SRMJEEE 2018

Q1 : A star is very far from earth. If light takes 10 years from it to reach the earth, calculate the distance between star and earth.

A 9.46 x 1016m

B 9.46 x 10-16m

C 9.46 x 1017m

D 9.46 x 10-17m

Correct Ans : A

Q2 : The length of a body is measured as 3.51 m. If the accuracy is 0.01 m, then the percentage error in the measurement is _____

A 351%

B 1%

C 0.28%

D 0.03%

Correct Ans : C

Q3 : If a car accelerates from 20 m/s to 40 m/s in 10 s and its forward thrust is equal to 3 kN, what is the mass of car?

A 1500 tones.

B 150 tones.

C 15 tones.

D 1.5 tones.

Correct Ans : D

Q4 : Which one of following is a characteristic of force? It

A can make a stationary object to start move.

B cannot make a moving object to increase speed.

C can make a moving object to decrease speed.

D can change direction of an object.

Correct Ans : B

Q5 : Angular momentum is

A A scalar

B A polar vector

C A scalar as well as vector

D An axial vector

Correct Ans : D

Q6 : A spring of force constant K is cut into two pieces such that one piece is double the length of the other.Then the long piece will have a force constant of

A 2/3k B 3/2k C
3k D 6k Correct
Ans : B

Q7 : The change in the gravitational potential energy when a body of mass m is raised to a height nR above the surface of the earth is (here R is the radius of the earth)

A $\left[\frac{n}{n+1}\right]mgR$

B $\left[\frac{n}{n-1}\right]mgR$

C nmgR

D $\frac{mgR}{n}$

Correct Ans : A

Q8 : The time period of a simple pendulum on a freely moving artificial satellite is

A Zero

B 2 sec

C 3 sec

D Infinite

Correct Ans : D

Q9 : _____ possess maximum value for rigidity modulus.

A iron

B copper

C steel

D tungsten

Correct Ans : D

Q10 : The restoring force of a system of mass executing SHM is 4N. If its displacement is 4 cm then the force constant is

A 1000 N/m

B 10 N/m

C 100 N/m

D 20 N/m

Correct Ans : C

Q11 The distance between the nearest node and antinode in a stationary wave is :

A ℓ

B λ /2/4

C λ

D 2 ℓ

Correct Ans : **C**

Q12 A tube closed at one end containing air is excited. It produces the fundamental note of frequency 512 Hz. If the same tube is open at both the ends, the fundamental frequency that can be produced is :

A 1024 Hz

B 512 Hz

C 256 Hz

D 128 Hz

Correct Ans : **A**

Q13 The specific heat of a gas in an isothermal process is :

A zero

B infinite

C constant

D negative

Correct Ans : **B**

Q14 Which of the following is adiabatic gas equation? :

A PV = Const

B PV γ = Const

C PV γ-1 = Const

D P $\propto$ 1/V

Correct Ans : **B**

Q15 The volume of 1m3 of gas is doubled at atmospheric pressure. The work done at constant pressure will be :

A zero

B 105 cal

C 105 J

D 105 erg

Correct Ans : **C**

Q16 If the coefficient of cubical expansion is 'x' times of the coefficient of superficial expansion, then value of 'x' is
:

A 1/2

B 1

C 1.5

D 4

Correct Ans : C

Q17 A man is looking his magnified image in a mirror placed in front of him. The kind of mirror he is using is _____
:

A Plane

B Convex

C Concave

D Reflection

Correct Ans : C

Q18 A nicol prism is based on the principle of _____
:

A Refraction

B Diffraction

C Reflection

D Double refraction

Correct Ans : B

Q19 In Newton's rings experiment the diameter of certain order of dark ring is measured to be double that of second ring. What is the order of the ring.
:

A 2

B 4

C 6

D 8

Correct Ans : D

Q20 Parallel rays of light entering a convex lens always converge at _____
:

A Centre of curvature

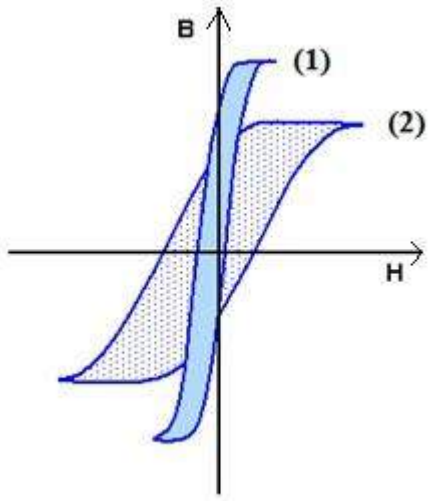
B The principle focus

C Optical centre

D Focal plane

Correct Ans : B

Q21 The B-H curves for two ferromagnetic materials are shown in figure.
:



These Hysteresis loops are for

A (1) soft iron and (2) steel

B (1) steel and (2) soft iron

C (1) diamagnetic and (2) paramagnetic

D (1) paramagnetic and (2) ferromagnetic

Correct Ans : A

Q22 In an series LCR circuit the phase difference between voltage across R and C is
:

A 0

B $\frac{\pi}{2}$

C π

D $\frac{3\pi}{2}$

Correct Ans : B

Q23 Eight dipoles with charges of magnitudes e are placed in side a cube. The total electric flux
: coming out of the cube will be

A $\frac{8e}{\epsilon_o}$

B $\frac{16e}{\epsilon_o}$

C $\frac{e}{\epsilon_o}$

D Zero

Correct Ans : D

Q24 : The frequency of the charged particle circular at right angles to a uniform magnetic field does not depend upon the

A speed of the particle

B mass of the particle

C charge of the particle

D magnetic field

Correct Ans : A

Q25 : In the JJ Thomson method for the determination of e/m what is the angle between the magnetic & electric fields to which the electrons are subjected?

A 0o

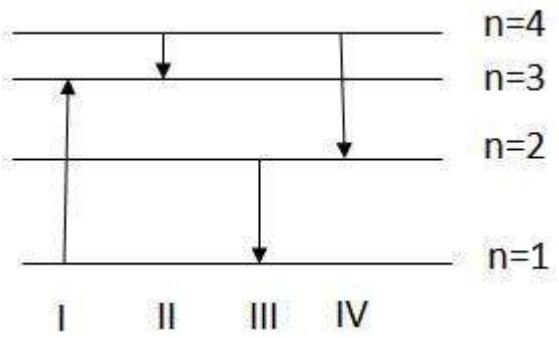
B 45o

C 90o

D 180o

Correct Ans : C

Q26 : The diagram shows the energy levels for an electron in a certain atom. Which transtition shown represents the emission of a photon with the most energy ?



A I

B II

C III

D IV

Correct Ans : C

Q27 : Rutherford's α -particles scattering experiment showed that
(i)electrons have negative charge
(ii)the mass and positive charge of the atom is concentrated in the nucleus
(iii)neutron exists in the nucleus
(iv)most of the space in atom is empty which of the above statements are correct?

A (i)and(iii)

B (ii)and(iv)

C (i)and(iv)

D (iii)and(iv)

Correct Ans : B

Q28 Sun gives light at the rate of 1400Wm-2of the area perpendicular to the direction of the light.
:

Assume λ (sunlight)=6000 Å. Calculate the number of protons/sec arriving at 1m2 area at that part of the earth

A 1.22 × 1023

B 4.22 × 1021

C 2.00 × 1021

D 7.83 × 1023

Correct Ans : B

Q29 In a Bainbridge mass spectrograph singly ionized atoms of a Neon-20 pass into the deflection
: chamber with the velocity of 105 m/sec. If they are deflected by a magnetic field of flux density 0.08 tesla, then the path radius of Neon-20 ion is _____

A 0.300 m

B 0.259 m

C 0.459 m

D 0.639 m

Correct Ans : B

Q30 If an electron and a proton have the same de Broglie wavelength, then the kinetic energy of the
: electron is

A zero

B less than that of proton

C more than that of the proton

D equal to that of a proton

Correct Ans : C

Q31 The transition in He+ ion that will give rise to a spectral line having the same wavelength as
: that of some spectral line in hydrogen atom is_____

A n = 3 to n = 1

B n = 3 to n = 2

C n = 4 to n = 2

D n = 4 to n = 3

Correct Ans : C

Q32 Which of the following elementary particle is a lepton?
:

A Photon

B μ-meson

C π-meson

D Proton

Correct Ans : B

Q33 The maximum efficiency of a half wave rectifier is :

A 40.6%

B 81.2%

C 50%

D 25%

Correct Ans : A

Q34 A feedback circuit usually employs ..... network :

A Resistive

B Capacitive

C Inductive

D both Capacitive and Inductive

Correct Ans : A

Q35 In an amplifier with negative feedback, the bandwidth is :

A Increased by a factor of β

B Decreased by a factor of β

C Increased by a factor of (1+A β)

D Not affected at all by the feedback where A = gain of the basic amplifier and β = feedback factor

Correct Ans : C

Q36 _____ have a definite shape and a definite volume :

A solids

B liquids

C gasses

D plasmas

Correct Ans : A

Q37 What are the states of Matter? :

A Solids, Liquids and Gasses

B Gasses and Plasma

C Plasma and Bose Einstein condenstates

D All Options

Correct Ans : D

Q38 By what factors does the average velocity of a gaseous molecules increase when the temperature(in kelvin)is doubled?

