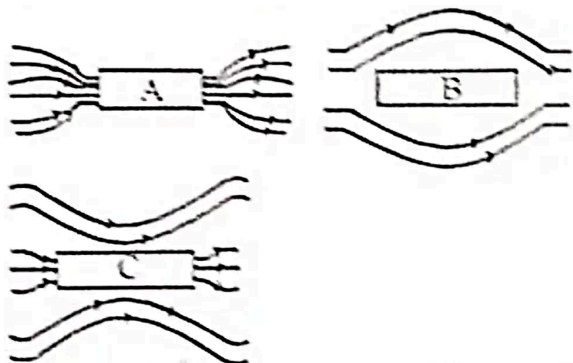


BITSAT Solved Paper 2025 Session-II

1. Three identical bars A, B and C are made of different magnetic materials. When kept in a uniform magnetic field, the field lines around them look as follows:



Make the correspondence of these bars with their material being diamagnetic (D), ferromagnetic (F) and paramagnetic (P):

- (A) $A \leftrightarrow D, B \leftrightarrow P, C \leftrightarrow F$
 (B) $A \leftrightarrow F, B \leftrightarrow D, C \leftrightarrow P$
 (C) $A \leftrightarrow P, B \leftrightarrow F, C \leftrightarrow D$
 (D) $A \leftrightarrow F, B \leftrightarrow P, C \leftrightarrow D$

Correct Option: B

Solution:

2. If $\vec{F}$ is the force acting on a particle having position vector $\vec{r}$ and $\vec{\tau}$ be the torque of this force about the origin, then:

- (A) $\vec{r} \cdot \vec{\tau} > 0$ and $\vec{F} \cdot \vec{\tau} < 0$
 (B) $\vec{r} \cdot \vec{\tau} = 0$ and $\vec{F} \cdot \vec{\tau} = 0$
 (C) $\vec{r} \cdot \vec{\tau} = 0$ and $\vec{F} \cdot \vec{\tau} \neq 0$
 (D) $\vec{r} \cdot \vec{\tau} \neq 0$ and $\vec{F} \cdot \vec{\tau} = 0$

Correct Option: B

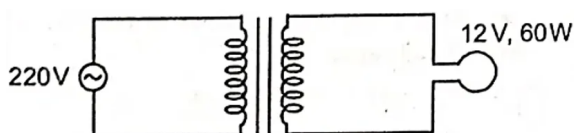
Solution:

3. A 12 V, 60 W lamp is connected to the secondary of a step-down transformer, whose primary is connected to ac mains of 220 V. Assuming the transformer to be ideal, what is the current in the primary winding?

- (A) 0.27A (B) 2.7A (C) 3.7A (D) 0.37A

Correct Option: A

Solution:



As transformer is ideal and for ideal transformer

$$P_{\text{input}} = P_{\text{output}}$$

$$\therefore (VI)_{\text{in}} = 60 \Rightarrow 220 \times I = 60$$

$$\therefore I = 0.27 \text{ A}$$

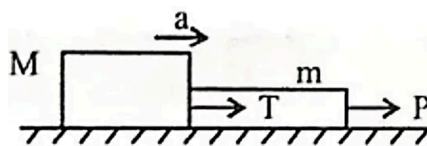
4. A block of mass M is pulled along a horizontal friction surface by a rope of mass m . If a force P is applied at the free end of the rope, the force exerted by the rope on the block is

- (A) $\frac{Pm}{M+m}$ (B) $\frac{Pm}{M-m}$
 (C) P (D) $\frac{PM}{M+m}$

Correct Option: D

Solution:

Taking the rope and the block as a system we get $P = (m + M)a$



$$\therefore a = \frac{P}{m+M}$$

Taking the block as a system,

$$\text{we get } T = Ma \quad \therefore T = \frac{MP}{m+M}$$

5. A closed organ pipe has a fundamental frequency of kHz. The number of overtones that can be distinctly heard by a person with this organ pipe will be: (Assume that the highest frequency of person can hear up to 20,000 Hz)

- (A) 6 (B) 4 (C) 7 (D) 5

Correct Option: C

Solution:

6. Light of frequency 1.5 times the threshold frequency is incident on a photosensitive material. What will be the photoelectric current if the frequency is halved and intensity doubled?

- (A) four times (B) one-fourth
 (C) zero (D) doubled

Correct Option: C

Solution:

7. If the rms speed of oxygen molecules at 0°C is 160 m/s , find the rms speed of hydrogen molecules at 0°C .

(A) 640 m/s (B) 40 m/s (C) 80 m/s (D) 332 m/s

Correct Option: A

Solution:

8. The ratio of powers of two motors is $\frac{3\sqrt{x}}{\sqrt{x+1}}$, that are capable of raising 300 kg water in 5 minutes and 50 kg water in 2 minutes respectively from a well of 100 m deep. The value of x will be

(A) 2 (B) 4 (C) 2.4 (D) 16

Correct Option: D

Solution:

9. The amplitude of magnetic field in an electromagnetic wave propagating along y -axis is $6.0 \times 10^{-7}\text{ T}$. The maximum value of electric field in the electromagnetic wave is:

(A) $5 \times 10^{14}\text{Vm}^{-1}$
 (B) 180Vm^{-1}
 (C) $2 \times 10^{15}\text{Vm}^{-1}$
 (D) $6.0 \times 10^{-7}\text{Vm}^{-1}$

Correct Option: B

Solution:

10. If E and G respectively denote energy and gravitational constant, then $\frac{E}{G}$ has the dimensions of:

(A) $[M^2][L^{-1}][T^0]$
 (B) $[M][L^{-1}][T^{-1}]$
 (C) $[M][L^0][T^0]$
 (D) $[M^2][L^{-2}][T^{-1}]$

NEET 2021

Correct Option: A

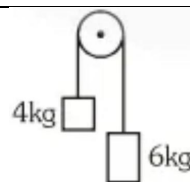
Solution:

$$E = \text{energy} = [ML^2 T^{-2}]$$

$$G = \text{Gravitational constant} = [M^{-1} L^3 T^{-2}]$$

$$So \frac{E}{G} = \frac{[E]}{[G]} = \frac{ML^2 T^{-2}}{M^{-1} L^3 T^{-2}} = [M^2 L^{-1} T^0]$$

11. Two bodies of mass 4 kg and 6 kg are tied to the ends of a massless string. The string passes over a pulley which is frictionless (see figure). The acceleration of the system in terms of acceleration due to gravity (g) is:



(A) $g/10$ (B) g (C) $g/2$ (D) $g/5$

NEET 2020

Correct Option: D

Solution:

$$a = \frac{(m_2 - m_1)g}{m_1 + m_2}$$

$$a = \frac{(6 - 4)g}{6 + 4} = \frac{2g}{10}$$

$$a = \frac{g}{5}$$

12. A student measures the terminal potential difference (V) of a cell (of emf E and internal resistance r) as a function of the current (I) flowing through it. The slope and intercept, of the graph between V and I , then, respectively, equal:

(A) $-r$ and E (B) r and $-E$ (C) $-E$ and r (D) E and $-r$

Correct Option: A

Solution:

The terminal potential difference of a cell is given by

$$V + Ir = E$$

$$V = V_A - V_B$$

$$\text{or } V = E - Ir$$

$$\Rightarrow \frac{dV}{dI} = -r, \quad \text{Also for, } i = 0 \text{ then } V = E$$

$$\therefore \text{ slope} = -r, \text{ intercept} = E$$

13. The length of a rubber cord is l_1 meter when tension is 5 N and l_2 meter when tension is 6 N respectively. The length when tension is 9 N is

(A) $(6l_2 - 1.5l_1)\text{ m}$
 (B) $(3l_2 - 2l_1)\text{ m}$
 (C) $(2.5l_1 - 3.5l_2)\text{ m}$
 (D) $(2.5l_2 - 1.5l_1)\text{ m}$

Correct Option: D

Solution:

Let L be the original length of the rubber

cord and K be the force constant of rubber cord.

Final length = initial length + elongation

$$L' = L + \frac{F}{K}$$

For tension 4N

$$\ell_1 = L + \frac{4}{K}$$

For tension 6N

$$\ell_2 = L + \frac{6}{K}$$

Solving (i) and (ii) we get

$$L = 3\ell_1 - 2\ell_2 \text{ and } K = \frac{2}{\ell_2 - \ell_1}$$

when tension is 9 N, then

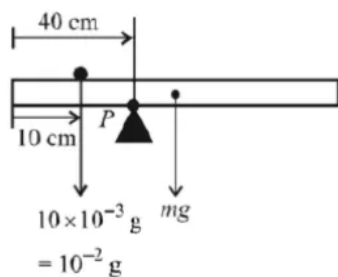
$$\text{length} = L + \frac{9}{K} = 2.5\ell_2 - 1.5\ell_1$$

14. A metre scale is balanced on a knife edge at its centre. When two coins, each of mass 10 g are put one on the top of the other at the 10.0 cm mark the scale is found to be balanced at 40.0 cm mark. The mass of the metre scale is found to be $x \times 10^{-2}$ kg. The value of x is

(A) 6 (B) 12 (C) 18 (D) 24

Correct Option: A

Solution:



Let mass of scale be ' m '. Then,

About 'P' $\hat{\tau}_{net} = 0$

$$\Rightarrow 2 \times 10^{-2} \text{ g} \times 30 - mg \times 10 = 0$$

$$\Rightarrow 6 \times 10^{-1} - 10m = 0 \Rightarrow 0.6 = 10m$$

$$\Rightarrow m = \frac{0.6}{10} \Rightarrow m = 0.06 \text{ kg}$$

15. Two solid metal balls of radii r and $2r$ are falling with their terminal speeds in a viscous liquid. What is the ratio of drag force acting on these two balls?

(A) 1 : 2 (B) 1 : 4 (C) 1 : 8 (D) 4 : 1

Correct Option: C

Solution:

$$\begin{aligned} F_v &= mg - F_b \\ &= \rho Vg - \rho_l Vg = Vg(\rho - \rho_l) \\ \text{So, } \frac{F_{v1}}{F_{v2}} &= \frac{V_1}{V_2} = \left(\frac{r}{2r}\right)^3 = \frac{1}{8} \end{aligned}$$

16. A car moves at a speed of 20 ms^{-1} on a banked track describes an arc of a circle of radius $40\sqrt{3} \text{ m}$. The angle of banking is ($g = 10 \text{ ms}^{-2}$)

(A) 25° (B) 60° (C) 45° (D) 30°

Correct Option: D

Solution:

$$\tan \theta = \frac{v^2}{rg}$$

17. The height y and the distance x along the horizontal path of a projectile on a certain planet [with no surrounding atmosphere] are given by $y = [5t - 8t^2]$ metre and $x = \text{metre}$ where t is the time in second. The velocity with which the projectile is projected, is:

(A) 5 m/s (B) 12 m/s
(C) 13 m/s (D) not obtainable from data

Correct Option: C

Solution:

$$v_x = \frac{dx}{dt} = \frac{d(12t)}{dt} = 12 \text{ and}$$

$$v_y = \frac{dy}{dt} = \frac{d(5t - 8t^2)}{dt} = 5 - 16t.$$

$$\therefore v_{t=0} = \sqrt{v_x^2 + v_y^2} = \sqrt{12^2 + 5^2} = 13 \text{ m/s}$$

18. The centre of mass of a system of particles does not depend upon

(A) masses of the particles
(B) forces acting on the particles
(C) position of the particles
(D) relative distances between the particles

Correct Option: B

Solution:

Centre of mass of system depends upon position and masses of particle. Also, it depends upon relative distance between particles.

