

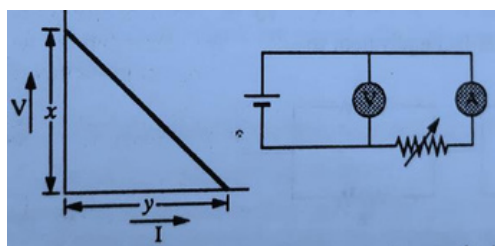
Space for rough work

1. Three equal charges are placed on three corners of a square. If the force between q_1 and q_2 is F_{12} and that between q_1 and q_3 is F_{13} , the ratio of magnitude F_{12}/F_{13} is
 - a) $1/2$
 - b) 2
 - c) $1/\sqrt{2}$
 - d) $\sqrt{2}$
2. Two metal spheres of radii R_1 and R_2 are charged to the equal potential. The ratio of the charge on the two spheres is
 - a) R_1/R_2^2
 - b) 1
 - c) $1/2$
 - d) $R_1 - R_2$
3. The fraction of the energy drawn from the charging battery is stored in a capacitor is
 - a) 100%
 - b) 75%
 - c) 50%
 - d) 25%
4. In a parallel plate capacitor of capacitance C , a metal sheet is inserted between the plates, parallel to them. The thickness of the sheet is half of the separation between the plates. The capacitance becomes
 - a) $C/2$
 - b) $C/4$
 - c) $4C$
 - d) $2C$
5. If a charged spherical conductor of radius $0.1m$ has potential V at a point distant $0.05m$ from its centre, then the potential at a point $0.15m$ from the centre will be
 - a) $\frac{1}{3}V$

b) $\frac{2}{3}V$
 $\frac{3}{2}$

d) $3V$

6. In an experiment, a graph was plotted of the potential difference V between the terminals of a cell against circuit current I , by varying load rheostat. Internal conductance of the cell is given by

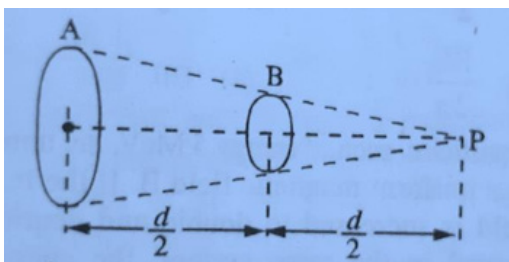


- a) xy
 b) y/x
 c) x/y
 d) $(x-y)$
7. A uniform wire of resistance R and length L is cut into four equal parts, each of length $L/4$, which are then connected in parallel. The effective resistance of the combination is
- a) $4R$
 b) $R/16$
 c) R
 d) $R/4$
8. In India for domestic use electricity is supplied at $220V$, in USA it is supplied at $110V$. If resistance of $60W$ bulb for use in India is R , that of $60W$ bulb for USA will be
- a) $R/4$
 b) $R/2$
 c) R
 d) $2R$
9. A current passing through a circular coil of two turns produces a magnetic field B at its centre. The coil is then rewound so as to have four turns and the same current is passed through it. The magnetic field at its centre now is

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- a) $B/4$
- b) $4B$
- c) $2B$
- d) $B/2$

10. A short magnetic needle is pivoted in a uniform magnetic field of strength $1T$. When another magnetic field of strength $\sqrt{3}T$ is applied to the needle in a perpendicular direction, the needle deflects through an angle θ , where θ is
- a) 30°
 - b) 45°
 - c) 90°
 - d) 60°
11. To send 10% of main current through a moving coil galvanometer of resistance 99Ω the shunt required is
- a) 9Ω
 - b) 11Ω
 - c) 10Ω
 - d) 9.9Ω
12. Two circular coils A and B subtend same solid angle at point P lying on the axis of the coils. Smaller coil B is midway between A and P . Both coils have same current in same sense. Then magnetic field $A, (B_A)$ and magnetic field of $B, (B_B)$ have a ratio as



- a) $1/2$
 - b) 2
 - c) 1
 - d) 4
13. Two straight infinitely long and thin parallel wires are spaced $0.1m$ apart and carry a current of $10A$ each. Find the magnetic field at a point distant

0.1m from both wires when the currents are in the same direction.