A 1.4

B 2.0

C 2.8

D 4.0

Correct Ans : A

Q39 The atomic radius is equal to

A One half the distance between the two nuclei in a molecule

B Two half the distance between the five nuclei in a molecule

C Four half the distance between the three nuclei in a molecule

D Three half the distance between the one nuclei in a molecule

Correct Ans : A

Q40 Which of the following sets of ion represents a collection of isoelectronic species?

A N^{3-}, O^{2-}, F^{-}, S^{2-}

B Ba^{2+}, Sr^{2+}, K^{2+}, Ca^{2+}

C K^{+}, Cl^{-}, Ca^{2+}, Sc^{3+}

D Li^{+}, Na^{+}, Mg^{2+}, Ca^{2+}

Correct Ans : C

Q41 Among the following elements (whose electronic configurations are given below) the one having highest ionization energy is

A [Ar] $3d^{10}\ 4S^2\ 4P^2$

B [Ne] $3S^2\ 3P^1$

C [Ne] $3S^2\ 3P^2$

D [Ne] $3S^2\ 3P^3$

Correct Ans : D

Q42 Dalton's atomic theory successfully explained by _____?

(i) Law of conservation of mass
(ii) Law of constant composition
(iii) Law of radioactivity
(iv) Law of multiple proportion

A (i), (ii) and (iii)

B (i), (iii) and (iv)

C (ii), (iii) and (iv)

D (i), (ii) and (iv)

Correct Ans : D

Q43 Among the following series of transition metal ions, the one where all metal ions have same 3d electronic configuration is:

A $Ti^{2+}, V^{3+}, Cr^{4+}, Mn^{5+}$

B $Ti^{3+}, V^{2+}, Cr^{3+}, Mn^{4+}$

C $Ti^{+}, V^{4+}, Cr^{6+}, Mn^{7+}$

D $Ti^{4+}, V^{3+}, Cr^{2+}, Mn^{3+}$

Correct Ans : A

Q44 The speed of the electron in 3rd orbit is _____ if the speed of electron in Bohr first orbit of hydrogen atom be x.

A x/9

B x/3

C 3x

D 9x

Correct Ans : B

Q45 Spin magnetic moment of cobalt of the compound Hg[Co(SCN)4] is ___ (Provided:Co^{2+})

A $\sqrt{3}$

B $\sqrt{8}$

C $\sqrt{15}$

D $\sqrt{24}$

Correct Ans : C

Q46 The correct order of increase in boiling points

A $CH_4 > SiH_4 > GeH_4 > SnH_4$

B $GeH_4 > SnH_4 > SiH_4 > CH_4$

C $SnH_4 > GeH_4 > SiH_4 > CH_4$

D $SiH_4 > GeH_4 > CH_4 > SnH_4$

Correct Ans : A

Q47 Arrange below molecules according to their increasing order of dipole moments

A $CCl_4 < CHCl_3 < CH_2Cl_2 < CH_3Cl$

B $CHCl_3 < CCl_4 < CH_2Cl_2 < CH_3Cl$

C $CCl_4 < CH_3Cl < CH_2Cl_2 < CHCl_3$

D $CH_2Cl_2 < CCl_4 < CHCl_3 < CH_3Cl$

Correct Ans : A

Q48 The outer orbitals of C in C_2H_4 molecule can be considered to be hybridized to give 3 equivalent sp2 orbitals. The total number of σ and π bonds in C_2H_4 molecule is

A 1, 2

B 3, 2

C 4, 1

D 5, 1

Correct Ans : D

Q49 During the melting of a slab of ice at 273K at atmospheric pressure:

A positive work is done by the ice-water system on the atmosphere and the internal energy of ice-water system decreases.

B positive work is done on the ice-water system by the atmosphere and the internal energy of the ice-water system increases

C only the internal energy of the ice-water system increases

D only the internal energy of ice-water system decreases.

