments?
2. Define the term 'Constitution'.
3. What is the importance of Article 14 of the Constitution of India? Explain.
4. What are the three exemptions of RTI Act 2005?
5. Explain 'Industrial Dispute' under indusial Dispute Act of 1947.
6. What do you mean by the Statutory Companies?
7. What is a trademark?
8. Expand the following: UNESCO, ILO.
9. Write any two differences between agreement and contract.
10. Briefly explain industrial design.
11. Mention any three works covered under Industrial Property.
12. What you mean by Arbitral Tribunal?

PART B (5 X 12 = 60 MARKS)

13.A	(i)	Explain the qualities of a good constitution.	(6)
	(ii)	Discuss the major fundamental duties of Indian citizen mentioned in Indian Constitution.	(6)

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SSB2181

(OR)

B	(i)	Discuss the principles of The Directive Principles of State Policy.	(6)
	(ii)	Explain briefly the different types of Elections conducted in India	(6)
14.A	(i)	What do you understand by Citizenship? Discuss any three processes of acquiring the citizenship in India.	(6)
	(ii)	Explain the structure of Indian Judiciary.	(6)

(OR)

B	(i)	Discuss any six salient features of Indian Constitution.	(6)
	(ii)	Explain powers and functions of Indian President.	(6)
15.A	(i)	Explain the characteristics of Human Rights.	(6)
	(ii)	Explain the role of Non Governmental Organizations (NGOs) in protection and promotion of Human Rights in India.	(6)

(OR)

B.	(i)	"Media is one of the major agencies for protecting Human Rights in the modern world". Explain?	(6)
	(ii)	How do the International Covenants differ from the Universal Declaration of Human Rights?	(6)
16.A	(i)	What are the main objectives of Industrial Disputes Act, 1947?	(6)
	(ii)	What are the matters to be provided for in the standing orders under the Industrial Employment (Standing Orders) Act 1946?	(6)

(OR)

B.	(i)	Explain the Workmen's Compensation Act 1923.	(6)
	(ii)	Explain the different types of companies as per the Company Act 1956.	(6)
17.A	(i)	What are the procedures for commencement of Conciliation?	(6)
	(ii)	Discuss any six types of Contracts.	(6)

(OR)

B. (i) What do you mean by the term Contract? What are the essential elements of a Valid Contract? (6)

(ii) Explain what are the matters that may be referred under Arbitration. (6)

PART C (1 X 16 = 16 MARKS)

18.A (i) "Fundamental rights guarantee the liberty and equality of the individual in India" explain the statement with reference to different fundamental rights given to Indian citizen. (8)

(ii) "Arbitration is one of the oldest methods of settling civil disputes". Discuss the statement with reference to the advantages and disadvantages of Arbitration. (8)

(OR)

B. (i) "RTI is one of the important tools for prevention of corruption in India". Explain the RTI Act, 2005. (8)

(ii) "IPR rewards creativity and human endeavor which fuels the progress the mankind" Explain the statement with reference to the various tools that come under the IPR. (8)

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SEMESTER END EXAMINATIONS –DECEMBER 2019

Programme & Branch	:	B. Tech. (Common to all Branches)			
Semester	:	III	Date & Session	:	16/12/2019 FN
Course Code & Name	:	SSCX04 – Economics of Sustainable Development			
Duration	:	2 Hours and 30 Minutes	Maximum Marks	:	100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Explain the basic goals of sustainability?
2. What is Agenda 21 in the efforts to make economy a sustainable one?
3. How do you explain the main objectives of Basel Convention?
4. Globalization and environment sustainability though sounds incompatible can co exist. Justify the statement.
5. Define the concept of sustainable development according to Brundtland Report.
6. What can you do, as a citizen, for development to be more sustainable?
7. Your neighbor plans to construct a new house. Suggest some green materials for the building.
8. Going green can reduce the overall energy use. Mention any one strategy that you could adopt to meet the sustainability benchmarks.
9. Comment on the challenges for sustainable development in our country and suggest a way to overcome the same.
10. Define Globalization.

PART B (4 X 20 = 80 MARKS)

11.a (i) Examine the various dimensions and components of sustainable development. **(10)**

(ii) What are the main principles of Sustainable Development as outlined by the Rio Declaration on Environment and Development? **(10)**

(OR)

b (i) Discuss the main global environmental challenges faced by the world today. **(10)**

(ii) What initiatives can be taken to overcome the global environmental challenges? **(10)**

12.a (i) Explain the principles set out in the Business Charter for Sustainable Development. **(10)**

(ii) Discuss the impact of globalization on sustainable development. **(10)**

(OR)

b (i) How can renewable energy, sustainable transport, sustainable construction, land and water management and waste management act as various strategies for attaining green economy in a nation? **(10)**

(ii) What are the challenges of Green Economy **(10)**

13.a (i) Define Environmental Policy? How can Precautionary principle play a significant role in determining whether development is sustainable or not? **(10)**

(ii) Discuss the advantages and disadvantages of Polluter Pays Principle? **(10)**

(OR)

b (i) Engineering practices and technology can help to move the product, processes and systems developed by society towards sustainability. Substantiate this statement. **(10)**