19. The electric intensity due to a dipole of length 10 cm and having a charge of $500\mu\text{C}$, at a point on the axis at a distance 20 cm from one of the charges in air, is

- (A) $6.25 \times 10^7 \text{ N/C}$
 (B) $9.28 \times 10^7 \text{ N/C}$
 (C) $13.1 \times 10^{11} \text{ N/C}$
 (D) $20.5 \times 10^7 \text{ N/C}$

Correct Option: A

Solution:

Length of the dipole ($2l$) = 10 cm = 0.1 m or $l = 0.05 \text{ m}$

Charge on the dipole (q) = $500\mu\text{C} = 500 \times 10^{-6} \text{ C}$ and distance of the point on the axis from the midpoint of the dipole (r) = $20 + 5 = 25 \text{ cm} = 0.25 \text{ m}$.

We know that the electric field intensity due to dipole on the given point (E)

$$= \frac{1}{4\pi\epsilon_0} \times \frac{2(q \cdot 2l)r}{(r^2 - l^2)^2}$$

$$= 9 \times 10^9 \times \frac{2(500 \times 10^{-6} \times 0.1) \times 0.25}{[(0.25)^2 - (0.05)^2]^2}$$

$$= 6.25 \times 10^7 \text{ N/C}$$

20. Focal length of a convex lens of refractive index 1.5 is 2 cm. Focal length of lens when immersed in a liquid of refractive index of 1.25 will be

- (A) 10 cm (B) 2.5 cm (C) 5 cm (D) 7.5 cm

Correct Option: C

Solution:

$$\frac{f_l}{f_a} = \frac{\mu_g - 1}{\mu_l - 1} = \frac{\mu_g - 1}{\frac{\mu_g}{1.25} - 1} \Rightarrow \frac{f_l}{2} = \frac{1.5 - 1}{\frac{1.5}{1.25} - 1} \Rightarrow f_l = 5 \text{ cm}$$

21. A square loop of side 1 m and resistance 1Ω is placed in a magnetic field of 0.5 T. If the plane of loop is perpendicular to the direction of magnetic field, the magnetic flux through the loop is:

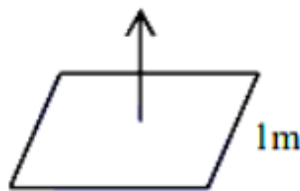
- (A) 0.5 weber (B) 1 weber
 (C) Zero weber (D) 2 weber

NEET 2022

Correct Option: A

Solution:

$$B = 0.5 \text{ T}$$



Angle between $\vec{B}$ & $\vec{A}$ is zero

$$\phi = B.A. \cos 0$$

$$= 0.5 \times (1) \times 1$$

$$= 0.5 \text{ Wb}$$

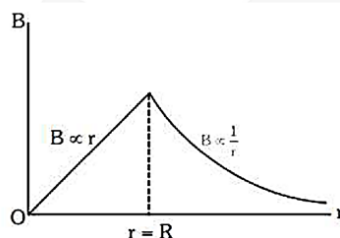
22. From Ampere's circuital law for a long straight wire of circular cross-section carrying a steady current, the variation of magnetic field in the inside and outside region of the wire is:

- (A) a linearly increasing function of distance upto the boundary of the wire and then linearly decreasing in the outside region.
 (B) a linearly increasing function of distance r upto the boundary of the wire and then decreasing one with $1/r$ dependence for the outside region.
 (C) a linearly decreasing function of distance upto the boundary of the wire and then a linearly increasing one for the outside region.
 (D) uniform and remains constant for both the regions

NEET 2020

Correct Option: B

Solution:



23. In a reverse-biased diode, when the applied voltage changes by 1 V, the current is found to change by $0.5\mu\text{A}$. The reverse bias resistance of the diode is

- (A) $2 \times 10^5 \Omega$ (B) $2 \times 10^6 \Omega$
 (C) 200Ω (D) 2Ω

Correct Option: B**Solution:**

$$\text{Reverse resistance} = \frac{\Delta V}{\Delta I} = \frac{1}{0.5 \times 10^{-6}} = 2 \times 10^6 \Omega$$

24. The approximate height from the surface of earth at which the weight of the body becomes $\frac{1}{3}$ of its weight on the surface of earth is : [Radius of earth $R = 6400$ km and $\sqrt{3} = 1.732$]

- (A) 3840 km (B) 4685 km
(C) 2133 km (D) 4267 km

JM 2022**Correct Option: B****Solution:**

$$Mg' = \frac{M}{3} g$$

$$g' = \frac{g}{3}$$

$$g' = g \left(\frac{R}{R+h} \right)^2 = \frac{g}{3}$$

$$\frac{R}{R+h} = \frac{1}{\sqrt{3}}$$

$$h = (\sqrt{3} - 1)R$$

$$= (1.732 - 1)6400$$

$$h = 4685 \text{ km}$$

25. If the nucleus ${}_{13}^{27}\text{Al}$ has nuclear radius of about 3.6 fm, then ${}_{32}^{125}\text{Te}$ would have its radius approximately as
(A) 9.6 fm (B) 12.0 fm (C) 4.8 fm (D) 6.0 fm

Correct Option: D**Solution:**

If R is the radius of the nucleus, the corresponding volume $\frac{4}{3}\pi R^3$ has been found to be proportional to A .

The relationship is expressed in inverse form as

$$R = R_0 A^{1/3}$$

The value of R_0 is 1.2×10^{-15} m, i.e., 1.2 fm

$$\text{Therefore } \frac{R_{Al}}{R_{Te}} = \frac{R_0(A_{Al})^{1/3}}{R_0(A_{Te})^{1/3}}$$

$$\frac{R_{Al}}{R_{Te}} = \frac{(A_{Al})^{1/3}}{(A_{Te})^{1/3}} = \frac{(27)^{1/3}}{(125)^{1/3}} = \frac{3}{5} \text{ or } R_{Te} = \frac{3}{5} \times R_{Al} = \frac{3}{5} \times 3.6 = 6 \text{ fm.}$$

26. A wire of resistance 160Ω is melted and drawn in wire one-fourth of its length. The new resistance of the wire will be

- (A) 10Ω (B) 640Ω (C) 40Ω (D) 16Ω

JM 2022**Correct Option: A****Solution:**

Volume = Constant

$$A_1 L_1 = A_2 L_2$$

$$A_1 L = A_2 \frac{L}{4}$$

$$\boxed{4A_1 = A_2}$$

$$R_1 = \frac{\rho L_1}{A_1}$$

$$R_2 = \frac{\rho L_2}{A_2}$$

$$\frac{R_2}{R_1} = \frac{L_2 A_1}{A_2 L_1} = \frac{L}{4} \frac{A_1}{4A_1 L}$$

$$R_2 = \frac{1}{16} R_1 = 10 \Omega$$

27. Proton (P) and electron (e) will have same deBroglie wavelength when the ratio of their momentum is (assume, $m_p = 1849 m_e$)

- (A) 1:43 (B) 43 : 1 (C) 1 : 1849 (D) 1 : 1

JM 2022**Correct Option: D****Solution:**

De Broglie wavelength is $\lambda = \frac{h}{mv}$

$$\lambda_p = \lambda_e \Rightarrow m_p v_p = m_e v_e \Rightarrow p_p = p_e$$

28. In a Young's double slit experiment, a student observe fringes in a certain segment of screen when a monochromatic light of 600 nm wavelength is used. If the wavelength of light is changed to 400 nm, then the number of fringes he would observe in the same region of the screen is:

- (A) 8 (B) 9 (C) 12 (D) 6

NEET 2022**Correct Option: C****Solution:**

$$N_{\text{off fringe}}(n) = \frac{\text{length of segment}(x)}{\text{fringe width}(\beta)}$$

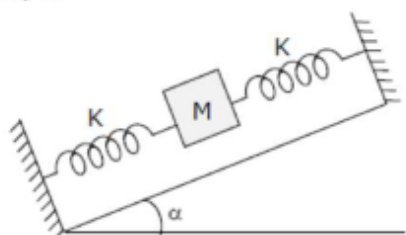
$$\Rightarrow n = \frac{x}{\beta}$$

$$\Rightarrow x = n\beta = \text{cons.}$$

$$\Rightarrow n_1\beta_1 = n_2\beta_2$$

$$\Rightarrow n_2 = 12$$

29. In the given figure, a body of mass M is held between two massless springs, on a smooth inclined plane. The free ends of the springs are attached to firm supports. If each spring has spring constant k , the frequency of oscillation of given body is :



[2021: 24 February-Shift-2]

(A) $\frac{1}{2\pi} \sqrt{\frac{2k}{Mg \sin \alpha}}$

(B) $\frac{1}{2\pi} \sqrt{\frac{k}{Mg \sin \alpha}}$

(C) $\frac{1}{2\pi} \sqrt{\frac{2k}{M}}$

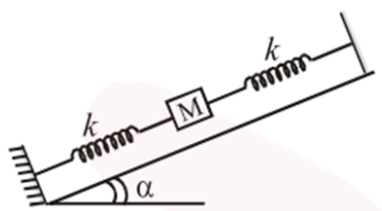
(D) $\frac{1}{2\pi} \sqrt{\frac{k}{2M}}$

JM 2021

Correct Option: C

Solution:

(1)



$$K_{\text{eq}} = K_1 + K_2 = k + k = 2k$$

$$T = 2\pi \sqrt{\frac{m}{K_{\text{eq}}}} = 2\pi \sqrt{\frac{m}{2k}}$$

$$f = \frac{1}{T} = \frac{1}{2\pi} \sqrt{\frac{2k}{m}}$$

30. A parallel plate capacitor has a uniform electric field E in the space between the plates. If the distance between the plates is d and area of each plate is A , the energy stored in the capacitor is

(A) $\frac{1}{2} \epsilon_0 E^2$

(B) $E^2 Ad / \epsilon_0$

(C) $\frac{1}{2} \epsilon_0 E^2 Ad$

(D) $\epsilon_0 E ad$

Correct Option: C

Solution:

$$U = \frac{1}{2} CV^2$$

$$V = E \cdot d, C = \frac{A\epsilon_0}{d}$$

$$U = \frac{1}{2} \frac{A\epsilon_0}{d} (Ed)^2 = \frac{1}{2} A\epsilon_0 E^2 d.$$

31. Reaction of trans 2-phenyl-1-bromocyclopentane on reaction with alcoholic KOH produces

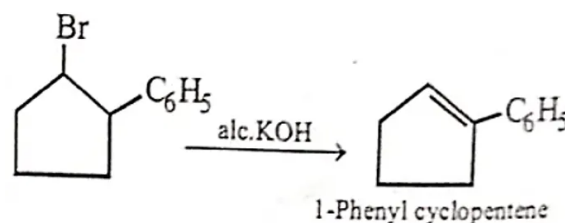
(A) 1-phenylcyclopentene (B) 3-phenylcyclopentene

(C) 4-phenylcyclopentene (D) 2-phenylcyclopentene

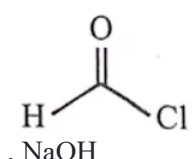
Correct Option: A

Solution:

The reaction is dehydrohalogenation



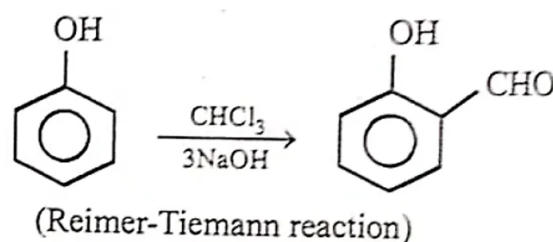
32. Salicylaldehyde is synthesized from phenol, when reacted with

(A)  (B) CO_2, NaOH

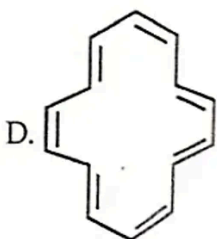
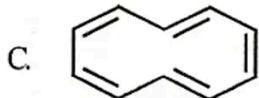
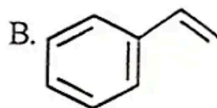
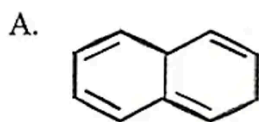
(C) $\text{CCl}_4, \text{NaOH}$ (D) $\text{HCCl}_3, \text{NaOH}$

Correct Option: D

Solution:



33. Which of the following are aromatic?



(A) B and D only

(B) A and C only

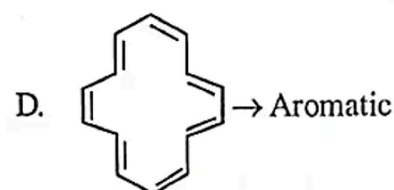
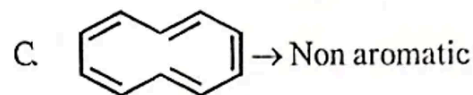
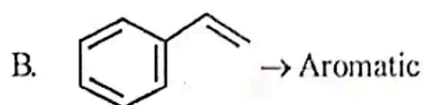
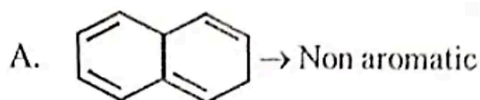
(C) A and B only

(D) C and D only

Correct Option: A

Solution:

For a compound to be aromatic it should be planar and follow Huckel's rule of $(4n + 2)\pi$ electrons.



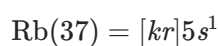
34. The correct set of four quantum numbers for the valence electrons of rubidium atom ($Z = 37$) is

(A) $5, 0, 0, +\frac{1}{2}$ (B) $5, 1, 0, +\frac{1}{2}$

(C) $5, 1, 1, +\frac{1}{2}$ (D) $5, 0, 1, +\frac{1}{2}$

Correct Option: A

Solution:



$$n = 5, l = 0, m = 0, s = +\frac{1}{2}$$

35. A sample of red ink (a colloidal suspension) is prepared by mixing eosin dye, egg white, HCHO and water. The component which ensures stability of the ink sample is

(A) HCHO (B) Eosin dye (C) Egg white (D) Water

Correct Option: C

Solution:

36. Thermal power plants can lead to :

(A) Acid rain (B) Blue baby syndrome

(C) Ozone layer depletion (D) Eutrophication

Correct Option: A

Solution:

Burning of fossil fuels (which contain sulphur and nitrogenous matter) such as coal and oil in power station and furnaces produce sulphur dioxide and nitrogen oxide which causes acid rain.

37. Which one of the following is used as antihistamine?

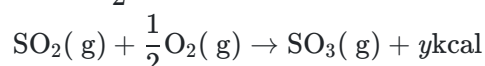
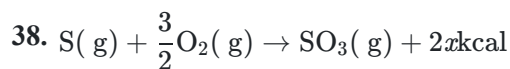
(A) Omeprazole (B) Chloranphenicol

(C) Diphenhydramine (D) Norethindrone

Correct Option: C

Solution:

(c) Diphenhydramine is used as antihistamine.



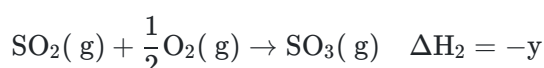
The heat of formation of $\text{SO}_2(\text{g})$ is given by :

(A) $\frac{2x}{y}\text{kcal}$ (B) $y - 2x\text{kcal}$

(C) $2x + y\text{kcal}$ (D) $x + y\text{kcal}$

Correct Option: B

Solution:



$$\Delta H_f(\text{SO}_2) = (\Delta H_1) - \Delta H_2 = (-2x) - (-y) = y - 2x$$

$2x$ and is shorter than a single bond but longer than a double bond as bond order is 1.5

39. At 300 K, the density of a certain gaseous molecule at 1 bar is double that of dinitrogen (N_2) at 4 bar. The molar mass of the gaseous molecule is:

- (A) 28 g mol^{-1}
 (B) 56 g mol^{-1}
 (C) 112 g mol^{-1}
 (D) 224 g mol^{-1}

Correct Option: C

Solution:

$$\text{Density } (\rho) = \frac{PM}{RT} \quad (1 \text{ bar} = 0.987 \text{ atm})$$

$$\rho_{N_2} = \frac{4 \times 0.987 \text{ atm} \times 28 \text{ g/mol}}{R \times 300 \text{ K}}$$

Let the molar mass of gas be x

$$\rho_{\text{gas}} = \frac{2 \times 0.987 \text{ atm} \times x}{R \times 300 \text{ K}}$$

$$\text{Given } \rho_{\text{gas}} = \rho_{N_2} \times 2$$

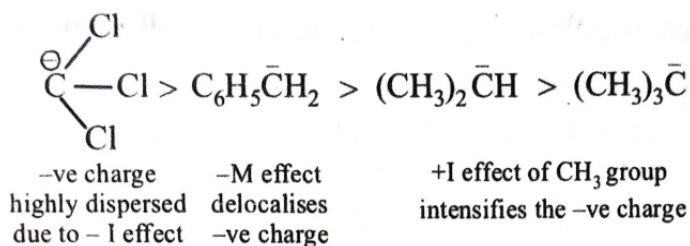
$$\frac{2 \times 0.987 \text{ atm} \times x}{R \times 300 \text{ K}} = \frac{4 \times 0.987 \text{ atm} \times 28 \text{ g/mol}}{R \times 300} \times 2$$

$$\therefore x = 112 \text{ g/mol}$$

40. Arrange the carbanions,
 $(\text{CH}_3)_3\bar{\text{C}}, \bar{\text{CCl}}_3, (\text{CH}_3)_2\bar{\text{CH}}, \text{C}_6\text{H}_5\bar{\text{CH}}_2$
 in order of their decreasing stability.
- (A) $(\text{CH}_3)_2\bar{\text{CH}} > \bar{\text{CCl}}_3 > \text{C}_6\text{H}_5\bar{\text{CH}}_2 > (\text{CH}_3)_3\bar{\text{C}}$
 (B) $\bar{\text{CCl}}_3 > \text{C}_6\text{H}_5\bar{\text{CH}}_2 > (\text{CH}_3)_2\bar{\text{CH}} > (\text{CH}_3)_3\bar{\text{C}}$
 (C) $(\text{CH}_3)_3\bar{\text{C}} > (\text{CH}_3)_2\bar{\text{CH}} > \text{C}_6\text{H}_5\bar{\text{CH}}_2 > \bar{\text{CCl}}_3$
 (D) $\text{C}_6\text{H}_5\bar{\text{CH}}_2 > \bar{\text{CCl}}_3 > (\text{CH}_3)_3\bar{\text{C}} > (\text{CH}_3)_2\bar{\text{CH}}$

Correct Option: B

Solution:



41. The equilibrium constant for the reaction
 $\text{SO}_3(\text{g}) \rightleftharpoons \text{SO}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g})$ is
 $K_C = 4.9 \times 10^{-2}$. The value of K_C for the reaction
 given below is $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g})$.
- (A) 4.9 (B) 41.6 (C) 49 (D) 416

Correct Option: D

Solution:

$$K'_C = \left(\frac{1}{K_C}\right)^2 = \left(\frac{1}{4.9 \times 10^{-2}}\right)^2$$

$$K'_C = 416.49$$

42. An element has a face centred cubic (fcc) structure with cell edge of a . The distance between the centres of two nearest tetrahedral voids in the lattice is:
- (A) $\frac{a}{2}$ (B) a
 (C) $\frac{3}{2}a$ (D) $\sqrt{2}a$

Correct Option: A

Solution:

$$\text{Distance between two nearest tetrahedral void} = \left(\frac{a}{2}\right).$$

43. A similarity between optical and geometrical isomerism is that :
- (A) Each forms equal number of isomers for a given compound
 (B) If in a compound, one is present then so is the other
 (C) Both are included in stereoisomerism
 (D) They have no similarity

Correct Option: C

Solution:

Both are included in stereoisomerism.

44. $t_{1/4}$ can be taken as the time taken for the concentration of a reactant to drop to $\frac{3}{4}$ of its initial value. If the rate constant for a first order reaction is K , $t_{1/4}$ can be written as -
- (A) $0.29/K$ (B) $0.10/K$ (C) $0.75/K$ (D) $0.69/K$

Correct Option: A

Solution:

$$t_{1/4} = \frac{2.303}{k} \log \frac{1}{1 - \frac{1}{4}} = 0.29/K$$

45. 2,4 -DNP test can be used to identify :
- (A) Amine (B) Aldehyde (C) Ether (D) Halogen

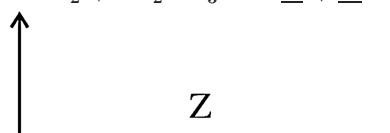
JM 20

Correct Option: B

Solution:

2,4 -DNP test is useful for the identification of carbonyl compounds.

46. In the given reaction cycle
 $\text{CaCl}_2 + \text{Na}_2\text{CO}_3 \rightarrow \underline{\text{X}} + \underline{\text{Y}}$



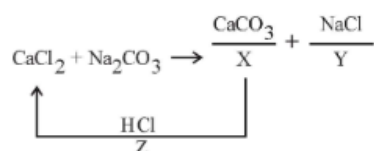
X, Y and Z respectively are

- (A) $\begin{matrix} \text{X} & \text{Y} & \text{Z} \\ \text{CaO} & \text{NaCl} + \text{CO}_2 & \text{KCl} \end{matrix}$
- (B) $\begin{matrix} \text{X} & \text{Y} & \text{Z} \\ \text{CaCO}_3 & \text{NaCl} & \text{KCl} \end{matrix}$
- (C) $\begin{matrix} \text{X} & \text{Y} & \text{Z} \\ \text{CaCO}_3 & \text{NaCl} & \text{HCl} \end{matrix}$
- (D) $\begin{matrix} \text{X} & \text{Y} & \text{Z} \\ \text{CaO} & \text{NaCl} + \text{CO}_2 & \text{NaCl} \end{matrix}$

JM 2023

Correct Option: C

Solution:



47. Consider the ions/molecule O_2^+ , O_2^- , O_2^{2-} , O_2 For increasing bond order the correct option is :

- (A) $\text{O}_2^{2-} < \text{O}_2^- < \text{O}_2 < \text{O}_2^+$
- (B) $\text{O}_2^- < \text{O}_2^{2-} < \text{O}_2 < \text{O}_2^+$
- (C) $\text{O}_2^- < \text{O}_2^{2-} < \text{O}_2^+ < \text{O}_2$
- (D) $\text{O}_2^- < \text{O}_2^+ < \text{O}_2^{2-} < \text{O}_2$