Correct Ans : B

Q50 The enthalpy of hydrogenation of cyclohexene is - 119.5 kJ mol-1. If resonance energy of benzene is -150.4 kJ mol-1, its enthalpy of hydrogenation would be

A -208.1 kJ mol-1

B -269.9 kJ mol-1

C -358.5 kJ mol-1

D -508.9 kJ mol-1

Correct Ans : A

Q51 The least random state of H_2O is

A Ice

B Liquid water

C Steam

D Randomness is same in all

Correct Ans : A

Q52 The binary mixture in which partial miscibility increases on increasing temperature is

A Phenol-water

B Ether-water

C Triethyl amine-water

D Nicotine-water

Correct Ans : A

Q53 Calculate the mole fraction of water in a mixture containing 9.0 g water (Mm=18 gmol $^{-1}$), 120g acetic acid (Mm= 60 gmol-1) and 115g ethanol (M=46 gmol-1).

A 1.0

B 0.15

C 1.5

D 0.10

Correct Ans : D

Q54 Four species are listed below

I. HCO-3
II. H O+3
III. HSO-4
IV. HSO3F

Which one of the following is the correct sequence of the acid strength?

A IV < II < III < I

B II < III < I < IV

C I < III < II < IV

D III < I < IV < II

Correct Ans : C

Q55 Using Lewis concept, determine the decreasing order of basic strengths of ClO_4^-, ClO_3^- and ClO_2^-.

A $ClO_3^- > ClO_2^- > ClO_4^-$

B $ClO_4^- > ClO_3^- > ClO_2^-$

C $ClO_2^- > ClO_3^- > ClO_4^-$

D $ClO_4^- > ClO_2^- > ClO_3^-$

Correct Ans : C

Q56 Which is need for electroless plating?

A Reducing agent

B Direct current

C Pulse current

D Battery

Correct Ans : A

Q57 The oxidation of sodium sulphite by air is retarded by

A MnO2

B H2S

C Alcohol

D As2O3

Correct Ans : C

Q58 Soap suds is a:
:

A foam

B sol

C gel

D aerosol

Correct Ans : A

Q59 A mixture of camphor and benzoic acid can be separated by which of the following technique?
:

A Chemical methods

B Sublimation

C Fractional distillation

D Extraction with a solvent.

Correct Ans : A

Q60 Sodium extract of an organic compound gives blood red colour with FeCl3. It contains
:

A S and Cl

B N and S

C N

D S

Correct Ans : B

Q61 IUPAC name of (CH3)2CH-CH=CH-CH3 is,
:

A 4-methyl-2-pentene

B 3-isopropyl-2-propene

C 2-methyl-3-pentene

D 1, 2-isopropyl-1-propene

Correct Ans : A

Q62 Which of the following amino acid is achiral?
:

A Alanine

B Glycine

C Proline

D Phenylalanine

Correct Ans : B

Q63 Which mechanism involves heterolytic fission?
:

A $C_2H_4 + HBr \rightarrow C_2H_5Br$

B $C_2H_6 + Br_2 \rightarrow C_2H_5Br + HBr$

C $O_3 + O. \rightarrow 2\ O_2$

D none

Correct Ans : A

Q64 Ozonolysis of an organic compound gives formaldehyde as one of the products. This confirms the presence of
:

A vinyl group

B Two ethylenic double bonds

C An acetylenic triple bond

D An isopropyl group

Correct Ans : A

Q65 When phenol is treated with $CHCl_3$ and NaOH, the product formed is
:

A Benzaldehyde

B Salicylaldehyde

C Salicylic acid

D Benzoic acid

Correct Ans : B

Q66 Hydrolysis of diazonium salt produces
:

A benzene

B phenol

C aniline

D azobenzene

Correct Ans : B

Q67 Aniline is a resonance hybrid of five structures and where do you find the maximum electron density in those structures?
:

A Ortho-position only

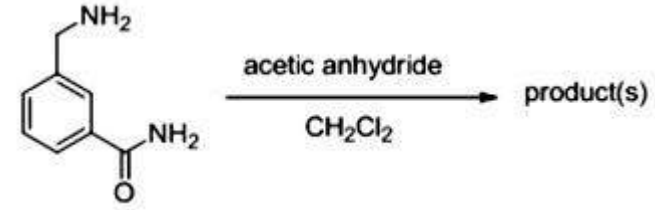
B Para-position only

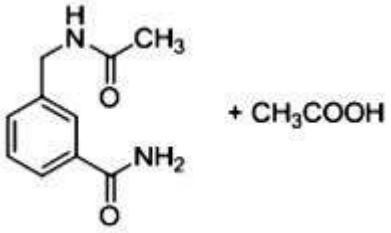
C Ortho-and para-positions

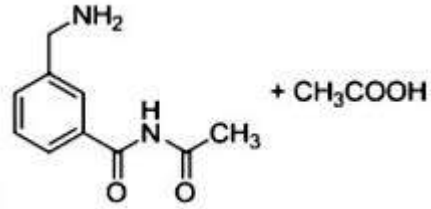
D Ortho- and meta - positions

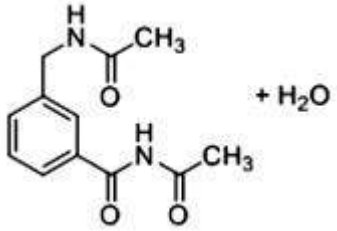
Correct Ans : C

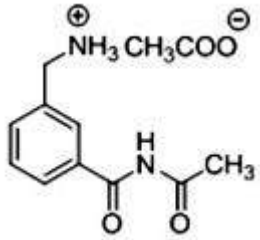
Q68 In the reaction shown below, the major product formed is
:



A 

B 

C 

D 

Correct Ans : A

Q69 Thermoplastic can be reused because of?
:

A Intermediate intermolecular forces

B Heavily cross-linked polymer chains

C Weakest intermolecular forces

D High stability

Correct Ans : A

Q70 What is the name of six membered cyclic structure of glucose?
:

A Anomer

B Pyranose

C Furan

D Proline

Correct Ans : B

Q71 A function f from the set of natural numbers to integers defined
:

by $f(n) = \begin{cases} \frac{(n-1)}{2} \text{ if } n \text{ odd} \\ \frac{-n}{2} \text{ if } n \text{ even} \end{cases}$ is :

A one-one but not onto

B onto but not one-one

C one-one and onto both

D neither one-one nor onto

Correct Ans : C

Q72 A set A contains 10 elements,then the number of relations on A into A is
:

A 210

B 102

C 2100

D 21000

Correct Ans : C

Q73 tan7 θtan5 - tanθ2= θ
:

A tan7 tan5 tan2 θ

B tan7 cot5 cot2= θ

C cot7 θ tan5θ tan2θ

D cot2 θcot5 - cot7= θ

Correct Ans : D

Q74 The number of solutions of sin2x+4cosx= 2+ sinx, in [- π,4π] is
:

A 6

B 4

C 3

D 5

Correct Ans : B

Q75 :

The order of the differential equation $2x^2\frac{d^2y}{dx^2}-3\frac{dy}{dx}+y=0$ is

A 2

B 1

C 0

D not defind

Correct Ans : A

Q76 The product of the real roots of the equation |2x + 3|2 - 3 |2x + 3| + 2 = 0 is :

A 5/4

B 5/2

C 5

D 2

Correct Ans : C

Q77 if x3-6x2+12x+19=0 and ω is a non-real cube root of 1,then x =

:

A -1

B 2-3 ω

C 2-3 ω^2

D (a)or(b)or(c)

Correct Ans : D

Q78 :

If $(4 \quad 3 \quad 2)\begin{pmatrix}1\\-2\\x\end{pmatrix}=(6)$ then x is

A 4

B 3

C 2

D 1

Correct Ans : A

Q79 :

If $ae^x+be^y=c;\ pe^x+qe^y=d \text{ and } \Delta_1=\begin{vmatrix}a & b\\p & q\end{vmatrix};\ \Delta_2=\begin{vmatrix}c & b\\d & q\end{vmatrix};\ \Delta_3=\begin{vmatrix}a & c\\p & d\end{vmatrix}$ the the value of (x, y) is

A $\left(\frac{\Delta_2}{\Delta_1},\frac{\Delta_3}{\Delta_1}\right)$

B $\left(log\frac{\Delta_2}{\Delta_1}, log\frac{\Delta_3}{\Delta_1}\right)$

C $\left(log\frac{\Delta_1}{\Delta_3}, log\frac{\Delta_1}{\Delta_2}\right)$

D $\left(log\frac{\Delta_1}{\Delta_2}, log\frac{\Delta_1}{\Delta_3}\right)$

Correct Ans : B

Q80 :

If $\Delta = \begin{vmatrix} 3 & 4 & 5 & x \\ 4 & 5 & 6 & y \\ 5 & 6 & 7 & z \\ x & y & z & 0 \end{vmatrix} = 0$, then