- a) $2\sqrt{3}\times 10^{-5}T$
- b) $2\times 10^{-5}T$
- c) $4\times 10^{-5}T$
- d) *zero T*

14. A coil of wire 600 turns of certain radius has a self inductance of 108 mH.

The self inductance of a second similar coil of 500 turns will be

- a) 74 mH
- b) 75 mH
- c) 76 mH
- d) 77 mH

15. Reactance of a capacitor of capacitance $C\mu F$ for A.C. of frequency $400/\pi$ Hz is 25Ω . The value of C is

- a) 400
- b) 100
- c) 25
- d) 50

16. A train is moving towards north with a speed of 180 km/hour. If the vertical component of the earth's magnetic field is $0.2\times 10^{-4}T$, the *emf* induced in the axle 1.5m long is

- a) 5.4 mV
- b) 1.5 mV
- c) 15 mV
- d) 54 mV

In an A.C circuit, V and I are given by, $V=100\sin(100t)$ volt, and

17. $I=100\sin(100t+\pi/3)$ mA. Then the power dissipated in the circuit is

- a) 104 W
- b) 10 W
- c) 2500 W
- d) 5 W

The focal lengths of objective and eyepiece of an astronomical telescope

18. are 20cm and 5cm respectively. If the final image is formed at a distance

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of 30cm from the eyepiece, the magnifying power of telescope will be

- a) 44.6
- b) 4.66
- c) 64.4
- d) 6.44

19. θ is the polarising angle for two optical media, whose critical angles C_1 and C_2 . Then the correct relation is

- a) $\sin \theta = \frac{\sin C_1}{\sin C_2}$
- b) $\tan \theta = \frac{\sin C_1}{\sin C_2}$
- c) $\theta = 2 \frac{C}{C_1}$
- d) $\sin \theta = \frac{\sin C_2}{\sin C_1}$

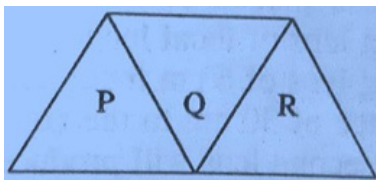
20. Length of a Galilean telescope in normal adjustment, in terms of the focal lengths of the objective (f_o) and that of the eyepiece (f_e) is

- a) $(f_o + f_e)$
- b) $(f_e - f_o)$
- c) $(f_o - f_e)$
- d) None of these

21. Light is incident on a glass plate at an angle of 60° . The reflected and refracted rays are mutually perpendicular to each other. The refractive index of the plate is

- a) 1.5
- b) 1.73
- c) 1.22
- d) 0.5

22. In an equilateral prism P , a light ray suffers minimum deviation. Two identical shape and material prisms Q and R are added to P as shown in figure. Then the light ray will suffer



- a) total internal reflection
- b) no deviation
- c) same deviation
- d) greater deviation

23. The diameter of the sun is $1.4 \times 10^9 m$ and it is $10^{11} m$ distance from the earth. The diameter of its image formed by $2m$ focal length convex lens is

- a) $0.7cm$
- b) $1.4cm$
- c) $2.8cm$
- d) Zero (point image)

24. The refractive index of a thin planoconvex lens is 1.5 and its radius of curvature is $10cm$. It behaves as concave mirror when its plane surface is silvered. Then its focal length is

- a) $20cm$
- b) $15cm$
- c) $10cm$
- d) $5cm$

25. A beam of α -particles passes undeflected through crossed electric and magnetic fields with $E = 6.6 \times 10^6 N/C$ and $B = 1.2 Tesla$. The speed of α -particles is

- a) $5 \times 10^6 m/s$
- b) $5.5 \times 10^6 cm/s$
- c) $5.5 \times 10^6 m/s$
- d) $2.5 \times 10^6 m/s$

26. After an interval of one day $1/6$ th of the initial amount of a radioactive material remains in a sample. Then its half-life is

- a) 12 hours
- b) 6 hours
- c) 3 hours
- d) 1.5 hours

27. Photoelectrons are emitted from a surface with a speed of $7 \times 10^5 m/s$ when a light of frequency $8 \times 10^{14} Hz$ is incident on it, then the threshold

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frequency for the surface is

- a) $2.32 \times 10^{14} \text{ Hz}$
- b) $4.64 \times 10^{14} \text{ Hz}$
- c) $4.64 \times 10^{20} \text{ Hz}$
- d) 4.64 Hz

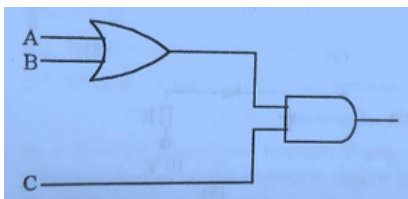
28. A pure semiconductor has $10^8/\text{m}^3$ free electrons and is doped with pentavalent impurity atoms of density $10^{24}/\text{m}^3$. The free electron density will increase by order of magnitude