(ii) Discuss the various indirect economic instruments for sustainable development. **(10)**

14.a (i) Quote a few definitions as quoted by various eminent global commissions and personalities on sustainable development. **(10)**

(ii) How can globalization and global governance support sustainable development? **(10)**

(OR)

b (i) The Kyoto Protocol was an international agreement that aimed to reduce carbon dioxide emissions and the presence of greenhouse gases. Discuss. **(10)**

(ii) The Montreal Protocol on substances that deplete the ozone layer is the landmark multilateral environmental agreement. Explain. **(10)**

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SEMESTER END EXAMINATIONS – NOV / DEC 2019

Programme & Branch : Common to B.C.A (MAIS & CTIS)
Semester : IV Date & Session : 27/12/2019 & FN
Course Code & Name : CAC 2203 & Cryptography Fundamentals
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. What is Cryptography?
2. Differentiate between a stream cipher and a block cipher.
3. State the importance of digital signatures.
4. With an example specify the importance of hash key in cryptography.
5. Mention differences between key verification and revocation.
6. Define Message Digest (MD).
7. What is the need of nonce value in a symmetric key distribution?
8. When Point-to-Point protocol is preferred over the network?
9. List the three types of authentication factor in Password-Based Authentication.
10. Why your business can benefit from biometric authentication?

PART B (4 X 16 = 64 MARKS)

11.a (i) Describe about the following substitution techniques with an example. **(10)**
- Caesar Cipher
- Mono-alphabetic Cipher
- Vigenere Cipher.

(ii) Explain briefly about various cryptographic attacks. **(6)**

(OR)

b (i) Construct a Playfair matrix with the key "*algorithm*". Encrypt the message: *"I only regret that I have but one life to give for my country"* **(10)**

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using the playfair matrix constructed above with the key "algorithm".

(ii) Suppose 6 people are in a room. What is the probability that atleast two of them having the same birthday among these 6 people? **(6)**

12.a (i) What is a digital signature? Explain the working model of Digital Signatures. **(10)**

(ii) Describe SHA function with its pros and cons. **(6)**

(OR)

b (i) Describe in detail about Feistel Cipher Structure based algorithm for Encryption and Decryption. **(10)**

(ii) What are the steps involved in RSA Algorithm for performing encryption and decryption? **(6)**

13.a (i) What are the sequence of states which keying material progresses through over its lifetime in the key management? Explain each one of the stages. **(10)**

(ii) Describe the elements of Public Key Infrastructure (PKI). **(6)**

(OR)

b (i) Describe the symmetric key distribution using symmetric encryption in detail. **(10)**

(ii) Write short notes on decentralised key control. **(6)**

14.a (i) List various challenge-response protocols for entity authentication, along with specific operations they perform **(10)**

(ii) Explain how to achieve e-mail security in the context of cryptography? **(6)**

(OR)

b (i) Explain the Internet Key Exchange (IKE), ISAKMP and IKE phases. **(10)**

(ii) Distinguish between physiological and behavioural biometric techniques in conjunction of cryptography. **(6)**

PART C (1 X 16 = 16 MARKS)

15.a (i) Alice generates her RSA keys by selecting two primes: ***p=17*** *and* ***q=11***. She chooses 7 for her RSA public key 'e' and calculates her RSA private key 'd'. Bob wants to send Alice an encrypted message, ***M=88*** and is encrypted into cipher text, by using public key 'e', When Alice receives Bob's message, she decrypts it by using her RSA private key (d, n).Verify that the message has been sent by Bob and has not been altered by decrypting the value with her public key 'e'. **(8)**

(ii) An organization wanted to create a distributed architecture consisting of dedicated user workstations (clients) and centralized servers. In this type of environment how security can be envisioned using Kerberos? **(8)**

(OR)

b (i) Cryptography facilitates the provision of secure services such as cash withdrawal from ATM, Pay TV and secures web browsing. Both symmetric and asymmetric key play an important role in protecting the data. As a security analyst explain how keys are stored and recovered in network and how these functions affect cryptographic integrity? **(16)**

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GEB3201

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SEMESTER END EXAMINATIONS (ARREAR) DECEMBER 2019

Programme & Branch : B.Tech (Common for 2013 regulation)
Semester : IV , V & VI Date & Session : 11/12/2019 FN
Course Code & Name : GEB 3201 Environmental Science & Engineering
Duration : 3 Hours Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. Enlist the various layers of earth.
2. Distinguish between weather and climate.
3. What do you mean by biomagnification?
4. Define the terms ecosystem and biome.
5. Mention any two criteria for recognizing a hot spot.
6. What is the soil erosion?
7. Eutrophication is an adverse effect- describe.
8. List out the objectives of watershed management.
9. Wood is a renewable source of energy but coal is not. Justify.
10. Write the significance of geothermal energy.
11. Mention any two objectives of wildlife act.
12. Enlist the methods to create environmental awareness.