A *x,y,z* are in A.P

B *x,y,z* are in G.P

C *x,y,z* are in H.P

D none of these

Correct Ans : A

Q81 :

If $\begin{vmatrix} 1 & x & x^2 \\ x & x^2 & 1 \\ x^2 & 1 & x \end{vmatrix} = 7$ and $\Delta = \begin{vmatrix} x^3-1 & 0 & x-x^4 \\ 0 & x-x^3 & x^3-1 \\ x-x^4 & x^3-1 & 0 \end{vmatrix}$, then

A Δ = -9

B Δ = 7

C Δ = 49

D Δ = 343

Correct Ans : C

Q82 : The number of 4 digit numbers that can formed by using the digits 1,2,3,4,5,6,7,8 and 9 such that the least digit used is 4,when repetition of digits is allowed

A 617

B 671

C 716

D 761

Correct Ans : B

Q83 : In how many ways can 6 boys and 4 girls sit in a row?

A 10!

B 100

C 6!4! D 5!4!

Correct Ans : A

Q84 : If $x = \frac{3at}{(a+t^3)}, y = \frac{3at^2}{(1+t^3)}, then\ \frac{dy}{dx}\ at\ t = \frac{1}{2}$ is

A $\frac{4}{3}$

B $\frac{17}{12}$

C $\frac{19}{15}$

D $\frac{5}{4}$

Correct Ans : B

Q85 : Let f : R $\rightarrow$R, g : R $\rightarrow$R be two given functions. Such that f is injective and g is surjective, then which of the following is injective?

A g o f

B f o g

C g o g

D f o f

Correct Ans : D

Q86 : Suppose the function f(x)-f(2x) has the derivative 5 at x=1 and derivative 7 at x=2.The derivative of the function f(x)-f(4x) at x=1 has the value equal to

A 19

B 9

C 17

D 14

Correct Ans : A

Q87 : If S = t3 - 4t2 + 100 then the velocity when the accelaration is Zero is

A $\frac{32}{3} m/sec$

B $\frac{-16}{3} m/sec$

C $\frac{16}{3} m/sec$

D $-\frac{32}{3} m/sec$

Correct Ans : B

Q88 : If $\int f(x)dx = f(x)$, then $\int \{f(x)\}^2 dx$ is equal to

A $\frac{1}{2}\{f(x)\}^2$

B $\{f(x)\}^3$

C $\frac{\{f(x)\}^3}{3}$

D $\{f(x)\}^2$

Correct Ans : A

Q89 : If $I = \int_{\pi/6}^{\pi/3} \frac{dx}{1+\sqrt{\cot x}}$, Then I =

A $\frac{\pi}{12}$

B $\frac{\pi}{16}$

C $\frac{\pi}{2}$

D $\frac{\pi}{8}$

Correct Ans : A

Q90 : The area of the region b'dd by the line y=x-5 and the x axis between the ordinates x=3 and x=7

A 10 sq.units

B 4 sq.units

C 2 sq.units

D 1 sq.units

Correct Ans : B

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Q91 : $\int \frac{\sin x}{cos^2 x} dx$

A log cos x

B log sec x

C sec x

D sin2x

Correct Ans : C

Q92 The equation of the tangent to the circle x2 + y2 = 25 at (4,3) is :

A $4x - 3y = 25$

B $4x + 3y = 25$

C $4x + 3y = 16$

D $4x + 3y = 9$

Correct Ans : B

Q93 :

the equation of the chord of contact of tangents from (2,1) to the hyperbola $\frac{x^2}{16} - \frac{y^2}{9} = 1$ is

A 9x-8y-72=0

B 9x+8y+72=0

C 8x-9y-72=0

D 8x+9y+72=0

Correct Ans : A

Q94 The locus of the centre of a circle which touches externally the circle x2 + y2 - 6x - 6y + 14 = 0 : and also touches the y-axis is given by the equation

A x2 - 6x - 10y + 14 = 0

B x2 - 10x - 6y + 14 = 0

C y2 - 6x - 10y + 14 = 0

D y2 - 10x - 6y + 14 = 0

Correct Ans : D

Q95 The distance between the two lines represented by the equation 9*x*2 + 24*xy* + 16*y*2 -12*x* + : 16*y* -12 =0 is

A 8/5

B 6/5

C 11/5

D none of these

Correct Ans : A

Q96 Let A(2, -3) and B(-2, 1) be vertices of a triangle ABC. If the centroid of this triangle moves on the line 2x + 3y = 1, then the locus of the vertex C is the line