- a) $10^{24}/\text{m}^3$
- b) $10^{22}/\text{m}^3$
- c) $10^{20}/\text{m}^3$
- d) $10^{26}/\text{m}^3$

29. In a common base configuration, $I_e = 1 \text{ mA}$, $I_c = 0.95 \text{ mA}$. The value of base current is

- a) 1.95 mA
- b) 0.05 mA
- c) 1.05 mA
- d) 0.95 mA

30. To get an output 1 from the circuit given below, the input must be



- a) $A=0, B=1, C=0$
- b) $A=1, B=0, C=0$
- c) $A=1, B=0, C=1$
- d) $A=1, B=1, C=0$

31. What would be the heat released when an aqueous solution containing 0.6 mole of HNO_3 is mixed with 0.4 mol of OH^- (Enthalpy of neutralization = - 57.1 kJ) ?
- 28.5 kJ
 - 17.13 kJ
 - 22.84 kJ
 - 1.7 kJ
32. The molecule like Iodine heptafluoride is pentagonal bipyramidal in shape. What is the type of hybridisation shown in these molecules?
- sp^3d^2
 - dsp^2
 - dsp^3
 - sp^3d^3
33. The correct statement among the following is
- N_2 has higher bond order than N_2^+ and hence has larger bond length compared to N_2^+
 - N_2^+ has higher bond order than N_2 and hence has larger bond length compared to N_2
 - N_2 has higher bond order than N_2^+ and hence has larger dissociation energy compared to N_2^+
 - N_2 has lower bond order than N_2^+ and hence has larger dissociation energy compared to N_2^+
34. What happens when dilute hydrochloric acid is added to iron fillings?
- Hydrogen gas and Aluminum chloride are produced.
 - Chlorine gas and Aluminum hydroxide are produced.
 - No reaction takes place.
 - Aluminum salt and water are produced.
35. The number of sp^3 – hybrid carbons in 2-butyne is
- 1
 - 2
 - 3
 - 4
36. A quantity of HI was sealed in a tube, heated to 425°C and held at this temperature until equilibrium was reached. The

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concentration of HI in the tube at equilibrium was found to be 0.0706 mol/L. Calculate the equilibrium concentration of H₂ (and I₂).

For the gas-phase reaction,



- a) $9.55 \times 10^{-3} \text{ M}$
- b) $1.17 \times 10^{-3} \text{ M}$
- c) $1.85 \times 10^{-3} \text{ M}$
- d) $4.78 \times 10^{-3} \text{ M}$

37. Select the best name for:

- a) 5-ethyl-trans-5-octene
- b) 4-ethyl-trans-3-octene
- c) 4-ethyl-cis-3-octene
- d) 5-ethyl-cis-5-octene

38. How many alcohols are structural isomers with the formula: C₅H₁₁OH?

The correct answer is

- a) 6
- b) 7
- c) 5
- d) 8

39. Which of the following will undergo an addition reaction with chlorine?

- a) CH₃CH₂CH₂CH₃
- b) CH₃CH₂CH=CHCH₃
- c) C₆H₆
- d) CH₃CH₂COOH

40. Which of the following sets is of coinage metals?

- a) Cu, Ag, Au
- b) Zn, Cd, Hg
- c) Au, Ag, Zn
- d) Li, Na, K

41. The Hall-Heroult process is used in the production of:
- a) Mg
 - b) Fe
 - c) Al
 - d) Au
42. 7.5 g of a gas occupies a volume of 5.6 litres at NTP. The gas is
- a) CO₂
 - b) CH₄
 - c) NO
 - d) SO₂
43. Three 1.0 liter flasks are filled with H₂, O₂ and Ne, respectively, at STP. Which of the following statements is true?
- a) Each flask has the same number of gas molecules.
 - b) The velocity of the gas molecules is the same in each flask.
 - c) The density of each gas is the same.
 - d) There are twice as many O₂ and H₂ molecules as Ne atoms
44. The enthalpy change involved in the oxidation of glucose is –2880 kJmol⁻¹. 25% of this energy is available for muscular work. If 80 kJ of muscular work is needed to walk one km, what is the maximum distance that a person will walk after eating 120g glucose?
- a) 3 km
 - b) 6 km
 - c) 5 km
 - d) 8 km
45. Identify the INCORRECT statement.
- a) Helium in a balloon: an element
 - b) Paint: a mixture
 - c) Tap water: a compound
 - d) Mercury in a barometer; an element
46. An organic compound containing C and H has 92.3 % of carbon. Its empirical formula is
- a) CH
 - b) CH₂

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- c) CH₃
- d) CH₄

47. For water (m.p. 0°C, b.p. 100°C)

Heat of fusion = 333 J/g @ 0°C

Heat of vaporization = 2260 J/g @ 100°C

Specific Heat (solid) = 2.09 J/g°C

Specific Heat (liquid) = 4.18 J/g°C

Specific Heat (gas) = 2.03 J/g°C

Calculate the amount of heat (in kJ) that must be absorbed to convert 108 g of ice at 0°C to water at 70°C.