PART B (5 X 12 = 60 MARKS)

13.a (i) Write a note on soil profile with a neat sketch. (6)
(ii) Explain the temperature gradient present in various layers of atmosphere with a neat diagram. (6)

(OR)

b (i) Define plate tectonics. Discuss the various plate boundaries in detail. (6)
(ii) Elaborate the nitrogen cycle with a neat sketch. (6)

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GEB3201

14.a (i) With appropriate examples discuss any four major interactions among biological communities. (6)
(ii) Explain the components and functions of a forest ecosystem. (6)

(OR)

b (i) Illustrate the population growth dynamics and survivorship curve. (6)
(ii) Discuss the various stages and process involved in the ecological succession on a barren land. (6)

15.a (i) Distinguish between in-situ and ex-situ conservation of biodiversity. Elaborate types of in-situ conservation with appropriate examples. (6)
(ii) Explain the methods of disposal of municipal solid waste. (6)

(OR)

b (i) Illustrate the different values of biodiversity. (7)
(ii) Discuss the causes and effects of deforestation. Mention the control measures. (5)

16.a (i) Explain in detail about the sewage water treatment with neat diagram. (7)
(ii) What is meant by acid rain? Discuss its causes and major impacts. (5)

(OR)

b (i) Define thermal pollution. Explain any four methods to control the thermal pollution. (6)
(ii) Global warming is a serious environmental issue. Elaborate the statement. (6)

17.a (i) What are the objectives of environmental impact assessment? Explain the key elements of EIA. (6)
(ii) Discuss the methods and type of value education. (6)

(OR)

b (i) Write a note on Air act. (6)
(ii) What is meant by sustainable development? Explain the measures to attain it. (6)

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PART C (1 X 16 = 16 MARKS)

18.a	(i)	Solar energy can be harvested by different techniques. Discuss the statement.	**(8)**
	(ii)	Identify the disaster caused after the sudden vibration of earth. How it is measured? Discuss its effect and suggest few control measures.	**(8)**
		(OR)	
b	(i)	Energy can be generated from biomass. Elaborate the conversion method.	**(8)**
	(ii)	Describe different methods of harnessing energy from sea tides. Mention its significance.	**(8)**

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SSC X06

RRN

SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B.Tech (Common to all Branches)
Semester : IV Date & Session : 16/12/2019 FN
Course Code & Name : SSCX06,Law for Engineers
Duration : 2 Hours and 30 Minutes Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. What is a Constitution? What are the main sources of the Indian Constitution?
2. What qualifications are required for the office of the President?
3. What is the importance of Article 17 of the Constitution of India? Explain.
4. Explain two difference between Rajya Sabha and Lok sabha
5. What is meant by Human Rights?
6. Illustrate any two types of contracts. .
7. Distinguish between strike and lockout under Industrial Disputes Act, 1947.
8. What does the term 'Geographical Indications' stand for?
9. Expand the following –WHO, UNICEF.
10. What is Trademark in IPR?

PART B (4 X 20 = 80 MARKS)

11.a (i) Discuss the salient features of the Indian Constitution. **(10)**

(ii) Enumerate the fundamental duties of Indian citizens. **(10)**

(OR)

b (i) "The Constitution of India protects the honor and dignity of an individual". Critically examines the various Fundamental Rights in the light of the above statement. **(10)**

(ii) How are the President and the Vice President of India elected? Explain the powers of President. **(10)**

12.a	(i)	"RTI Act 2005 resulted into the transparency of Governance in India" Explain the statement with respect to the objectives of RTI Act 2005.		**(10)**
	(ii)	What do you understand by Citizenship? Discuss various modes of acquiring the citizenship in India.		**(10)**
		(OR)		
b	(i)	What is Union Executive? Explain the structure of Union Executive.		**(10)**
	(ii)	"Election process in India is one of the largest democratic election processes in the world". Substantiate your answer based on the current lok Sabha Election process.		**(10)**
13.a	(i)	Discuss the various UN mechanisms and agencies for protecting Human Rights.		**(10)**
	(ii)	Explain the roles of civil society and media for protecting Human Rights.		**(10)**
		(OR)		
b	(i)	What do you mean by the term Contract? What are the essential elements of a Valid Contract?		**(10)**
	(ii)	Distinguish between partial disablement and permanent disablement under the Workmen's Compensation Act 1923.		**(10)**
14.a	(i)	Discuss the various tools covered under Intellectual Property Rights (IPR).		**(10)**
	(ii)	Explain the different types of companies as per the Company Act 1956.		**(10)**
		(OR)		
b	(i)	What is TRIPS Agreement? Outline the main three features of the TRIPS Agreement.		**(10)**
	(ii)	Critically evaluate the role of WIPO agreement in the context of globalized world.		**(10)**

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MSB 4181

RRN												

SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	B.Tech (Common to all branches)			
Semester	:	V,VI,VII, VIII	Date & Session	:	27/12/2019 AN
Course Code & Name	:	MSB 4181 – Leadership & CEO Training			
Duration	:	3 Hours	Maximum Marks	:	100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Differentiate between leader and manager.
2. Give two differences between transactional and transformational leadership.
3. Write a brief note on pace-setting style of leadership.
4. Define motivation.
5. What is meant by employee empowerment?
6. State the big five personality dimensions.
7. Why are values and ethics important for a good leader?
8. Discuss two disadvantages of autocratic style of management.
9. How can a leader become a relationship builder?
10. Distinguish between formal and informal communication.