A 2x + 3y = 9

B 2x - 3y = 7

C 3x + 2y = 5

D 3x - 2y = 3

Correct Ans : A

Q97 If the sum of the slopes of the lines given by x2 - 2cxy - 7y2 = 0 is four times product, then c =

A 1

B -1

C 2

D -2

Correct Ans : C

Q98 Let $\vec{a} = 2\vec{i} - \vec{j} + \vec{k}, \quad \vec{b} = \vec{i} + 2\vec{j} - \vec{k}$ and $\vec{c} = \vec{i} + \vec{j} + 2\vec{k}$ be three vectors. A vector in the plane of b and c whose projection on a is $\sqrt{\frac{2}{3}}$ will be

A $2\vec{i} + 3\vec{j} - 3\vec{k}$

B $2\vec{i} + 3\vec{j} - \vec{k}$

C $-2\vec{i} - \vec{j} + 5\vec{k}$

D $2\vec{i} + \vec{j} + 5\vec{k}$

Correct Ans : C

Q99 A tetrahedron has vertices at 0(0,0,0), A(1,2,1), B(2,1,3) and C(-1,1,2) then the angle between the faces 0AB and ABC will be

A $\cos^{-1}[\frac{19}{35}]$

B $\cos^{-1}[\frac{17}{31}]$

30o

D 90o

Correct Ans : A

Q100 If A, B are two mutually exclusive events, then :

A $P(A) + P(B) = 1$

B $P(A) \leq P(\bar{B})$

C $P(A)\,P(B) = P(A \cap B)$

D $P(A) > P(B)$

Correct Ans : B

Q101 If the median of x/5,x,x/4,x/2 and x/3 (where x>0) is 8,then the value of x would be :

A 24

B 32

C 8

D 16

Correct Ans : A

Q102 : If the number of terms in, $\left(x+1+\frac{1}{x}\right)^n, n \in N$ is 301, then n is greater than

A 152

B 151

C 150

D 149

Correct Ans : D

Q103 The sum of the 25th and 76th terms of an AP is 101; the sum of the first 100 terms of the AP is :

A 9999

B 4949

C 5050

D 10100

Correct Ans : C

Q104 In a triangle the angle are in A.P and the lengths of the larger sides are 10 and 9 respectively : then the length of the third side can be

A $5+\sqrt{6}$

B $\frac{7}{10}$

C $5\pm\sqrt{6}$

D $\frac{10}{7}$

Correct Ans : C

Q105 :

The middle term in the expansion of $\left(\frac{2x^3}{3}+\frac{3}{2x^2}\right)^{10}$ is

A 240

B 280

C 262

D 252

Correct Ans : D

Q106 Application of bioinformatics include? :

A proving a signaling pathway

B clinical trials

C drug design

D identification of lipid pathway

Correct Ans : C

Q107 Nucleotide sequence submission system and mass submission system are submission tools of : ?

A GenBank

B DDBJ

C EMBL

D UniProt

Correct Ans : B

Q108 Hydrogen bonds between cytosine and guanine arecytosine and guanine :

A 1

B 2

C 3

D 4

Correct Ans : C

Q109 In forensic science one of the following technique is used :

A RNA foot printing

B RNA cloning

C In vitro fertilization

D DNA fingerprinting

Correct Ans : D

Q110 : _____ is a group of plants representing one or more ecospecies of common evolutionary origin.

A Ecospecies

B Ecotype

C Comparium

D Cenospecies

Correct Ans : D

Q111 : Stamens epipetalous, alternate with the petals, usually not equal in length and filaments are basifixed.in _____.

A Solanaceae

B Malvaceae

C Arecaceae

D Rubiaceae

Correct Ans : A

Q112 : _____is composed of single layer of barrel shaped parenchymatous cells and forms a complete ring around the stele.

A Endodermis

B Rhizodermis

C Epdermis

D Epiblema

Correct Ans : A

Q113 : According to which phylogenetic system, dicots are advanced with sympetalae conditions?