- a) 77
- b) 68
- c) 64
- d) 57

48. The geometry of H₂S and its dipole moment are

- a) Linear and zero
- b) Angular and zero
- c) Linear and non-zero
- d) Angular and non-zero

49. Which one of the following salts is insoluble?

- a) Ca(NO₃)₂
- b) BaCO₃
- c) Na₂S
- d) Zn(CH₃COO)₂

50. Which statement is incorrect?

- a) The thermodynamic symbol for entropy is S.
- b) Gibbs free energy is a state function.
- c) For an endothermic process, ΔH is negative.
- d) If the work done by the system is greater than the heat absorbed by the system, ΔE is negative

51. How many faradays are required to reduce 1.00 g of aluminum (III) to the aluminum metals?

- a) 1.00
- b) 1.50
- c) 3.00
- d) 0.111

52. The dihedral angle in the staggered conformation of C_2H_6 is
- 120°
 - 60°
 - 0°
 - 90°
53. What is the electron configuration of Mn^{3+} ion?
- $[Ar] 4s^2 3d^{10}$
 - $[Ar] 4s^2 3d^2$
 - $[Ar] 3d^5$
 - $[Ar] 3d^4$
54. Strong field ligands such as CN^-
- usually produce high spin complexes and small crystal field splitting.
 - usually produce low spin complexes and small crystal field splitting.
 - usually produce low spin complexes and high crystal field splitting.
 - usually produce high spin complexes and high crystal field splitting.
55. Which of the following is not an actinide?
- Curium
 - Californium
 - Uranium
 - Terbium
56. Which of the following is an ionic hydride?
- KH
 - H_2S
 - HI
 - PH_3
57. Chlorobenzene can be obtained from benzene diazonium chloride by
- Gattermann's reaction
 - Friedel Crafts reaction
 - Wurtz reaction
 - Fittig reaction
58. What is the name of total four carbon atoms and one aldehyde group containing carbohydrate?
- Aldotetrose
 - Aldopentose
 - Ketotetrose

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d) Ketopentose

59. Which of the following drugs consists of a mixture of ethynylestradiol and Norethindrone?

- a) Antiseptic
- b) Antacid
- c) Antifertility
- d) Antibiotics

60) The reagent used for converting ethanol to acetic acid is

- a) Pyridinium chlorochromate (PCC)
- b) Chromic anhydride
- c) Acidified potassium permanganate
- d) Sulphuric Acid

61. If $|x+y| \geq 10$ then

- a) $x \in (5, -15)$ b) $x \in (-5, -15)$
- c) $x \in (-\infty, -15] \cup (5, \infty)$
- d) $x \in (-\infty, -15] \cup [5, \infty)$

62. A is a set having 6 distinct elements. The number of distinct functions from A to A which are not bijections is...

- a) $6! - 6$
- b) $6 - 66$
- c) 66
- d) $66 - 6!$

63. Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = \begin{cases} 2x & , x > 3 \\ x^2 & ; 1 < x \leq 3 \\ 3x & ; x \leq 1 \end{cases}$

Then $f(-1) + f(2) + f(4)$ is

- a) 8
- b) 10
- c) 9
- d) 25

64. If $\sin^{-1}x + \cos^{-1}y = \frac{2\pi}{5}$, then $\sin^{-1}y + \cos^{-1}x$ is..

a) $2\pi/5$

b) $3\pi/5$

c) $4\pi/5$

d) $3\pi/8$

65. The value of the expression $\tan[(1/2) \cos^{-1}(2/\sqrt{5})]$ is..

a) $2-\sqrt{5}$

b) $\sqrt{5}-2$

c) $5-\sqrt{2}$

d) $\sqrt{2}-\sqrt{5}$

66. If the side of a cube is increased by 5%, then the surface area of a cube is increased by

a) 10%

b) 20%

c) 5%

d) 15%

67. If A and B are two events of a sample space S such that $P(A) = 0.2$, $P(B) = 0.6$ and $P(A/B) = 0.5$ then $P(A'|B) = ?$

a) $3/10$

b) $2/3$

c) $1/3$

d) $1/2$

68. A man speaks truth 2 out of 3 times. He picks one of the natural numbers in the set $S = \{1, 2, 3, 4, 5, 6, 7\}$ and reports that it is even.