PART B (4 X 16 = 64 MARKS)

11.a Explain in detail the following theories of leadership:
(i) Path goal theory **(8)**
(ii) LMX theory **(8)**

(OR)

b Write short notes on the following styles of leadership:
(i) Visionary **(4)**
(ii) Democratic **(4)**
(iii) Affiliative **(4)**
(iv) Commanding **(4)**

12.a (i) Explain the various components of emotional intelligence. Why is emotional intelligence essential for effective leadership? **(10)**

	(ii)	Discuss the essential traits of an effective leader.	(6)
		(OR)	
b	(i)	Elucidate the ways through which a leader can ensure a healthy work-life balance in her organization?	(8)
	(ii)	How is blue ocean leadership different from conventional leadership approaches?	(8)
13.a	(i)	List and elaborate the steps you can take to become a successful CEO.	(10)
	(ii)	Describe the reasons for bad leadership in an organization.	(6)
		(OR)	
b.	(i)	What are the challenges encountered by leaders at the workplace?	(8)
	(ii)	Discuss the cognitive, strategic, interpersonal and business skills required in a CEO/Leader.	(8)
14.a	(i)	Explain the role of a leader as a relationship builder.	(6)
	(ii)	Define higher order needs. How can a leader/ CEO empower his/her employees to meet higher order needs?	(10)
		(OR)	
b	(i)	Write in detail the steps involved in achieving blue ocean leadership.	(8)
	(ii)	"A leader can transform an organization as an enabler and an inspirer." Justify the statement.	(8)

PART C (1 X 16 = 16 MARKS)

15.a	Name a leader that you admire. Illustrate his/her leadership style with the help of examples.	
	(OR)	
b	Provide a description of the various functions of a leader and explain the importance of leadership.	

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MSC 3181

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	B.Tech (EEE, ECE, EIE, CSE, IT)		
Semester	:	V	Date & Session	: 25/11/2019 FN
Course Code & Name	:	MSC 3181 – Leadership & CEO Training		
Duration	:	3 Hours	Maximum Marks	: 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Define leadership.
2. Do you think interpersonal skills are important for a leader? Give reasons.
3. Write a brief note on commanding style of leadership.
4. Why is it important for a leader to be a good listener?
5. What is meant by emotional intelligence?
6. Highlight the importance of leadership.
7. Discuss the meaning of values and ethics.
8. List two ways in which a leader can encourage innovation in his/her organization.
9. Describe two advantages of participative style of management.
10. How can a leader motivate his/her followers?

PART B (4 X 16 = 64 MARKS)

11.a (i) Describe in detail any four theories of leadership. **(12)**

(ii) Discuss the Eliminate-Reduce-Raise-Create (ERRC) grid of blue ocean leadership. **(4)**

(OR)

b (i) Elaborate the qualities of an effective leader. **(6)**

(ii) Explain the steps you would take to deliver a successful presentation. **(10)**

12.a (i) Illustrate the steps a leader should take while communicating during a crisis. **(8)**

(ii) Name a CEO, who you think is an effective leader? Why do you think so? **(8)**

(OR)

b	(i)	"A successful leader should have good communication skills". Justify the statement. What are the barriers to effective communication?	(8)
	(ii)	Discuss the four pillars of blue ocean leadership.	(8)
13.a	(i)	Elaborate the process through which you can become a successful CEO in the future.	(12)
	(ii)	How are leaders different from managers? Give four differences.	(4)

(OR)

b		Discuss the following roles of a leader as:	
	(i)	A relationship builder	(6)
	(ii)	An inspirer	(5)
	(iii)	An enabler	(5)
14.a	(i)	Define transactional leadership. Distinguish between transactional and transformational leadership.	(8)
	(ii)	"Leaders encounter a number of challenges everyday at their workplace". What are these challenges? Explain in detail.	(8)

(OR)

b	(i)	Elucidate the characteristics of an ethical leader.	(8)
	(ii)	Why is it essential for a leader to empower her employees? How can she ensure employee empowerment?	(8)

PART C (1 X 16 = 16 MARKS)

15.a		Discuss the symptoms, causes and impact of bad leadership.	

(OR)

b		Illustrate the different styles of leadership with the help of relevant examples.	

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	**B.Tech.,**			
Semester	:	**V (Civil, Mech, Auto, Aero, Poly) & VII (Common to All)**	**Date & Session**	:	**25/11/2019 & FN**
Course Code & Name	:	**MSC 3182 / MSB 4182 - Social Entrepreneurship**			
Duration	:	**3 Hours**	**Maximum Marks**	:	**100**

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. List out the different entrepreneurial styles.
2. How curiosity is valued in design thinking?
3. Define "Bootstrapping" in an entrepreneurial context.
4. Compare blue ocean strategy and red ocean strategy with an example.
5. If you create a food product for babies allergic to nuts, it is an example of which marketing strategy? Justify.
6. What is the difference between startup cost and fixed cost in an entrepreneurial venture?
7. Who is an early adopter?
8. After doing a quick back-of-the envelope calculation for your business idea, you find that the results are not promising and your business idea does not seem viable. What should you do to save yourself from an impending loss?
9. As an entrepreneur, which of the hiring best practices should you follow?
10. Mention the best practices to ensure the customer buy a product.
11. State the team roles and responsibilities in an enterprise.
12. What do you mean by PAN? And state its need for entrepreneurs.