JM 2022

Correct Option: A

Solution:

ion/molecule	Number of e^- in BMO	Number of e^- in ABMO	Bond order
O_2^+	10	5	2.5
O_2	10	6	2
O_2^-	10	7	1.5
O_2^{2-}	10	8	1

Bond order $\text{O}_2^{2-} < \text{O}_2^- < \text{O}_2 < \text{O}_2^+$

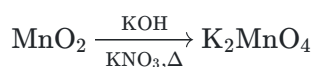
48. Preparation of potassium permanganate from MnO_2 involves two step process in which the 1st step is a reaction with KOH and KNO_3 to produce

- (A) $\text{K}_4[\text{Mn}(\text{OH})_6]$
- (B) K_3MnO_4
- (C) KMnO_4
- (D) K_2MnO_4

JM 2020

Correct Option: D

Solution:



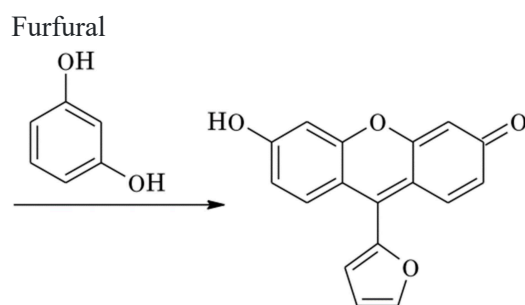
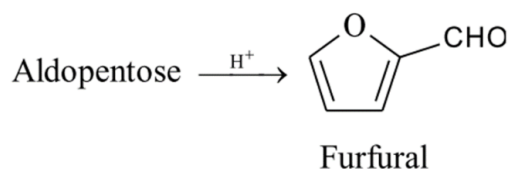
49. A sugar 'X' dehydrates very slowly under acidic condition to give furfural which on further reaction with resorcinol gives the coloured product after sometime. Sugar 'X' is

- (A) Aldopentose
- (B) Aldotetrose
- (C) Oxalic acid
- (D) Ketotetrose

JM 2020

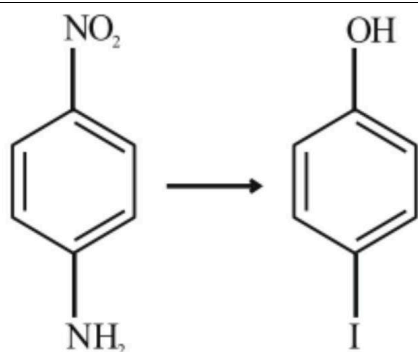
Correct Option: A

Solution:



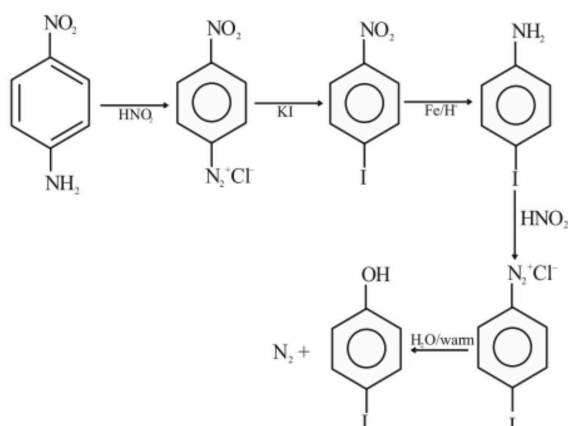
Cherry red product (selivanoff's test)

50. The correct sequential order of the reagents for the given reaction is :



- (A) $\text{HNO}_2, \text{Fe}/\text{H}^+, \text{HNO}_2, \text{KI}, \text{H}_2\text{O}/\text{H}^+$
 (B) $\text{HNO}_2, \text{KI}, \text{Fe}/\text{H}^+, \text{HNO}_2, \text{H}_2\text{O}/\text{warm}$
 (C) $\text{HNO}_2, \text{KI}, \text{HNO}_2, \text{Fe}/\text{H}^+, \text{H}_2\text{O}/\text{H}^+$
 (D) $\text{HNO}_2, \text{Fe}/\text{H}^+, \text{KI}, \text{HNO}_2, \text{H}_2\text{O}/\text{warm}$

JM 2022

Correct Option: B**Solution:**

51. Which of the following mixing of 1 M base and 1 M acid leads to the largest increase in temperature?

- (A) 30 mL HCl and 30 mL NaOH
 (B) 30 mL H_3COOH and 30 mL NaOH
 (C) 50 mL HCl and 20 mL NaOH
 (D) 45 mL H_3COOH and 25 mL NaOH

JM 2025

Correct Option: A**Solution:**

Higher the number of milli moles of acid or base reacted higher will be temperature rise.

Option (4) n_{acid} or n_{base} reacted = 30 mmol

Option (2) n_{acid} or n_{base} reacted = 30 mmol

but less energy will be released by neutralisation reaction of weak acid hence option (2) can not be correct.

Option (3) $\Rightarrow$ 20 mmol

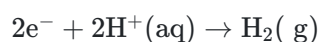
Option (4) $\Rightarrow$ 25 mmol

Hence Correct Option (1)

52. What pressure (bar) of H_2 would be required to n emf of hydrogen electrode zero in pure water at 25C

- (A) 10^{-14} (B) 10^{-7}
 (C) 1 (D) 0.5

JM 2020

Correct Option: A**Solution:**

$$E = E^\circ - \frac{0.059}{n} \log \frac{P_{\text{H}_2}}{[\text{H}^+]^2}$$

$$0 = 0 - \frac{0.059}{2} \log \frac{P_{\text{H}_2}}{(10^{-7})^2}$$

$$\log \frac{P_{\text{H}_2}}{(10^{-7})^2} = 0$$

$$\frac{P_{\text{H}_2}}{10^{-14}} = 1$$

$$P_{\text{H}_2} = 10^{-14} \text{ bar}$$

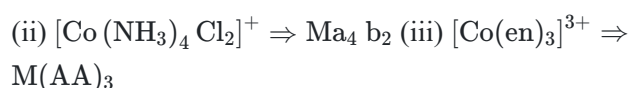
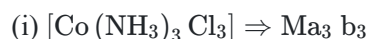
53. The complex that shows Facial - Meridional isomerism

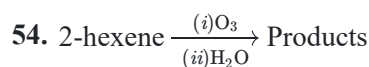
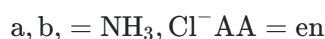
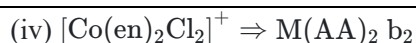
- (A) $[\text{Co}(\text{NH}_3)_3 \text{Cl}_3]$
 (B) $[\text{Co}(\text{NH}_3)_4 \text{Cl}_2]^+$
 (C) $[\text{Co}(\text{en})_3]^{3+}$
 (D) $[\text{Co}(\text{en})_2 \text{Cl}_2]^+$

JM 2020

Correct Option: A**Solution:**

$\text{Ma}_3 \text{b}_3$ type complexes show Facial - Meridional isomerism





The two products formed in above reaction are -

- (A) Butanoic acid and (B) Butanal and acetic acid
acetic acid
(C) Butanal and (D) Butanoic acid and
acetaldehyde acetaldehyde

Correct Option: A

Solution:



It is oxidative ozonolysis.

55. Which of the following electronegativity order is incorrect?

- (A) $Al < Mg < B < N$
(B) $Al < Si < C < N$
(C) $Mg < Be < B < N$
(D) $S < Cl < O < F$

JM 2025

Correct Option: A

Solution:

	Li	Be	B	C	N	O	F
(E.N.) =	1	1.5	2	2.5	3	3.5	4.0

On pauling scale

	Na	Mg	Al	Si	P
(E.N.) =	0.9	1.2	1.5	1.8	2.1

Correct order $Mg < Al < B < N$

56. What will be the decreasing order of basic strength of the following conjugate bases?



- (A) $Cl^- > OH^- > R\bar{O} > CH_3CO\bar{O}$
(B) $R\bar{O} > ^-OH > CH_3CO\bar{O} > Cl^-$
(C) $^-OH > R\bar{O} > CH_3CO\bar{O} > Cl^-$
(D) $Cl^- > R\bar{O} > ^-OH > CH_3CO\bar{O}$

Correct Option: B

Solution:

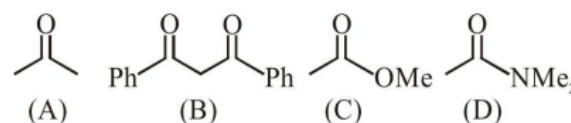
Strong acid have weak conjugate base. Acidic strength :



Conjugate base strength :



57. The increasing order of the acidity of the α -hydroge the following compounds is :

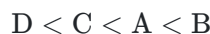
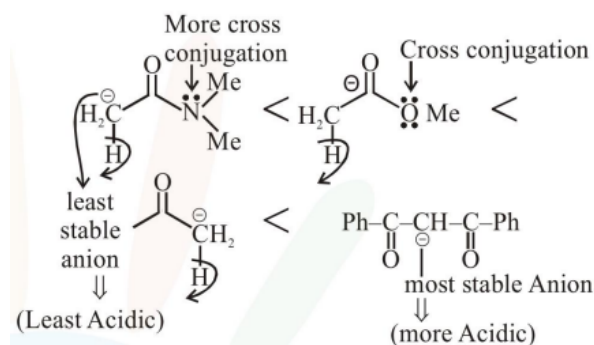


{2020 : 05 September - Shift-1}

- (A) $(C) < (A) < (B) < (D)$
(B) $(B) < (C) < (A) < (D)$
(C) $(A) < (C) < (D) < (B)$
(D) $(D) < (C) < (A) < (B)$

Correct Option: D

Solution:



S Cl

58. Element not showing variable oxidation state is:

- (A) Bromine (B) Iodine (C) Chlorine (D) Fluorine

JM 20:

Correct Option: D

Solution:

Fluorine does not show variable oxidation state.

59. Identify the factor from the following that does not a electrolytic conductance of a solution.

- (A) The nature of the electrolyte added.

- (B) The nature of the electrode used.
 (C) Concentration of the electrolyte.
 (D) The nature of solvent used.

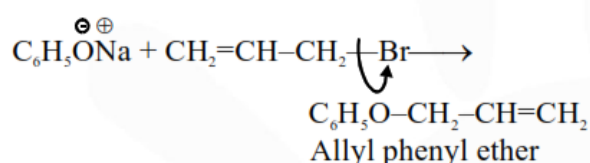
JM 2024

Correct Option: B**Solution:**

Conductivity of electrolytic cell is affected by concentration of electrolyte, nature of electrolyte and nature of solvent.

60. Allyl phenyl ether can be prepared by heating:

- (A) $\text{CH}_2 = \text{CH} - \text{Br} + \text{C}_6\text{H}_5 - \text{CH}_2 - \text{ONa}$
 (B) $\text{C}_6\text{H}_5\text{Br} + \text{CH}_2 = \text{CH} - \text{CH}_2 - \text{ONa}$
 (C) $\text{C}_6\text{H}_5 - \text{CH} = \text{CH} - \text{Br} + \text{CH}_3 - \text{ONa}$
 (D) $\text{CH}_2 = \text{CH} - \text{CH}_2 - \text{Br} + \text{C}_6\text{H}_5\text{ONa}$

Correct Option: D**Solution:**

61. The CEO's decision to resign was seen as a _____ move, aimed at protecting the company's reputation during the scandal.