The probability that it is actually even is

a) $2/5$

b) $1/5$

c) $3/5$

d) $8/5$

69. If U is the universal set with 100 elements; A and B are two sets such that $n(A) = 50$, $n(B) = 60$, $n(A \cap B) = 20$ then $n(A' \cap B') = ?$

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a) 60 b) 50 c) 20 d)

10

$$\sqrt{3}\operatorname{cosec}200-\sec200=$$

a) 4

70. b) 1

c) 3

d) 2

71. Foot of the perpendicular drawn from the point (1,3,4) to the plane $2x-y+z+3=0$ is

a) (0,-4,-7)

b) (-1,4,3)

c) (-3,5,2)

d) (1,2,-3)

72. The curve passing through the point (1, 2) given that the slope of the tangent at any point (x,y) is $2x/y$ represents

a) Hyperbola

b) Ellipse

c) Circle

d) Parabola

73. The point (1,-3,4) lies in the octant

a) Eighth

b) Second

c) Fourth

d) Third

74. The value of $\cos(\sin^{-1}\frac{\pi}{3} + \cos^{-1}\frac{\pi}{3})$ is

a) 0

b) 1

c) Does not exist

d) -1

75. If $A = \{a, b, c\}$, then the number of binary operations on A is

- a) 39 b) 36 c) 33 d) 3

76. If A and B are square matrices of same order and B is a skew symmetric matrix, then $A'BA$ is

- a) Symmetric matrix
b) Skew symmetric matrix
c) Diagonal matrix
d) Null matrix

77. If $2x + 2y = 2x + y$, then dy/dx is

- a) $\frac{2y-1}{2x-1}$
b) $2y-x$
c) $\frac{2x-y(2y-1)}{1-2x}$
d) $-2y-x$

78. If $(xe^y)y = ex$ then $\frac{dy}{dx}$ is

- a) $\frac{e^x}{x(y-1)}$
b) $\frac{\log x}{(1+\log x)^2}$
c) $\frac{1}{(1+\log x)}$
d) $\frac{\log x}{(1+\log x)}$

79. The value of $\int_2^1 \frac{1}{2-1\cos x} dx$ is

- a) $\frac{\pi^2}{2}$
b) $\frac{\pi}{2}$
c) 1
d) π

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80. The value of $\int_0^1 \frac{\log(1+x)}{1+x^2} dx$ is

- a) $\frac{\pi}{8} \log 2$
- b) $\frac{\pi}{2} \log 2$
- c) $\frac{\pi}{4} \log 2$
- d) $\frac{1}{2}$

81. The eccentricity of the ellipse $9x^2 + 25y^2 = 225$ is

- a) $4/5$ b) $3/5$ c) $3/4$ d) $9/16$

82. The negation of the statement "All continuous functions are differentiable."

- a) All continuous functions are not differentiable
- b) Some continuous functions are differentiable.
- c) All differentiable functions are continuous.
- d) Some continuous functions are not differentiable.

83. Mean and standard deviation of 100 items are 50 and 4 respectively.

The sum of all squares of the items is

- a) 251600 b) 256100 c) 266000 d) 261600

84. Two letters are chosen from the letters of the word 'EQUATIONS'.

The probability that one is vowel and the other is consonant is

- a) $8/9$ b) $4/9$ c) $3/9$ d) $5/9$

85. If $|z_1 z_2 \dots z_n| = 144$ and $|z_1 z_2 \dots z_n| = 6$, then $|z_1 z_2 \dots z_n|$ is equal to

- a) 4
- b) 2

c) 6

d) 3

86. The degree of the differential equation of which $(dy/dx)^2 = 4a(x + a)$ is

a) 0

b) 1

c) 2

d) 3

87. XY plane divides the line joining the points A (2,3,-5) and B(-1,-2,-3) in the ratio.

a) 2:1 internally

b) 3:2 externally

c) 5:3 internally

d) 5:3 externally

88. The value of $\sqrt{24.99}$ is

a) 4.999

b)

4.899 c)

5.001 d)