PART B (5 X 12 = 60 MARKS)

13.A What is flow in an entrepreneurial context? How the flow is said to be achieved? Why it is important to find the flow of an individual? Explain. **(12)**

(OR)

B Explain in detail about the phases of design thinking process with relevant examples. (12)

14.A With a neat illustration, explain the Value Proposition Canvas (VPC) for any Product/Service of your choice. (12)

(OR)

B Explain in detail about the different types of market / startups. (12)

15.A (i) Why it is necessary to build a Minimum Viable Product (MVP) during product development? Explain how to build a MVP. (8)

(ii) Differentiate between Solution demo and a MVP. (4)

(OR)

B. (i) What is called a revenue stream? Why it is essential to identify various revenue streams for a venture? Explain. (6)

(ii) Justify the importance of a co-founder in an entrepreneurial venture. (6)

16.A What is meant by shared leadership? Write in detail about the roles and responsibilities of a leader in an entrepreneurial venture with a relevant example. (12)

(OR)

B. (i) What is positioning? Assume a product and express the business positioning statement. (4)

(ii) The art of marketing is the art of brand building. If you are not a brand, then you are a commodity. Then the price is everything, and the low-cost producer is the only winner. So how could you build your brand? Take the example of your product and come up with a branding strategy. (8)

17.A When does a customer buy and won't buy a product/service? Explain in detail about customer insights with the following:

A) Psychological Biases

B) Customer Acquisition (12)

(OR)

B. (i) How the price for a product is arrived? Explain the process of pricing strategy. (8)

(ii) Arnold has started a pizza business near an IT park. His pizzas are very popular among his customers. Most of his customers are rich and regular customers. What type of pricing strategy should he adopt for pricing his pizzas? (4)

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PART C (1 X 16 = 16 MARKS)

18.A The IPL (Indian Premier League) was launched in 2008 by the BCCI (Board of Control for Cricket in India). Inspired by the English Premier League, the BCCI tapped into the unexploited domestic market of Indian cricket by introducing a new 20-20 format of the game combined with thrilling entertainment. IPL revolutionized the world of Cricket by making the sport take a quantum leap in income generation and popularity, which shook the Cricketing world. It established India in a position of power, calling the shots at the ICC, until then dominated by Australia and England.

Explain the blue ocean Strategy adopted in the above case by providing the strategy canvas and four action framework. (16)

(OR)

B. (i) What is meant by One-to-One selling process? State and explain about the other selling methods with examples. (8)

(ii) Discuss about channels where it fulfills the objectives of communicating to customers and delivering the product to customers. (8)

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GECX111

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SEMESTER END EXAMINATIONS – NOV / DEC 2019

Programme & Branch : **B.Tech., (All Branches)**
Semester : **V** Date & Session : **06.12.2019, FN**
Course Code & Name : **GECX111, Cyber Security**
Duration : **3 Hours** Maximum Marks : **100**

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. What are active and passive attacks?
2. List out the 4 types of security breaches.
3. State the effects of salami attack.
4. Define reconnaissance.
5. List out the common attacks that have emerged as Bluetooth-specific security issues.
6. What is meant by overbilling attack?
7. Differentiate between cryptography and steganography.
8. Define Trojan horse.
9. In case of virus infection in a computer system, what actions should be taken to secure the system?
10. List out the advantages of having firewall in computers.
11. How does a system log file act as computer evidence after the security attacks?
12. What is meant by patch? Mention the types of it.

PART B (5 X 12 = 60 MARKS)

13. a (i) With an example explain briefly about any two classical substitution techniques used for encryption. **(6)**
    (ii) Differentiate symmetric and asymmetric cryptography. **(6)**

(OR)

b (i) What is Virtual Private Network (VPN)? Briefly explain the types of protocols used to create VPN. **(6)**
    (ii) Explain briefly about legitimate versus fraudulent encryption methods. **(6)**

14. a Explain in detail about the following types of Cybercrimes with examples.
A) Spamming
B) Cyber Defamation
C) Computer Sabotage
D) Web Jacking
E) E Mail Bombing
F) Industrial spying **(12)**

(OR)

b (i) What is botnet? How does it used for gainful purposes? Explain briefly the various chances of reducing the risk due to bot. **(6)**

(ii) What is cyberstalking? Briefly explain the working of stalking with a real life incident. **(6)**

15. a (i) Explain the types and techniques of credit card frauds with a neat sketch. **(6)**

(ii) Write briefly about the attacks against 3G mobile networks. **(6)**

(OR)

b Explain in detail about the various types of security attacks on mobile phones. **(12)**

16. a Discuss briefly about the following types of security breaches and what preventive actions should be taken for each.
A) Trojan horse
B) Backdoor
C) Phishing **(12)**

(OR)

b (i) Briefly explain about the phishing attack. **(6)**

(ii) Explain briefly about password protection and its requirements. **(6)**

17. a Describe in detail about the various stages of assessing the system security with suitable examples. **(12)**