- (A) Cowardly (B) Tactical (C) Abrupt (D) Emotional

Correct Option: B**Solution:**

62. Choose the most effective word from the given options to fill in the blank and to make the sentence meaningfully complete.

In an age dominated by social media, the line between authentic emotion and performative _____ has grown increasingly thin.

- (A) isolation (B) sympathy
 (C) outrage (D) detachment

Correct Option: C**Solution:**

63. In the questions given below, find out the part of sentence which contains an error.

Scarcely had she stepped

- (A) out of the room when (B) she remembered she
 (C) her phone on the table. (D) No error

Correct Option: B**Solution:**

64. She has been knowing the secret for several months.

- (A) knows (B) knew
 (C) has known (D) No improvement

Correct Option: B**Solution:**

65. After losing the final match, the team had to face the criticism from their disappointed coach.

- (A) Enjoy the praise
 (B) Accept the punishment or criticism
 (C) Dance to the tunes
 (D) Start a new performance

Correct Option: B**Solution:**

66. In the questions given below, find out the part of sentence which contains an error.

Hardly had the meeting begun

- (A) when the delegates (B) starts raising objections
 (C) to the proposed resolution. (D) No error

Correct Option: B**Solution:**

This sentence uses an inversion ("Hardly had..."), so the rest must follow correct tense. The verb "starts" (present tense) is incorrect; it should be "started" (past tense) to maintain consistency.

67. Choose the word which is nearest in meaning to the given word. Gaudy

- (A) Modest (B) Elegant (C) Dull (D) Flashy

Correct Option: D**Solution:**

Gaudy means excessively bright, showy, or tastelessly flashy. The word "flashy" best captures that sense. The

other options either imply subtlety (modest, elegant) or lack of color/brightness (dull).

68. Choose the word opposite in meaning to the word given in capital. **WRANGLE**

(A) Argue (B) Fight (C) Agree (D) Dispute

Correct Option: C

Solution:

"Wrangle" means to argue or quarrel noisily. The opposite of that is "agree," which means to share the same opinion or come to a mutual understanding. The other options are synonyms of "wrangle."

69. In the question given below, the 1st and the last sentences /parts of the passage/sentence are numbered *I* and *6*. The rest of the passage/ sentence is split into four parts and named *P*, *Q*, *R* and *S*. These four parts are not given in their proper order. Read the passage/ sentence and find out which of the four combinations is correct. Then find the correct answer.

Human memory is not a perfect recorder of events.

P. Instead, memories are reconstructed, often influenced by our current beliefs and emotions.

Q. Studies show that people frequently misremember details of events they've experienced.

R. This explains why eyewitness testimonies can sometimes be unreliable.

S. Even vivid memories may change subtly each time we recall them.

Thus, memory is more malleable and subjective than we usually assume.

(A) PSQR (B) SPQR (C) SQPR (D) PQSR

Correct Option: B

Solution:

S introduces the idea that even vivid memories shift over time. *P* explains why - memories are reconstructed. *Q* then supports this with scientific findings. *R* concludes with the real-world impact of this phenomenon. The sequence builds logically from subtle memory change to explanation, then evidence, then consequence.

70. DIRECTIONS: In the question given below, the 1st and the last sentences/parts of the passage are numbered *I* and *6*. The rest of the passage/sentence is split into four parts and named *P*, *Q*, *R*, and *S*. These four parts are not given in their proper order. Read the passage/sentence and find out which of the four combinations is correct. Then find the correct answer.

1. Creativity is not a talent reserved for a chosen few, but a skill that can be nurtured with practice and patience.

P. This often means allowing oneself to explore new ideas without the fear of judgment or failure.

Q. Like any skill, it flourishes in environments that encourage curiosity, risk-taking, and persistence.

R. Over time, these habits strengthen cognitive flexibility and deepen original thinking.

S. Engaging regularly in creative pursuits, even in small ways, builds confidence and resilience.

6. Therefore, cultivating creativity is as much about mindset as it is about method.

Which of the following is the correct order?

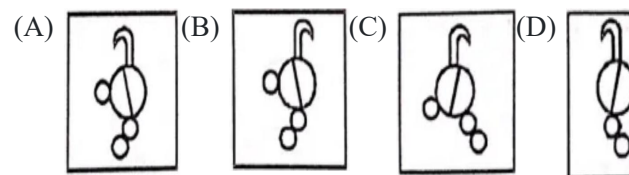
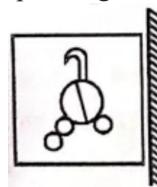
(A) QPSR (B) PQSR (C) QSRP (D) PSQR

Correct Option: A

Solution:

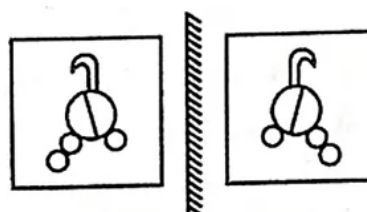
The paragraph starts with *Q*, which introduces the idea that creativity grows in encouraging environments. *P* follows by highlighting the need to overcome fear. *S* shows how small actions build creative confidence, and *R* concludes by explaining the long-term benefits. Together, they build a logical, developmental flow from environment to habit to result.

71. Identify the figure which logically completes the sequence given in the question figure.

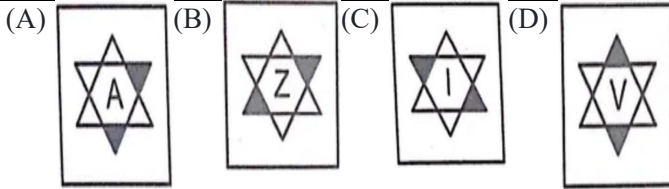


Correct Option: C

Solution:



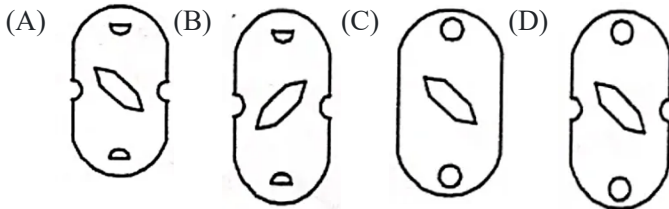
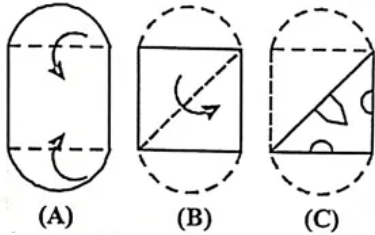
72. In questions 85, four figures (a), (b), (c), (d) have been given in each question. Of these four figures three figures are similar in some way and one figure is different. Select the figure which is different.



Correct Option: A

Solution:

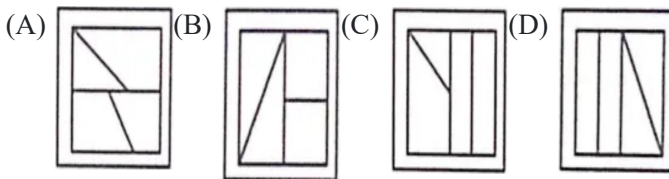
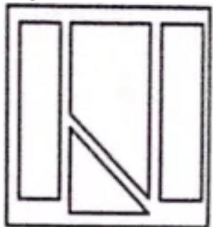
73. Choose the figure that completes the pattern in the question figure.



Correct Option: D

Solution:

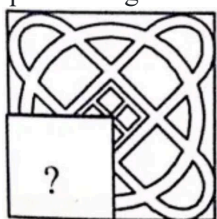
74. Figure:



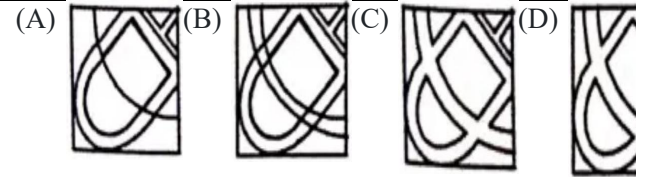
Correct Option: C

Solution:

75. Identify the figure which will complete the pattern in the question figure.

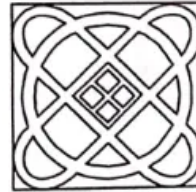


X



Correct Option: C

Solution:



76. Find the missing number in the following table:

7	3	10
3	4	7
2	7	?
42	84	140

(A) 2 (B) 17 (C) 9 (D) 34

Correct Option: A

Solution:

77. Statement:

Some dreams are nights

Some nights are days

Conclusion:

(I) All days are either nights or dreams

(II) Some days are nights

(A) If only conclusion I follows.

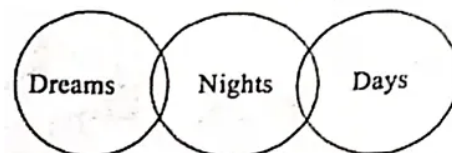
(B) If only conclusion II follows.

(C) If either conclusion I or conclusion II follows.

(D) If neither conclusion I nor conclusion II follows.

Correct Option: B

Solution:



Conclusions:-

(I) All days are either nights or dreams ×

(II) Some days are nights ✓

78. Statement:

All mangoes are grapes.

Some grapes are black.

Conclusion

(I) Some mangoes being black is a possibility

(II) There is a possibility that some mangoes are not black

Choose the correct option:

(A) If only conclusion I follows.

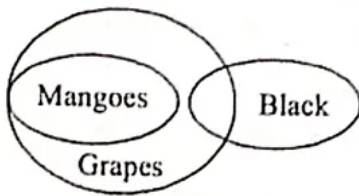
(B) If only conclusion II follows.

(C) If either conclusion I or conclusion II follows.

(D) If neither conclusion I nor conclusion follows.

Correct Option: C

Solution:



Conclusion:-

(I) Some mangoes being black is a possibility ✓

(II) There is a possibility that some mangoes are not black ✓

79. 11 rule is coded as 2293, EAR1H is coded as 32681, how is PEARL coded in that code?

(A) 53269 (B) 53629 (C) 53829 (D) 53289

Correct Option: A

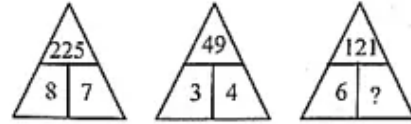
Solution:

P	A	L	E	and	E	A	R	T	H
↓	↓	↓	↓		↓	↓	↓	↓	↓
5	2	9	3		3	2	6	8	1

So,

P	E	A	R	L
↓	↓	↓	↓	↓
5	3	2	6	9

80. Select the missing number from the given responses.



(A) 20

(B) 5

(C) 4

(D) 21

Correct Option: B

Solution:

81. $\sqrt{AFI} = M : \sqrt{ADD} = L :: \sqrt{ABA} = ?$

(A) I

(B) N

(C) O

(D) K

Correct Option: D

Solution:

82. Select the correct option that indicates the arrangement of the following words in a logical and meaningful order

1. Drive vehicle

2. Unlock vehicle

3. Start vehicle

4. Reach destination

5. Parking of vehicle

(A) 2, 3, 4, 1, 5

(B) 2, 3, 1, 4, 5

(C) 1, 5, 4, 3, 2

(D) 2, 4, 1, 3, 5

Correct Option: B

Solution:

83. Choose the correct alternative from the given ones that will complete the series. Double, Triple, Quadruple, ?

(A) Quintuple (B) Nonuple (C) Sextuple (D) Octuple

Correct Option: A

Solution:

The next term is quintuple because quintuple means five times.