89. A unit vector perpendicular to the plane containing the vectors $\hat{i} + 2\hat{j} + \hat{k}$ and $-2\hat{i} + \hat{j} + 3\hat{k}$ is

a) $\frac{1}{\sqrt{3}}(\hat{i} + 2\hat{j} + \hat{k})$

b) $\frac{1}{\sqrt{3}}(\hat{i} - 2\hat{j} - \hat{k})$

c) $\frac{1}{\sqrt{3}}(\hat{i} + 2\hat{j} - \hat{k})$

d) $\frac{1}{\sqrt{3}}(\hat{i} - 2\hat{j} + \hat{k})$

$-\frac{1}{\sqrt{3}}(\hat{i} + 2\hat{j} - \hat{k})$

$\frac{1}{\sqrt{3}}(\hat{i} - 2\hat{j} - \hat{k})$

$-\frac{1}{\sqrt{3}}(\hat{i} - 2\hat{j} - \hat{k})$

$\frac{1}{\sqrt{3}}(\hat{i} + 2\hat{j} + \hat{k})$

90. $\int_{-3}^3 \cot^{-1} x dx =$

a) 3π

b) 6π

c) 0

d) 3

Choose the appropriate answer to fill in the blank in the given sentence.

91. *I was watching the movie when the lights _____ off.*

- a) go
- b) goes
- c) were going
- d) went

92. *I was having a conversation when the phone _____.*

- a. rings
- b. rang
- c. is ringing
- d. has rung

93. *I will be waiting at the airport when the plane _____.*

- a. was landing
- b. land
- c. lands
- d. landed

Select the correctly spelt words in the following two questions

94.

- a) Goverment
- b) Governmentt
- c) Government
- d) Governmentt

95.

- a) Dependency
- b) Dependancey
- c) Dependancy
- d) Dependancey

Fill in the blank spaces with the appropriate word:-

96. He ____ here last week
a) comes b)
come c)
came d)
coming
97. When he _____ there, she was sleeping.
a) reached
b) reach
c) will reach
d) reaching
98. _____ welcome to come over and study with me.
a) You
b) Your
c) You're
d) You'll
99. I'm not sure how _____ solve this math problem.
a) to
b) through
c) two
d) too
100. I am not sure if I have _____ money left in my bank account.
a) enough
b) too much
c) to
d) too
101. I _____ the store today, but I changed my mind.
a) am going to
b) was going to
c) was going
d) am going
102. I need to buy a new ____ for my car.

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- a) Tyre
- b) Tires
- c) Tyres
- d) Tier

103. We will be leaving for our vacation ____ two days.

- a) on
- b) at
- c) in
- d) with

104. I will finish my degree _____ two years.

- a) in
- b) on
- c) by
- d) of

105. We are going to be late _____ the meeting if we don't leave now.

- a) for
- b) to
- c) at
- d) in

106. I need to buy ____ new laptop for my studies.

- a) a
- b) an
- c) the
- d) no article

107. She is _____ honest person.

- a) a
- b) an
- c) the
- d) no article

108. ____ former colleague of mine just called to say hello.

- a) a
- b) an

- c) the
- d) no article

109. I watched _____ television show last night.

- a) an
- b) a
- c) those
- d) no article

110. He has a _____ determination to finish his assignment.

- a) merciful
- b) intermittent
- c) persistent
- d) lenient

111. She stood ___foot in the sand, feeling the grains between her toes.

- a) bear
- b) bare
- c) bair
- d) bier

Choose the word which is most nearly the same in meaning as the word given -

112. Abundance:

- a) plenty
- b) scarcity
- c) dearth
- d) excess

113. diligent:

- a) inattentive
- b) lazy
- c) careless
- d) hardworking

114. Gigantic:

- a) Huge

Space for rough work

- b) Tiny
- c) Little
- d) Small

Choose from the options, the appropriate meanings for the underlined phrases.

115. Do not *put all your eggs in one basket*.

- a) take risks
- b) be cautious
- c) be reckless
- d) take no risks

116. Do not *judge a book by its cover*.

- a) form an opinion based on appearance
- b) form an opinion based on content
- c) form an opinion based on reputation
- d) form an opinion based on hearsay

Select the appropriate plural forms for the following nouns.

117. Shelf

- a) Shelves
- b) Shelfs
- c) Shelvs
- d) Shelv's

118. Box-

- a) Boxs
- b) Boxeses
- c) Boxes
- d) Box's

Select the correct question tag for the following sentence.

119. *The store is closed on Sunday, _____?*

- a) is it?
- b) isn't it?

- c) doesn't it?
- d) does it?