(OR)

b (i) How does windows logs critical in forensic investigation and how can we retrieve them? **(6)**

(ii) Explain the steps involved in getting back deleted files to gather the forensic data. **(6)**

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GECX111

PART C (1 X 16 = 16 MARKS)

18. a (i) How does the antivirus software help the system from security attacks? Discuss the advantages and disadvantages of antivirus software in the banking environment. **(8)**

(ii) What kind of cyber security measures an organization should have for the protection of mobile / cell phones? Prepare security guidelines which can be implemented in a hospital environment. **(8)**

(OR)

b (i) How does an IT disaster recovery plan is important for a nuclear power plant? Explain with an example for the same. **(8)**

(ii) Discuss briefly about collecting forensic data from computers using operating system utilities. **(8)**

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	**B.Tech.,**		
Semester	:	**V (Civil, Mech, Auto, Aero, Poly) & VII (Common to All)**	**Date & Session**	: **25/11/2019 & FN**
Course Code & Name	:	**MSC 3182 / MSB 4182 - Social Entrepreneurship**		
Duration	:	**3 Hours**	**Maximum Marks**	: **100**

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. List out the different entrepreneurial styles.
2. How curiosity is valued in design thinking?
3. Define "Bootstrapping" in an entrepreneurial context.
4. Compare blue ocean strategy and red ocean strategy with an example.
5. If you create a food product for babies allergic to nuts, it is an example of which marketing strategy? Justify.
6. What is the difference between startup cost and fixed cost in an entrepreneurial venture?
7. Who is an early adopter?
8. After doing a quick back-of-the envelope calculation for your business idea, you find that the results are not promising and your business idea does not seem viable. What should you do to save yourself from an impending loss?
9. As an entrepreneur, which of the hiring best practices should you follow?
10. Mention the best practices to ensure the customer buy a product.
11. State the team roles and responsibilities in an enterprise.
12. What do you mean by PAN? And state its need for entrepreneurs.

PART B (5 X 12 = 60 MARKS)

13.A What is flow in an entrepreneurial context? How the flow is said to be achieved? Why it is important to find the flow of an individual? Explain. **(12)**

(OR)

B Explain in detail about the phases of design thinking process with relevant examples. (12)

14.A With a neat illustration, explain the Value Proposition Canvas (VPC) for any Product/Service of your choice. (12)

(OR)

B Explain in detail about the different types of market / startups. (12)

15.A (i) Why it is necessary to build a Minimum Viable Product (MVP) during product development? Explain how to build a MVP. (8)

(ii) Differentiate between Solution demo and a MVP. (4)

(OR)

B. (i) What is called a revenue stream? Why it is essential to identify various revenue streams for a venture? Explain. (6)

(ii) Justify the importance of a co-founder in an entrepreneurial venture. (6)

16.A What is meant by shared leadership? Write in detail about the roles and responsibilities of a leader in an entrepreneurial venture with a relevant example. (12)

(OR)

B. (i) What is positioning? Assume a product and express the business positioning statement. (4)

(ii) The art of marketing is the art of brand building. If you are not a brand, then you are a commodity. Then the price is everything, and the low-cost producer is the only winner. So how could you build your brand? Take the example of your product and come up with a branding strategy. (8)

17.A When does a customer buy and won't buy a product/service? Explain in detail about customer insights with the following:

A) Psychological Biases

B) Customer Acquisition (12)

(OR)

B. (i) How the price for a product is arrived? Explain the process of pricing strategy. (8)

(ii) Arnold has started a pizza business near an IT park. His pizzas are very popular among his customers. Most of his customers are rich and regular customers. What type of pricing strategy should he adopt for pricing his pizzas? (4)

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PART C (1 X 16 = 16 MARKS)

18.A The IPL (Indian Premier League) was launched in 2008 by the BCCI (Board of Control for Cricket in India). Inspired by the English Premier League, the BCCI tapped into the unexploited domestic market of Indian cricket by introducing a new 20-20 format of the game combined with thrilling entertainment. IPL revolutionized the world of Cricket by making the sport take a quantum leap in income generation and popularity, which shook the Cricketing world. It established India in a position of power, calling the shots at the ICC, until then dominated by Australia and England.

Explain the blue ocean Strategy adopted in the above case by providing the strategy canvas and four action framework. (16)

(OR)

B. (i) What is meant by One-to-One selling process? State and explain about the other selling methods with examples. (8)

(ii) Discuss about channels where it fulfills the objectives of communicating to customers and delivering the product to customers. (8)

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	B.Tech (EEE, ECE, EIE, CSE, IT)		
Semester	:	V	Date & Session	: 25/11/2019 FN
Course Code & Name	:	MSC 3181 – Leadership & CEO Training		
Duration	:	3 Hours	Maximum Marks	: 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Define leadership.
2. Do you think interpersonal skills are important for a leader? Give reasons.
3. Write a brief note on commanding style of leadership.
4. Why is it important for a leader to be a good listener?
5. What is meant by emotional intelligence?
6. Highlight the importance of leadership.
7. Discuss the meaning of values and ethics.
8. List two ways in which a leader can encourage innovation in his/her organization.
9. Describe two advantages of participative style of management.
10. How can a leader motivate his/her followers?