84. Deepika tells Shraddha "Your mother's father's son is husband of my sister." How is Deepika related to Shraddha?

(A) Sister-in-law

(B) Cousin

(C) Aunt

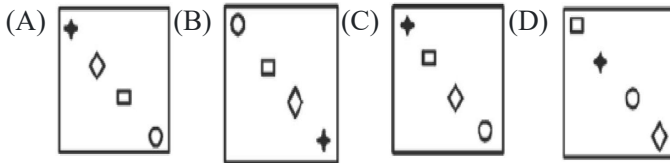
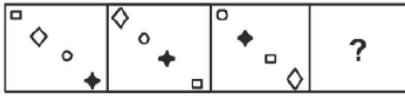
(D) Data inadequate

Correct Option: C

Solution:

Shraddha's mother's father's son is Shraddha's maternal uncle. Shraddha's maternal uncle is husband of Deepika's sister. Deepika is 'aunt' of Shraddha.

85. Select the figure that will replace the question mark (?) in the following figure series.

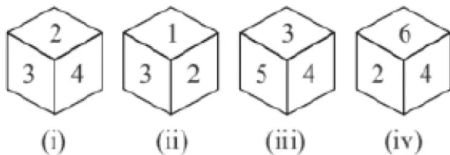


Correct Option: C

Solution:

In every next figure, each symbol is shifted to its next top position along the same diagonal and the symbol at the top position moves to the bottom position in every next figure.

86. 1, 2, 3, 4, 5 and 6 have written on surface of dice. Four forms of dice shown below. In this dice which digit will be on the surface opposite to the digit 3?

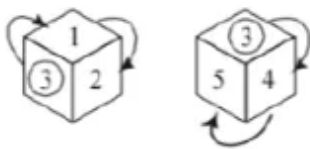


- (A) 4 (B) 5 (C) 6 (D) 1

Correct Option: C

Solution:

From figure (ii) and (iii)



1 will be opposite of 4

2 will be opposite of 5

3 will be opposite of 6 missing number

87. If it is possible to form a word with the first, fourth, seventh and eleventh letters in the word 'SUPERFLUOUS', write the first letter of that word.

- (A) O (B) E (C) S (D) L

Correct Option: D

Solution:

SUPERFLUOUS

1st 4th 7th 11th

So, possible word with S, E, L, S is LE SS

88. Find the odd one out: Ostrich, Crow, Pigeon, Sparrow

- (A) Ostrich (B) Pigeon (C) Crow (D) Sparrow

Correct Option: A

Solution:

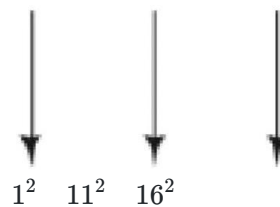
89. AKP : 1121256 : LNO : ?

- (A) 196125144 (B) 144196225 (C) 144225196 (D) 41521

Correct Option: B

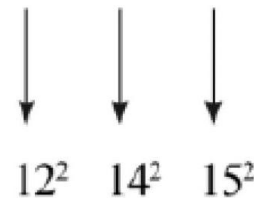
Solution:

A K P : 1121256



Similarly,

L N O : 144196225



90. Which one set of letters when sequentially placed at gaps in the given letter series would complete it? fgfgff ____ f ____ gfg ____ fgfo

- (A) fgfgf (B) ccfc (C) fgfg (D) ffgg

Correct Option: A

Solution:

The sequence is:

f ggxf / gff / fgf / gxf fg / f

91. Let α, β be the roots of the equation $x^2 - \sqrt{2}x + \sqrt{6} = 0$ and $\frac{1}{\alpha^2} + 1, \frac{1}{\beta^2} + 1$ be the roots of the equation $x^2 + ax + b = 0$. Then the roots of the equation $x^2 - (a + b - 2)x + (a + b + 2) = 0$ are:

- (A) non-real complex numbers
(B) real and both negative



(C) real and both positive

(D) real and exactly one of them is positive

Correct Option: B

Solution:

92. The number of three digit numbers having only two consecutive digits identical is

(A) 153 (B) 162 (C) 168 (D) 163

Correct Option: B

Solution:

93. If a, b, c are in G.P., then

(A) a^2, b^2, c^2 are in G.P.

(B) $a^2(b+c), c^2(a+b), b^2(a+c)$ are in Q.P.

(C) $\frac{a}{b+c}, \frac{b}{c+a}, \frac{c}{a+b}$ are in G.P.

(D) None of the above

Correct Option: A

Solution:

94. If $A = 1 + r^a + r^{-a} + r^{-} + \dots \infty$ and $B = 1 + r^b + r^{2b} + r^{3b} + \dots \infty$, then $\frac{a}{b}$ is equal to

(A) $\log_B(A)$

(B) $\log_{1-B}(1-A)$

(C) $\log_{\frac{B-1}{B}}\left(\frac{A-1}{A}\right)$

(D) None of these

Correct Option: C

Solution:

95. If the slope of one of the lines given by $a^2x^2 + 2hxy + b^2y^2 = 0$ be three times of the other then h is equal to

(A) $2\sqrt{3}ab$

(B) $-2\sqrt{3}ab$

(C) $\frac{2}{\sqrt{3}}ab$

(D) None of these

Correct Option: C

Solution:

96. If value of $\lim_{x \rightarrow \frac{\pi}{4}} \frac{4\sqrt{2} - (\cos x + \sin x)^5}{1 - \sin 2x}$ is a $\sqrt{2}$,

(A) 2

(B) 3

(C) 4

(D) 5

Correct Option: D

Solution:

97. Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ be two functions such $f(x) = 2x - 3$ and $g(x) = x^3 + 5$. Find the function $g^{-1}(x)$ is equal to

(A) $\left(\frac{x+7}{2}\right)^{1/3}$

(B) $\left(x - \frac{7}{2}\right)^{1/3}$

(C) $\left(\frac{x-2}{7}\right)^{1/3}$

(D) $\left(\frac{x-7}{2}\right)^{1/3}$

Correct Option: D

Solution:

98. If $x = b \cos^{-1} \sqrt{\frac{y}{b}} + \sqrt{by - y^2}$, then $\frac{dy}{dx} =$

(A) $-\sqrt{\frac{b}{y} - 1}$

(B) $\sqrt{1 - \frac{b}{y}}$

(C) $\sqrt{by - y^2}$

(D) 0

Correct Option: B

Solution:

99. Let $f(x) = \begin{cases} \frac{x-4}{|x-4|} + a, & x < 4 \\ a + b, & x = 4 \\ \frac{x-4}{|x-4|} + b, & x > 4 \end{cases}$ Then $f(x)$ is continuous at $x = 4$ when

(A) $a = 0, b = 0$ (B) $a = 1, b = 1$ (C) $a = -1, b = 1$ (D) $a = 1, b = -1$

Correct Option: D

Solution:

100. If $\left(\frac{1-i}{1+i}\right)^{100} = a + ib$ then

(A) $a = 2, b = -1$ (B) $a = 1, b = 0$ (C) $a = 0, b = 1$ (D) $a = -1, b = 2$

Correct Option: B

Solution:

101. $\int \frac{2x^4 + x - 1}{2(x-1)(x^2+1)} dx$ is equal to

(A) $\frac{x^2}{2} + x + \frac{1}{2} \log(x-1) - \frac{1}{4} \log(x^2+1)$

(B) $\frac{x^2}{2} + x + \frac{1}{2} \log(x-1) + \frac{1}{4} \log(x^2+1)$

(C) $\frac{x^2}{2} - x + \frac{1}{2} \log(x-1) + \frac{1}{4} \log(x^2+1) + \frac{1}{2} \tan^{-1} x + C$

(D) None of these

Correct Option: A

Solution:

102. The area bounded by curves $(x-1)^2 + y^2 = 1$ and $x^2 + y^2 = 1$ is

- (A) $(\frac{2\pi}{3} - \frac{\sqrt{3}}{2})$
 (B) $\frac{2\pi}{3}$
 (C) $\frac{\sqrt{3}}{2}$
 (D) $\frac{2\pi}{3} + \frac{\sqrt{3}}{2}$

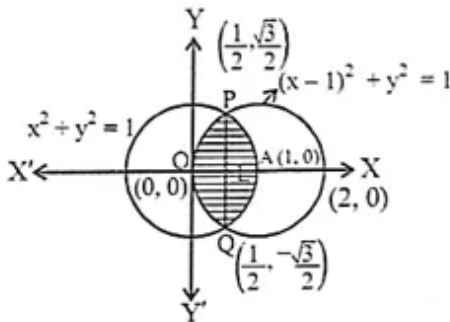
Correct Option: A

Solution:

Given circles are $x^2 + y^2 = 1$...(i)

and $(x-1)^2 + y^2 = 1$...(ii)

Centre of (i) is $O(0, 0)$ and radius = 1



Both these circles are symmetrical about x-axis. Solving (i) and

(ii), we get, $-2x + 1 = 0 \Rightarrow x = \frac{1}{2}$ then $y^2 = 1 - (\frac{1}{2})^2 = \frac{3}{4} \Rightarrow y = \pm \frac{\sqrt{3}}{2}$

$\Rightarrow$ The points of intersection are $P(\frac{1}{2}, \frac{\sqrt{3}}{2})$ and $Q(\frac{1}{2}, -\frac{\sqrt{3}}{2})$

It is clear from the figure that the shaded portion in region whose area is required.

$\Rightarrow$ Required area = area $OQAPO = 2 \times$ area of the region $OLAP = 2 \times (\text{area of the region } OLPO + \text{area of } LAPL)$

$$= 2 \left[\int_0^{1/2} \sqrt{1 - (x-1)^2} dx + \int_{1/2}^1 \sqrt{1 - x^2} dx \right]$$

$$= 2 \left[\frac{(x-1)\sqrt{1 - (x-1)^2}}{2} + \frac{1}{2} \sin^{-1}(x-1) \right]_0^{1/2}$$

$$+ 2 \left[\frac{x\sqrt{1-x^2}}{2} + \frac{1}{2} \sin^{-1} x \right]_{1/2}^1$$

$$= -\frac{1}{2} \cdot \frac{\sqrt{3}}{2} + \sin^{-1} \left(-\frac{1}{2} \right) - \sin^{-1}(-1) + 0$$

$$+ \sin^{-1}(1) - \left(\frac{1}{2} \cdot \frac{\sqrt{3}}{2} + \sin^{-1} \left(\frac{1}{2} \right) \right)$$

$$= \left(\frac{2\pi}{3} - \frac{\sqrt{3}}{2} \right) \text{ sq. units.}$$

103. The solution of the differential equation $\frac{dy}{dx} + \frac{y}{x \log x} :$ is

- (A) $y = \frac{1}{2} \log x + c(\log x)^{-1}$
 (B) $y = \log x + c(\log x)^{-1}$
 (C) $y = \frac{1}{2} \log x + \frac{c}{(\log x)^2}$
 (D) $y = \frac{1}{3} \log x - c(\log x)^{-1}$

Correct Option: A

Solution:

104. The solution of $x dx + y dy = x^2 y dy - xy^2 dx$ is

- (A) $x^2 - 1 = c(1 + y^2)$ (B) $x^2 + 1 = c(1 - y^2)$
 (C) $x^3 - 1 = c(1 + y^3)$ (D) $x^3 + 1 = c(1 - y^3)$

Correct Option: A

Solution:

105. For three vectors $\vec{u}, \vec{v}, \vec{w}$ which of the following expressions is not equal to any of the remaining three?