120. *The cat is sleeping on the couch, _____?*

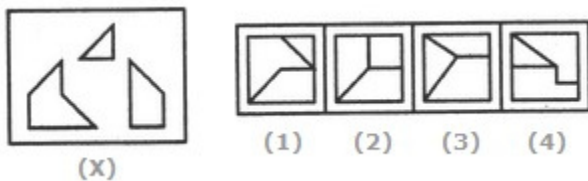
- a. is it?
- b. aren't they?
- c. doesn't it?
- d. isn't it?

LOGICAL REASONING

Direction

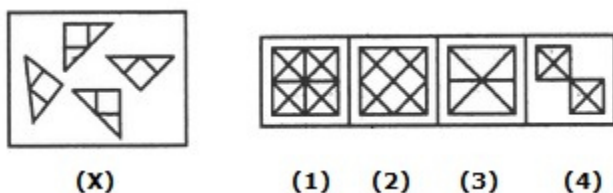
(Q.No. 01 to 04) There are some details given to you in the best way. Choose the best answers.

121. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



- A. 1
- B. 2
- C. 3
- D. 4

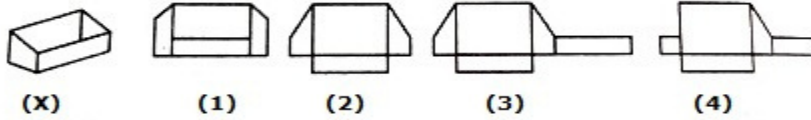
122. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



- A. 1
- B. 2
- C. 3
- D. 4

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123. Which of the following figures (a), (b), (c) and (d), when folded along the lines, will produce the given figure (X)?



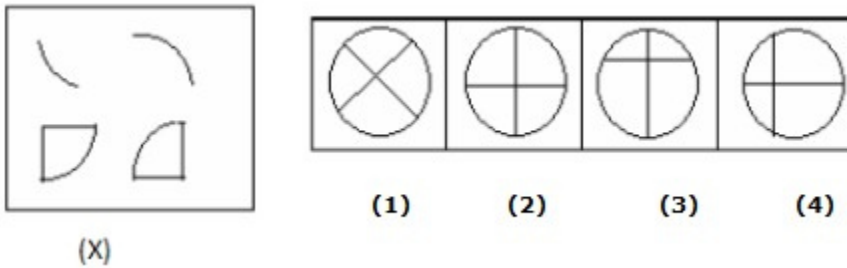
A. 1

B. 2

C. 3

D. 4

124. Find out which of the figure (a), (b), (c), (d) can be formed from the pieces given in fig. (X).



A. 1

B. 2

C. 3

D. 4

Direction

(Q. No 05 to 08) There are some details given to you in the best way. Choose the best answers. Find the missing number

125. $441 : 462 :: 841 : ?$

A. 800

B. 830

C. 870

D. 890

126. $42 : 56 :: 110 : ?$

A. 18

B. 126

C. 132

D. 140

127. $25 : 36 :: 49 : _$

A. 61

B. 63

C. 65

D. 60

128. $3 : 9 :: 4 : \dots$

A. 12

B. 16

C. 18

D. 24

Direction (Q. No 09 to 11) There are some details given to you in the best way. Choose the best answers.

129. Statement: I know nothing except the fact of my ignorance.

Conclusions:

I. Writer's knowledge is very poor.

II. The world of knowledge is too-vast to be explored by a single person.

A. conclusion I follows.

B. conclusion II follows.

C. I or II follows.

D. I nor II follows.

130. Statements: National Aluminum Company has moved India from a position of shortage to self-sufficiency in the metal.

Conclusions:

Previously, India had to import aluminum.

With this speed, it can soon become a foreign exchange earner.

A. Either I or II follows

B. Only conclusion II follows

C. Both I and II follow

D. Neither I nor II follows

131. Statements: Some fruits are trees. Some fruits are flowers. All the flowers are poets.

Conclusions:

Some flowers are trees

Some poets are fruits

All the fruits are poets

Some poets are trees

A. Only I and II follows

B. Only II follows

C. Only I and III follows

D. Only II and IV follows

Direction

(Q. No 12 to 16) There are some details given to you in the best way. Choose the best answers.

132. Choose the word which is least like the others word in a group?

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A. Calendar

B. Date

C. Day

D. Month

133. Find the odd one out

A. crusade

B. campaign

C. expedition

D. Cruise

134. In the following questions, a set of similar terms is given in which one of the term is odd and does not fit in the given set. You have to choose the term which does NOT fit in the set.

A. 1089

B. 729

C. 644

D. 529

135. Choose the number which is different from others in the group.

A. 17

B. 27

C. 29

D. 37

16. Choose the word which is different from the rest.

A. Cap

B. Turban

C. Helmet

D. Veil

~~Direction~~

(Q. No 17 to 19) There are some details given to you in the best way. Choose the best answers.
Statement & Assumption.