PART B (4 X 16 = 64 MARKS)

11.a (i) Describe in detail any four theories of leadership. **(12)**

(ii) Discuss the Eliminate-Reduce-Raise-Create (ERRC) grid of blue ocean leadership. **(4)**

(OR)

b (i) Elaborate the qualities of an effective leader. **(6)**

(ii) Explain the steps you would take to deliver a successful presentation. **(10)**

12.a (i) Illustrate the steps a leader should take while communicating during a crisis. **(8)**

(ii) Name a CEO, who you think is an effective leader? Why do you think so? **(8)**

(OR)

b	(i)	"A successful leader should have good communication skills". Justify the statement. What are the barriers to effective communication?		(8)
	(ii)	Discuss the four pillars of blue ocean leadership.		(8)
13.a	(i)	Elaborate the process through which you can become a successful CEO in the future.		(12)
	(ii)	How are leaders different from managers? Give four differences.		(4)

(OR)

b		Discuss the following roles of a leader as:	
	(i)	A relationship builder	(6)
	(ii)	An inspirer	(5)
	(iii)	An enabler	(5)
14.a	(i)	Define transactional leadership. Distinguish between transactional and transformational leadership.	(8)
	(ii)	"Leaders encounter a number of challenges everyday at their workplace". What are these challenges? Explain in detail.	(8)

(OR)

b	(i)	Elucidate the characteristics of an ethical leader.	(8)
	(ii)	Why is it essential for a leader to empower her employees? How can she ensure employee empowerment?	(8)

PART C (1 X 16 = 16 MARKS)

15.a		Discuss the symptoms, causes and impact of bad leadership.	

(OR)

b		Illustrate the different styles of leadership with the help of relevant examples.	

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MSC 3182 / MSB 4182
[Only for Regular & REDO Students]

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	**B.Tech.,**			
Semester	:	**V (Civil, Mech, Auto, Aero, Poly) & VII (Common to All)**	**Date & Session**	:	**25/11/2019 & FN**
Course Code & Name	:	**MSC 3182 / MSB 4182 - Social Entrepreneurship**			
Duration	:	**3 Hours**	**Maximum Marks**	:	**100**

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. List out the different entrepreneurial styles.
2. How curiosity is valued in design thinking?
3. Define "Bootstrapping" in an entrepreneurial context.
4. Compare blue ocean strategy and red ocean strategy with an example.
5. If you create a food product for babies allergic to nuts, it is an example of which marketing strategy? Justify.
6. What is the difference between startup cost and fixed cost in an entrepreneurial venture?
7. Who is an early adopter?
8. After doing a quick back-of-the envelope calculation for your business idea, you find that the results are not promising and your business idea does not seem viable. What should you do to save yourself from an impending loss?
9. As an entrepreneur, which of the hiring best practices should you follow?
10. Mention the best practices to ensure the customer buy a product.
11. State the team roles and responsibilities in an enterprise.
12. What do you mean by PAN? And state its need for entrepreneurs.

PART B (5 X 12 = 60 MARKS)

13.A What is flow in an entrepreneurial context? How the flow is said to be achieved? Why it is important to find the flow of an individual? Explain. **(12)**

(OR)

B Explain in detail about the phases of design thinking process with relevant examples. (12)

14.A With a neat illustration, explain the Value Proposition Canvas (VPC) for any Product/Service of your choice. (12)

(OR)

B Explain in detail about the different types of market / startups. (12)

15.A (i) Why it is necessary to build a Minimum Viable Product (MVP) during product development? Explain how to build a MVP. (8)

(ii) Differentiate between Solution demo and a MVP. (4)

(OR)

B. (i) What is called a revenue stream? Why it is essential to identify various revenue streams for a venture? Explain. (6)

(ii) Justify the importance of a co-founder in an entrepreneurial venture. (6)

16.A What is meant by shared leadership? Write in detail about the roles and responsibilities of a leader in an entrepreneurial venture with a relevant example. (12)

(OR)

B. (i) What is positioning? Assume a product and express the business positioning statement. (4)

(ii) The art of marketing is the art of brand building. If you are not a brand, then you are a commodity. Then the price is everything, and the low-cost producer is the only winner. So how could you build your brand? Take the example of your product and come up with a branding strategy. (8)

17.A When does a customer buy and won't buy a product/service? Explain in detail about customer insights with the following:

A) Psychological Biases

B) Customer Acquisition (12)

(OR)

B. (i) How the price for a product is arrived? Explain the process of pricing strategy. (8)

(ii) Arnold has started a pizza business near an IT park. His pizzas are very popular among his customers. Most of his customers are rich and regular customers. What type of pricing strategy should he adopt for pricing his pizzas? (4)

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PART C (1 X 16 = 16 MARKS)

18.A The IPL (Indian Premier League) was launched in 2008 by the BCCI (Board of Control for Cricket in India). Inspired by the English Premier League, the BCCI tapped into the unexploited domestic market of Indian cricket by introducing a new 20-20 format of the game combined with thrilling entertainment. IPL revolutionized the world of Cricket by making the sport take a quantum leap in income generation and popularity, which shook the Cricketing world. It established India in a position of power, calling the shots at the ICC, until then dominated by Australia and England.