- (A) $\vec{u} \cdot (\vec{v} \times \vec{w})$
 (B) $(\vec{v} \times \vec{w}) \cdot \vec{u}$
 (C) $\vec{v} \cdot (\vec{u} \times \vec{w})$
 (D) $(\vec{u} \times \vec{v}) \cdot \vec{w}$

Correct Option: D

Solution:

106. A line makes the same angle θ with each of the x and y axes. If the angle β , which it makes with the z-axis, is such that $\sin^2 \beta = 3 \sin^2 \theta$, then $\cos^2 \theta$ equals:

- (A) $\frac{2}{5}$ (B) $\frac{1}{5}$
 (C) $\frac{3}{5}$ (D) $\frac{2}{3}$

Correct Option: C

Solution:



107. If $\sin A = \frac{3}{5}$ and A is in first quadrant, then the values of $\sin 2A$, $\cos 2A$ and $\tan 2A$ are

- (A) $\frac{24}{25}, \frac{7}{25}, \frac{24}{7}$
 (B) $\frac{1}{25}, \frac{7}{25}, \frac{1}{7}$
 (C) $\frac{24}{25}, \frac{1}{25}, \frac{24}{7}$
 (D) $\frac{1}{25}, \frac{24}{25}, \frac{1}{24}$

Correct Option: A

Solution:

We have, $\sin A = \frac{3}{5}$

$$\Rightarrow \cos A = \sqrt{1 - \sin^2 A}$$

$$= \sqrt{1 - \frac{9}{25}} = \sqrt{\frac{16}{25}} = \frac{4}{5}$$

$$\text{and } \tan A = \frac{\sin A}{\cos A} = \frac{\frac{3}{5}}{\frac{4}{5}} = \frac{3}{4}$$

Now, $\sin 2A = 2 \sin A \cdot \cos A$

$$= 2 \times \frac{3}{5} \times \frac{4}{5} = \frac{24}{25}$$

$$\cos 2A = 1 - 2 \sin^2 A = 1 - 2 \times \frac{9}{25}$$

$$= 1 - \frac{18}{25} = \frac{7}{25} \text{ and } \tan 2A = \frac{24}{7}.$$

108. Which of the following relation is a function?

- (A) $\{(a, b), (b, e), (c, e), (b, x)\}$
 (B) $\{(a, d), (a, m), (b, e), (a, b)\}$
 (C) $\{(a, d), (b, e), (c, d), (e, x)\}$
 (D) $\{(a, d), (b, m), (b, y), (d, x)\}$

Correct Option: C

Solution:

Since in (c) each element is associated with unique element. While in (a) element b is associated with two elements, in (b) element a is associated with three elements and in (d) element b is associated with two elements so relation given in option (c) is function.

109. Given the sets $A = \{1, 3, 5\}$, $B = \{2, 4, 6\}$ and $C = \{0, 2, 4, 6, 8\}$. Which of the following may be considered as universal set for all the three sets A , B and C ?

- (A) $\{0, 1, 2, 3, 4, 5, 6\}$ (B) $\emptyset$
 (C) $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ (D) $\{1, 2, 3, 4, 5, 6, 7, 8\}$

Correct Option: C

Solution:

$$(c) A \cup B \cup C = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

110. If $2 \tan^2 \theta = \sec^2 \theta$, then general value of θ are

- (A) $n\pi \pm \frac{\pi}{4}, n \in \mathbb{I}$
 (B) $n\pi \pm \frac{\pi}{6}, n \in \mathbb{I}$
 (C) $2n\pi + \frac{\pi}{4}, n \in \mathbb{I}$
 (D) $2n\pi \pm \frac{\pi}{6}, n \in \mathbb{I}$

Correct Option: A

Solution:

$$2 \tan^2 \theta = \sec^2 \theta = 1 + \tan^2 \theta$$

$$\Rightarrow \tan^2 \theta = 1 = (1)^2$$

$$= \tan^2 \frac{\pi}{4}$$

$$\theta = n\pi \pm \frac{\pi}{4}, n \in \mathbb{I}$$

111. The set of values of k for which the equation $4x^2 - 2x + k = 0$ has two roots lying in the interval $(-1, 1)$

- (A) $(-2, \frac{1}{4}]$ (B) $(-6, \infty)$
 (C) $(-\infty, \frac{1}{4}]$ (D) $(-2, \infty)$

Correct Option: A

Solution:

$$D = 4 - 16k \geq 0 \Rightarrow k \leq \frac{1}{4}$$

$$f(-1) = 6 + k > 0 \Rightarrow k > -6$$

$$f(1) = 2 + k > 0 \Rightarrow k > -2$$

$$\therefore k \in (-2, \frac{1}{4}]$$

112. The set of all x satisfying the inequality

$$\frac{4x-1}{3x+1} \geq 1$$

- (A) $(-\infty, -\frac{1}{3}) \cup [\frac{1}{4}, \infty)$
 (B) $(-\infty, -\frac{2}{3}) \cup [\frac{5}{4}, \infty)$
 (C) $(-\infty, -\frac{1}{3}) \cup [2, \infty)$
 (D) $(-\infty, -\frac{2}{3}) \cup [4, \infty)$

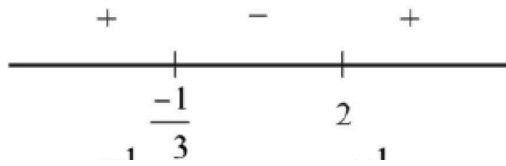
Correct Option: C

Solution:

$$\frac{4x-1}{3x+1} \geq 1 \Rightarrow \frac{4x-1}{3x+1} - 1 \geq 0 \Rightarrow \frac{x-2}{3x+1} \geq 0$$



By using wavy-curve method



$$\therefore x \leq \frac{-1}{3}, x \geq 2 \text{ but } x \neq \frac{-1}{3}$$

$$\therefore x < \frac{-1}{3}, x \geq 2$$

$$\therefore (-\infty, -\frac{1}{3}) \cup [2, \infty)$$

113. The number of 3 digit numbers having at least one of their digit as 5 are

(A) 250 (B) 251 (C) 252 (D) 253

Correct Option: C

Solution:

Total number of 3-digit numbers having at least one of their digits as 5 = Total number of 3-digit numbers - (Total number of 3-digit numbers in which 5 does not appear at all)

$$= 9 \times 10 \times 10 - 8 \times 9 \times 9$$

$$= 900 - 648 = 252$$

114. If the point $P(x, y)$ is equidistant from the points $A(a + b, b - a)$ and $B(a - b, a + b)$, then

(A) $ax = by$ (B) $bx = ay$ and P can be (a, b)

(C) $x^2 - y^2 = 2(ax + by)$ (D) None of the above

Correct Option: B

Solution:

$$\text{We have, } PA = PB \Rightarrow (PA)^2 = (PB)^2$$

$$\Rightarrow [x - (a + b)]^2 + [y - (b - a)]^2$$

$$= [x - (a - b)]^2 + [y - (a + b)]^2$$

$$\Rightarrow [(x - a) - b]^2 + [(y - b) + a]^2$$

$$\Rightarrow [(x - a) + b]^2 + [(y - b) - a]^2$$

$$\Rightarrow [(x - a) + b]^2 - [(x - a) - b]^2$$

$$= [(y - b) + a]^2 - [(y - b) - a]^2$$

$$\Rightarrow 4b(x - a) = 4a(y - b) \Rightarrow bx = ay$$

Also, $P(a, b)$ satisfies the condition (i), so that P can be (a, b) .

115. Equation of the straight line making equal intercepts the axes and passing through the point $(2, 4)$ is :

(A) $4x - y - 4 = 0$

(B) $2x + y - 8 = 0$

(C) $x + y - 6 = 0$

(D) $x + 2y - 10 = 0$

Correct Option: C

Solution:

Let intercept on x -axis and y -axis be a and b respectively so that the equation of line is

$$\frac{x}{a} + \frac{y}{b} = 1$$

But $a = b$ so; $x + y = a$

Also it passes through $(2, 4)$ (given)

$$\text{Thus } 2 + 4 = a \Rightarrow a = 6$$

Now, the reqd. equation of the straight line $x + y = 6$

$$\text{or, } x + y - 6 = 0.$$

116. The circle described on focal radii of a parabola as diameter touches

(A) the axis

(B) the tangent at the vertex

(C) the directrix

(D) none of these

Correct Option: B

Solution:

117. If the perpendicular distance of the point $(6, 5, 8)$ from the Y -axis is 5λ unit, then λ is equal to

(A) 5

(B) 3

(C) 4

(D) 2

Correct Option: D

Solution:

Foot of perpendicular from $(6, 5, 8)$ on Y -axis is $(0, 5, 9)$

$$\text{Req. distance} = \sqrt{(6 - 0)^2 + (5 - 5)^2 + (8 - 0)^2}$$

$$= 10 \text{ unit} \Rightarrow 5\lambda = 10 \Rightarrow \lambda = \frac{10}{5} = 2$$

118. If the letters of the word ATTEMPT are written down random, the chance that all T's are consecutive, is

(A) $\frac{1}{42}$

(B) $\frac{6}{7}$

(C) $\frac{1}{7}$

(D) None of these

Correct Option: C

Solution:

$$n(S) = \frac{7!}{3!}, \quad n(E) = 5!$$

$$\text{So, } P(E) = \frac{5!}{7!/3!} = \frac{1}{7}$$

- 119.** The mean and SD of 63 children on an arithmetic test are respectively 27.6 and 7.1. To them are added a new group of 26 who had less training and whose mean is 19.2 and SD 6.2. The values of the combined group differ from the original as to (i) the mean and (ii) the SD is

- (A) 25.1, 7.8 (B) 2.3, 0.8
(C) 1.5, 0.9 (D) None of these

Correct Option: A

Solution:

(a) Mean and SD σ of the combined group are

$$m = \frac{63 \times 27.6 + 26 \times 19.2}{63 + 26} = 25.1$$

Thus, AM is decreased by $27.6 - 25.1 = 2.5$.

$$\begin{aligned} \sigma^2 &= \frac{63 \times (7.1)^2 + 26 \times (6.2)^2}{89} \\ &+ \frac{63(25.1 - 27.6)^2 + 26(25.1 - 19.2)^2}{89} \Rightarrow \sigma = 7.8 \\ &(\text{approx.}) \end{aligned}$$

- 120.** If $\tan^{-1}(x+1) + \cot^{-1}(x-1) = \sin^{-1} \frac{4}{5} + \cos^{-1} \frac{3}{5}$, then x has the value:

- (A) $4\sqrt{\frac{3}{7}}$ (B) $4\sqrt{\frac{7}{3}}$
(C) $14\sqrt{3}$ (D) $6\sqrt{7}$