137. Statement: Food poisoning due to the consumption of liquor is very common in rural areas

Assumption I: There are more illegal and unauthorised shops selling liquor in villages and rural areas

Assumption II: The ratio of people drinking liquor in villages is much more than that in towns

A. Both Assumption I and II follow

B. Neither Assumption I nor Assumption II follows

C. Only Assumption I follows

D. Assumption II follows but Assumption I does not follow

138. Statement: Divya was advised by the Doctor that she should not take part in the dance competition

Space for rough work

Assumption I: The Doctor did not want Divya to take part in the competition because he was afraid that she might lose

Assumption II: Divya had major surgery because of her injury

Assumption III: Divya did not have the money to go for the auditions

- A. Only Assumption I follows
- B. Assumption II follows but Assumption I and III do not follow
- C. All Assumption I, II & III follow
- D. None of the three assumptions follow

139. Statement: In an election conducted in Village X, only 20% of the total number of women in the village came to vote.

Assumption I: The number of men in the village is more than the number of women in the village X

Assumption II: Women had to cook food and could not come to vote

- A. Only Assumption I follows
- B. Only Assumption II follows
- C. Neither Assumption I nor Assumption II follows
- D. Either Assumption I or Assumption II follows

Direction

(Q. No 20 to 23) There are some details given to you in the best way. Choose the best answers. Critical Reasoning.

140. Many business offices are located in buildings having 2-8 floors. If a building has more than 3 floors, it has a lift. If the above statements are true, which of the following must be true?

- A. 2nd floors do not have lifts
- B. 7th floors have lifts
- C. Only floors above the 3rd floors have lifts
- D. All floors may be reached by lifts

141. Some men are definitely intelligent, others are definitely not intelligent, but of intermediate men, we should say, 'intelligent'? Yes, I think, so or no, I shouldn't be inclined to call him intelligent."

Which of the following reflects the intention of the writer well?

Space for rough work

- A. To call men intelligent who are not strikingly so must be to use the concept with undue imprecision
- B. Every empirical concept has a degree of vagueness
- C. Calling someone intelligent or not depends upon one's whim
- D. There is no need to be as indecisive as the writer of the above.

142. Unless you dedicate your whole life to it, you will never learn to speak the language of another country to perfection; you will never know its people and its literature with complete intimacy. Which of the following is likely to undermine the above argument?

- A. I can speak 10 foreign languages already
- B. I do not travel to foreign countries.
- C. I am happy with the languages I know and do not need to learn any other language.
- D. I should spend time to understand my own people and literature first, only then can I appreciate other languages and cultures.

143. Which of the following will strengthen the following statement? "The farmers will again grow cotton next year due to the increased price of cotton yarn."

- A. Govt. plans to increase subsidy on cash crops including cotton.
- B. There is a high alert in entire Europe due to terrorist threats.
- C. Alternative cash crops are evergreen and unaffected by an economic slowdown.
- D. Govt. is planning to import more cotton from abroad.

Direction

(Q. No 24 to 26) There are some details given to you in the best way. Choose the best answers.

144. Thermometer: Temperature: Barometer?

- | | |
|-----------|-------------|
| A. Stress | B. Pressure |
| C. Force | D. Strain |

145. Judge: Court: Doctor?

- | | |
|-----------------|-------------|
| A. Tehsil | B. Factory |
| C. Municipality | D. Hospital |

146. Choose the odd one

- | | |
|-----------|-----------|
| A. Orissa | B. Gujrat |
|-----------|-----------|

C. Madhya Pradesh

D. Maharashtra

Direction

(Q. No 27 to 28) There are some details given to you in the best way. Choose the best answers.

147. In a group of 6 students P, Q, R, S, T and U each one having different height. P is taller than T but not as tall as U. Q and U are not the tallest and also R is the shortest. Who is the tallest among them?

A. S

B. Q

C. U

D. P

148. A woman walking with a boy meets another woman and on being asked about her relationship with the boy, she says, "My maternal uncle and his maternal uncle's maternal uncle are brothers." How is the boy related to the woman?

A. Grandson

B. Son or Nephew

C. Nephew

D. Son

Direction

(Q. No 29 to 30) There are some details given to you in the best way. Choose the best answers.

149. Find the number of triangles in the given figure.



A. 8 B. 10 C. 12 D. 14 150. Find the number of parallelograms in the below figure.



A. 16

B. 20

C. 19

D. 18