Explain the blue ocean Strategy adopted in the above case by providing the strategy canvas and four action framework. (16)

(OR)

B. (i) What is meant by One-to-One selling process? State and explain about the other selling methods with examples. (8)

(ii) Discuss about channels where it fulfills the objectives of communicating to customers and delivering the product to customers. (8)

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MSC 3181

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SEMESTER END EXAMINATIONS – NOVEMBER / DECEMBER 2019

Programme & Branch	:	B.Tech (EEE, ECE, EIE, CSE, IT)		
Semester	:	V	Date & Session	: 25/11/2019 FN
Course Code & Name	:	MSC 3181 – Leadership & CEO Training		
Duration	:	3 Hours	Maximum Marks	: 100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20 MARKS)

1. Define leadership.
2. Do you think interpersonal skills are important for a leader? Give reasons.
3. Write a brief note on commanding style of leadership.
4. Why is it important for a leader to be a good listener?
5. What is meant by emotional intelligence?
6. Highlight the importance of leadership.
7. Discuss the meaning of values and ethics.
8. List two ways in which a leader can encourage innovation in his/her organization.
9. Describe two advantages of participative style of management.
10. How can a leader motivate his/her followers?

PART B (4 X 16 = 64 MARKS)

11.a (i) Describe in detail any four theories of leadership. **(12)**

(ii) Discuss the Eliminate-Reduce-Raise-Create (ERRC) grid of blue ocean leadership. **(4)**

(OR)

b (i) Elaborate the qualities of an effective leader. **(6)**

(ii) Explain the steps you would take to deliver a successful presentation. **(10)**

12.a (i) Illustrate the steps a leader should take while communicating during a crisis. **(8)**

(ii) Name a CEO, who you think is an effective leader? Why do you think so? **(8)**

(OR)

b	(i)	"A successful leader should have good communication skills". Justify the statement. What are the barriers to effective communication?	(8)
	(ii)	Discuss the four pillars of blue ocean leadership.	(8)
13.a	(i)	Elaborate the process through which you can become a successful CEO in the future.	(12)
	(ii)	How are leaders different from managers? Give four differences.	(4)

(OR)

b		Discuss the following roles of a leader as:	
	(i)	A relationship builder	(6)
	(ii)	An inspirer	(5)
	(iii)	An enabler	(5)
14.a	(i)	Define transactional leadership. Distinguish between transactional and transformational leadership.	(8)
	(ii)	"Leaders encounter a number of challenges everyday at their workplace". What are these challenges? Explain in detail.	(8)

(OR)

b	(i)	Elucidate the characteristics of an ethical leader.	(8)
	(ii)	Why is it essential for a leader to empower her employees? How can she ensure employee empowerment?	(8)

PART C (1 X 16 = 16 MARKS)

15.a		Discuss the symptoms, causes and impact of bad leadership.	

(OR)

b		Illustrate the different styles of leadership with the help of relevant examples.	

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GECX 102

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SEMESTER END EXAMINATIONS – DECEMBER 2019

Programme & Branch : B.Tech & Aero, Mech, Poly Engineering
Semester : V
Date & Session : 06/12/2019 FN
Course Code & Name : GECX 102 & Total Quality Management
Duration : 3 Hours
Maximum Marks : 100

ANSWER ALL QUESTIONS

PART A (12 X 2 = 24 MARKS)

1. List out the major Barriers to TQM implementation.
2. Mention the various quality statements.
3. Define Customer Retention.
4. Draw Kano Model by indicating various parts in the drawing.
5. List the benefits of Measurement in TQM.
6. What are the phases of a Continuous Process Improvement Cycle?
7. Draw and name the various symbols used in Flow chart.
8. What is the significance of statistical analysis?
9. What are the objectives of benchmarking?
10. Define QFD in TQM.
11. What is the need for ISO standards?
12. List any four elements of ISO 9000.

PART B (5 X 12 = 60 MARKS)

13.a (i) What are the dimensions of quality? Discuss in detail. **(8)**

(ii) Review the history of TQM in chronologically **(4)**

(OR)

b What are the duties of quality council? Explain in detail. **(12)**

14.a Explain in detail about Performance Appraisal. List its benefits. **(12)**

(OR)

14.b	(i)	Briefly describe the Maslow's theory of motivation.	(8)
	(ii)	Differentiate between Reward and Recognition (any 4 points).	(4)
15.a		Explain all the elements in 5S principle and also discuss the implementation procedure of 5S in a manufacturing company.	(12)
		(OR)	
b		Explain PDSA cycle. Also elaborate the steps involved in PDSA cycle with a case study.	(12)
16.a		Explain new seven management tools for quality of TQM.	(12)
		(OR)	
b		Briefly explain the concept of six sigma principle.	(12)
17.a		Explain the elements and implementation of ISO 9000:2000 quality system.	(12)
		(OR)	
b		Briefly describe the different types of quality audit available in practice.	(12)

PART C (1 X 16 = 16 MARKS)

18.a		Explain the different steps involved in Failure Mode Effect Analysis with an example.	(16)
		(OR)	
b		Explain in detail the seven steps procedure to establish the TPM in an organization.	(16)

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