A Bentham & Hooker's

B Engler & Prantl

C Hutchinson

D Takhtajan

Correct Ans : B

Q114 : The types of roots present in mustard plant is

A Fibrous roots

B Adventitious roots

C Tap roots

D Nodulated roots

Correct Ans : C

Q115 Linkage prevents :

A Homozygous condition

B Segregation of alleles

C Hybrid formation

D Heterozygous condition

Correct Ans : B

Q116 Why are genetic disorders such as haemophilia and Duchenne muscular dystrophy more prevalent in males than females? :

A Because they can only be passed on from father to son

B Because they are dominant genetic disorders

C Because they occur due to spontaneous mutations in the Y-chromosome

D Because they are X-linked recessive disorders

Correct Ans : D

Q117 A nicked RNA molecule can be ligated by :

A T4 RNA ligase

B DNA polymerase III

C T4 DNA ligase

D DNA polymerase I

Correct Ans : C

Q118 Which of the folowing structures are present in core particle of nucleosome? :

A Octamer of histone proteins

B 200 bp of DNA

C Non-histone proteins

D Linker DNA

Correct Ans : A

Q119 High levels of ABA are synthesized in :

A tissues undergoing cell division

B tissues undergoing cell elongation

C tissues undergoing stress

D tissues undergoing ripening

Correct Ans : C

Q120 Minerals absorbed by root move to the leaf through :

A xylem

B phloem

C sieve tubes

D sieve elements

Correct Ans : A

Q121 Which one increases in the absence of light? :

A uptake of minerals

B uptake of water

C elongation of internodes

D ascent of sap.

Correct Ans : C

Q122 Photosystem II occurs in :

A stroma

B cytochrome

C grana

D mitochondrial surface

Correct Ans : C

Q123 The hormone that is produced during chilling treatment :

A IAA

B ethylene

C gibberrelin

D vernalin

Correct Ans : D

Q124 VAM is :

A endomycorrhiza

B ectomycorrhiza

C bioinsecticide

D bioherbicide

Correct Ans : A

Q125 Most famous nitrogen fixing bacterium / biofertililzer is :

A Nitrobacter

B Nitrosomonas

C Nitrococcus

D Rhizobium

Correct Ans : **D**

Q126 Which of the following is generally used for induced mutagenesis in crop plants? :

A X-rays

B UV (260 nm)

C gamma rays (from cobalt 60)

D alpha particles

Correct Ans : **C**

Q127 In maize, hybrid vigour is exploited by :

A crossing of two inbred parental lines

B harvesting seeds from the most productive plants

C inducing mutations

D bombarding the seeds with DNA

Correct Ans : **A**

Q128 Which type of ossicles is not observed in the middle ear of humans? :

A Malleus

B Incus

C Cochlea

D Stapes

Correct Ans : **C**

Q129 Which of the following is not a facial bone? :

A Parietal

B Lachrymal

C Zygomatic

D Vomra

Correct Ans : **A**

Q130 The inhibitory process of respiratory centre in brain that regulates the extent of inspiration is : known as

A Pavlov reflex

B Spinal reflex

C Neuro - endocrine reflex

D Herring - Breuer reflex

Correct Ans : D

Q131 The common passage for food and air is
:

A Oesphagus

B Pharynx

C Trachea

D Glottis

Correct Ans : B

Q132 Wharton's duct is part of _____ glands.
:

A sublingual

B submaxillary

C parotid

D brunner's

Correct Ans : B

Q133 The first observation that bacteria-like organism could found in normal air was by
:

A Joseph Meister

B Anoton Leeuwenhoek

C Louis Pasteur

D Rober Koch

Correct Ans : C

Q134 Which of the following scientist first showed mutually beneficial relationship between bacteria
: and leguminous plants?

A Hellriegel and Wilfarth

B Nocard and Roux

C Winogradsky and Beijerinck

D Welch and Nuttall

Correct Ans : C

Q135 Bacterial flagella is made up of
:

A microtubules

B tubulin

C flagellin

D spinin

Correct Ans : C

Q136 The spleen is largely involved with the response to antigens which are in the :

A Tissues

B Blood

C Gut

D Lungs

Correct Ans : B

Q137 Which among the following is nonrenewable source of energy? :

A Solar energy

B Biomass energy

C Hydro-power

D Geothermal energy

Correct Ans : B

Q138 The formula for exponential population growth is :

A dt/dN=rN

B dN/dt=rN

C dN/rN=dt

D rN/dN=dt

Correct Ans : B

Q139 Which of the following is NOT a type of endoscopy :

A Colonoscopy

B Laryngoscopy

C Cryoscopy

D Bronchioscopy

Correct Ans : C

Q140 McDougall experiment with rats supported :

A Neo-Darwinism

B Neo-Lamarckism

C Hardy-weinberg equilibrium

D Founders effect

Correct Ans : B