Correct Option: A

Solution:

$$\text{Given } \tan^{-1}(x+1) + \cot^{-1}(x-1)$$

$$= \sin^{-1} \left(\frac{4}{5} \right) + \cos^{-1} \left(\frac{3}{5} \right)$$

$$\Rightarrow \tan^{-1}(x+1) + \tan^{-1} \left(\frac{1}{x-1} \right)$$

$$= \tan^{-1} \frac{4}{3} + \tan^{-1} \frac{4}{3} = 2 \tan^{-1} \frac{4}{3}$$

$$\Rightarrow \tan^{-1} \left[\frac{x+1 + \frac{1}{x-1}}{1 - (x+1) \left(\frac{1}{x-1} \right)} \right] = \tan^{-1} \left[\frac{2 \times \frac{4}{3}}{1 - \frac{16}{9}} \right]$$

$$\text{using } 2 \tan^{-1} x = \tan^{-1} \left(\frac{2x}{1-x^2} \right)$$

$$\Rightarrow \tan^{-1} \left(-\frac{x^2}{2} \right) = \tan^{-1} \left(-\frac{24}{7} \right)$$

$$\Rightarrow \frac{x^2}{2} = \frac{24}{7} \Rightarrow x^2 = \frac{48}{7} \Rightarrow x = 4\sqrt{\frac{3}{7}}$$

- 121.** If $A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & 1 \\ 0 & 0 & 2 \end{bmatrix}$, then the value of $|\text{adj}(\text{adj } A)|$

- (A) 14 (B) 16 (C) 15 (D) 12

Correct Option: B

Solution:

$$|A| = \begin{vmatrix} 1 & 0 & 3 \\ 2 & 1 & 1 \\ 0 & 0 & 2 \end{vmatrix} = 2$$

$$\begin{aligned} \therefore |\text{adj}(\text{adj } A)| &= |A|^{(n-1)^2} = |A|^{2^2} \\ &= 2^4 = 16 \end{aligned}$$

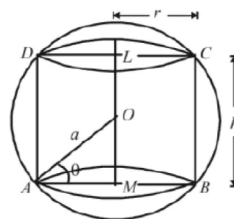
$$[\therefore \text{Heren} = 3]$$

- 122.** The height of the cylinder of maximum volume that be inscribed in a sphere of radius a is

- (A) $\frac{a}{\sqrt{3}}$ (B) $\frac{2a}{\sqrt{3}}$
(C) $\frac{3}{2}a$ (D) None

Correct Option: B

Solution:



If a is the radius of sphere and h the height of cylinder, then from adjacent figure,

$$r^2 + (h^2/4) = a^2 \text{ or } h^2 = 4(a^2 - r^2)$$

Now,

$$V = \pi r^2 h = \pi \left(a^2 - \frac{1}{4} h^2 \right) h = \pi \left(a^2 h - \frac{1}{4} h^3 \right)$$

$$\Rightarrow \frac{dV}{dh} = \pi \left(a^2 - \frac{3}{4} h^2 \right) = 0 \text{ (for maximum or minimum).}$$

This gives $h = (2/\sqrt{3})a$ for which

$$d^2 V / dh^2 = -6h/4 < 0.$$

Hence, V is maximum when $h = 2a/\sqrt{3}$.

123. If $\vec{a} = \hat{i} + 2\hat{j} + 3\hat{k}$, $\vec{b} = 2\hat{i} + 3\hat{j} + \hat{k}$, $\vec{c} = 3\hat{i} + \hat{j} + 2\hat{k}$ and $\alpha\vec{a} + \beta\vec{b} + \gamma\vec{c} = -3(\hat{i} - \hat{k})$, then the ordered triplet (α, β, γ) is
- (A) $(2, -1, -1)$ (B) $(-2, 1, 1)$ (C) $(-2, -1, 1)$ (D) $(2, 1, -1)$

Correct Option: A

Solution:

Equating the components in

$$\alpha(\hat{i} + 2\hat{j} + 3\hat{k}) + \beta(2\hat{i} + 3\hat{j} + \hat{k}) + \gamma(3\hat{i} + \hat{j} + 2\hat{k}) = -3(\hat{i} - \hat{k}), \text{ we have}$$

$$\begin{aligned} \alpha + 2\beta + 3\gamma &= -3 & (i) \\ 2\alpha + 3\beta + \gamma &= 0 & (ii) \\ 3\alpha + \beta + 2\gamma &= 3 & (iii) \end{aligned}$$

Solving the equations (i), (ii), & (iii), we get

$$\alpha = 2, \beta = -1, \gamma = -1.$$

124. The plane $x + 3y + 13 = 0$ passes through the line of intersection of the planes $2x - 8y + 4z = p$ and $3x - 5y + 4z + 10 = 0$. If the plane is perpendicular to the plane $3x - y - 2z - 4 = 0$, then the value of p is equal to
- (A) 2 (B) 5 (C) 9 (D) 3

Correct Option: D

Solution:

The required plane is

$$(2 + 3\lambda)x + (-8 - 5\lambda)y + (4 + 4\lambda)z + P - 10\lambda = 0$$

Compare the coefficients with the plan We get, $4 + 4\lambda = 0 \Rightarrow \lambda = -1$

$$x + 3y + 0z + 13 = 0$$

Then we get $p = 3$.

125. If A and B are two independent events and $P(C) =$ then A, B, C are :
- (A) independent (B) dependent
(C) not pairwise independent (D) none of the above

Correct Option: A

Solution:

Since, A and B are independent events.

$$\therefore P(A \cap B) = P(A)P(B)$$

Further since, $A \cap C$,

$B \cap C$, $A \cap B \cap C$ are subsets of C , we have, $P(A \cap C) P(C) = 0$

$$P(B \cap C) \leq P(C) = 0$$

$$\text{and } P(A \cap B \cap C) \leq P(C) = 0$$

$$\Rightarrow P(A \cap C) = 0 = P(A)P(C)$$

$$P(B \cap C) = 0 = P(B)P(C)$$

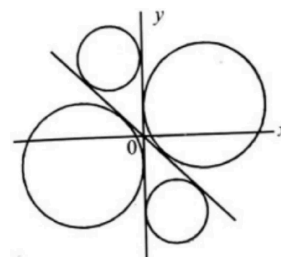
$$P(A \cap B \cap C) = 0 = P(A)P(B)P(C)$$

Clearly A, B, C are pairwise independent as well as mutually independent. Thus, A, B, C are independent events.

126. A circle touches both the y -axis and the line $x + y =$ Then the locus of its center is
- (A) $y = \sqrt{2}x$ (B) $x = \sqrt{2}y$
(C) $y^2 - x^2 = 2xy$ (D) $x^2 - y^2 = 2xy$

Correct Option: D

Solution:



Let (h, k) is centre of circle

$$\left| \frac{h-k}{\sqrt{2}} \right| = |h|, k^2 - h^2 + 2hk = 0$$

127. Let A and B be two events such that $P(B | A) = \frac{2}{5}$,



$P(A | B) = \frac{1}{7}$ and $P(A \cap B) = \frac{1}{9}$. Consider

(S1) $P(A' \cup B) = \frac{5}{6}$,

(S2) $P(A' \cap B') = \frac{1}{18}$. Then

(A) Both (S1) and (S2) are true

(B) Both (S1) and (S2) are false

(C) Only (S1) is true

(D) Only (S2) is true

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Correct Option: A

Solution:

$$P(A | B) = \frac{1}{7} \Rightarrow \frac{P(A \cap B)}{P(B)} = \frac{1}{7}$$

$$\Rightarrow P(B) = \frac{7}{9}$$

$$P(B | A) = \frac{2}{5} \Rightarrow \frac{P(A \cap B)}{P(A)} = \frac{2}{5}$$

$$\Rightarrow P(A) = \frac{5}{18}$$

$$\text{Now, } P(A' \cup B) = 1 - P(A \cup B) + P(B)$$

$$= 1 - P(A) + P(A \cap B) = \frac{5}{6}$$

$$P(A' \cap B') = 1 - P(A \cup B)$$

$$= 1 - P(A) - P(B) + P(A \cap B) = \frac{1}{18}$$

$$\Rightarrow \text{Both (S1) and (S2) are true.}$$

128. The integral $\int_0^{\frac{\pi}{2}} \frac{1}{3+2\sin x + \cos x} dx$ is equal to:

(A) $\tan^{-1}(2)$

(B) $\tan^{-1}(2) - \frac{\pi}{4}$

(C) $\frac{1}{2} \tan^{-1}(2) - \frac{\pi}{8}$

(D) $\frac{1}{2}$

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Correct Option: B

Solution:

$$I = \int_0^{\frac{\pi}{2}} \frac{dx}{3 + 2\sin x + \cos x} = \int_0^{\frac{\pi}{2}} \frac{\sec^2 \frac{x}{2} \cdot dx}{2 \tan^2 \frac{x}{2} + 4 \tan \frac{x}{2} + 1}$$

Put $\tan \frac{x}{2} = t$, so

$$I = \int_0^1 \frac{dt}{(t+1)^2 + 1} = \tan^{-1}(x+1) \Big|_0^1 = \tan^{-1} 2 - \frac{\pi}{4}$$

129. The number of $\theta \in (0, 4\pi)$ for which the system of equations

$$3(\sin 3\theta)x - y + z = 2$$

$$3(\cos 2\theta)x + 4y + 3z = 3$$

$$6x + 7y + 7z = 9$$

has no solution is :

(A) 6

(B) 7

(C) 8

(D) 9

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Correct Option: B

Solution:

The system of equation has no solution.

$$D = \begin{vmatrix} 3 \sin 3\theta & -1 & 1 \\ 3 \cos 2\theta & 4 & 3 \\ 6 & 7 & 7 \end{vmatrix} = 0$$

$$21 \sin 3\theta + 42 \cos 2\theta - 42 = 0$$

$$\sin 3\theta + 2 \cos 2\theta - 2 = 0$$

Number of solution is 7 in $(0, 4\pi)$

130. The smallest natural number n , such that the coefficient of x in the expansion of $(x^2 + \frac{1}{x^3})^n$ is ${}^nC_{23}$, is :

(A) 35

(B) 38

(C) 23

(D) 58

Correct Option: B

Solution:

$$T_r = \sum_{r=0}^n {}^nC_r x^{2n-2r} \cdot x^{-3r}$$

$$2n - 5r = 1 \Rightarrow 2n = 5r + 1$$

$$\text{for } r = 15, n = 38$$

smallest value of n is 38.

BITSAT Solved Paper 2025 Session-II - ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	B	B	A	D	C	C	A	D	B	A
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	D	A	D	A	C	D	C	B	A	C
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	A	B	B	B	D	A	D	C	C	C
Que.	31	32	33	34	35	36	37	38	39	40
Ans.	A	D	A	A	C	A	C	B	C	B
Que.	41	42	43	44	45	46	47	48	49	50
Ans.	D	A	C	A	B	C	A	D	A	B
Que.	51	52	53	54	55	56	57	58	59	60
Ans.	A	A	A	A	A	B	D	D	B	D
Que.	61	62	63	64	65	66	67	68	69	70
Ans.	B	C	B	B	B	B	D	C	B	A
Que.	71	72	73	74	75	76	77	78	79	80
Ans.	C	A	D	C	C	A	B	C	A	B
Que.	81	82	83	84	85	86	87	88	89	90
Ans.	D	B	A	C	C	C	D	A	B	A
Que.	91	92	93	94	95	96	97	98	99	100
Ans.	B	B	A	C	C	D	D	B	D	B
Que.	101	102	103	104	105	106	107	108	109	110
Ans.	A	A	A	A	D	C	A	C	C	A
Que.	111	112	113	114	115	116	117	118	119	120
Ans.	A	C	C	B	C	B	D	C	A	A
Que.	121	122	123	124	125	126	127	128	129	130

Ans.	B	B	A	D	A	D	A	B	B	B
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