

WBJEE 2026 Physics and Chemistry

Question Paper

Conducted by West Bengal Joint Entrance Examinations Board



General Instructions

- (i) **Duration:** The total duration of the examination is 2 hours (120 minutes).
- (ii) **Total Marks:** The paper carries a maximum of 100 marks.
- (iii) **Total Questions:** The paper contains total 80 questions, Physics and Chemistry with 40 questions each.
- (iv) **Structure:** The paper has 3 question categories in each subject:
 - **Category 1:** 30 questions for 1 mark each and negative marking of 0.25.
 - **Category 2:** 5 questions for 2 marks each and negative marking of 0.5.
 - **Category 3:** 5 questions for 2 marks each and no negative marking.
- (v) **Compulsory Questions:** All 80 questions are compulsory

Physics

1. Two identical metal bars are heated in two different temperatures and allowed to cool in the same surroundings. Which one of the following figures correctly shows their cooling curves?

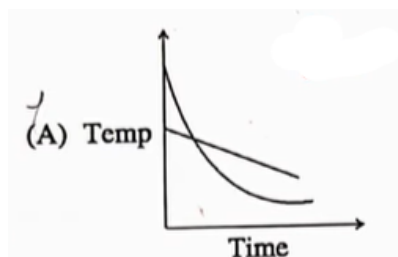


Fig A

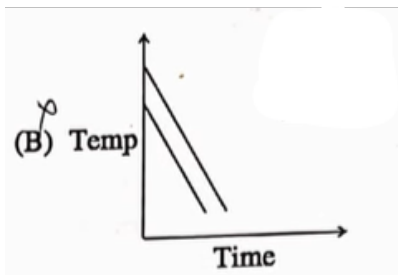


Fig B

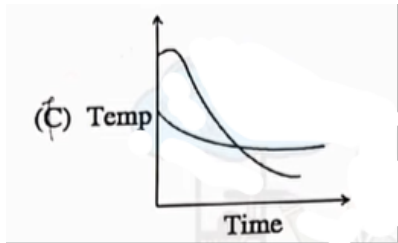


Fig C

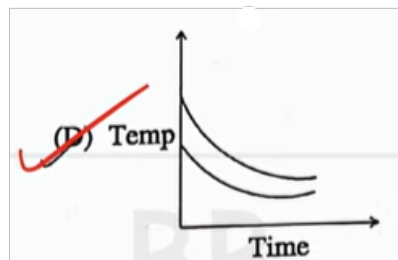


Fig D

- (A) Fig A
- (B) Fig B
- (C) Fig C
- (D) Fig D

2. Consider a fuse wire of length l and radius r . The time of heating (t) for passing the maximum current will depend on

- (A) $t \propto r^2 l$
- (B) $t \propto r^{3/2}$
- (C) $t \propto r^4 l^0$
- (D) $t \propto r^{2/3}$

3. A circular coil, carrying current, has radius R . The distance from the centre of the coil on the axis where the magnetic induction will be $\frac{1}{27}$ th of its value at the centre of the coil is

- (A) $2\sqrt{2}R$
(B) $3\sqrt{2}R$
(C) $3R$
(D) $2\sqrt{3}R$
-

4. A radioactive element ${}_{92}^{242}\text{X}$ emits two α -particles, one electron and two positrons. The transformed nucleus is represented by ${}_{P}^{234}\text{Y}$. The value of P is

- (A) 85
(B) 87
(C) 92
(D) 96
-

5. Beyond what distance, the ray optics is sufficiently valid when the aperture is 6 mm wide and the wavelength is 6000 Å?

- (A) 50 m
(B) 60 m
(C) 40 m
(D) 10 m
-

6. From a tower of height H , a particle is thrown vertically upwards with a speed u . The time taken by the particle to hit the ground is n times that taken by it to reach the highest point of its path. The relation between H , u and n is

- (A) $2gH = n^2u^2$
(B) $gH = (n-2)^2u^2$
(C) $2gH = nu^2(n-2)$
-

(D) $2gH = u^2(n - 2)^2$

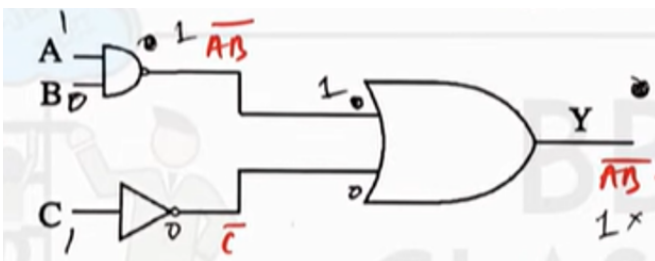
7. A plano-convex lens fits exactly into a plano-concave lens. Their plane surfaces are parallel to each other. If lenses are made of different materials of refractive indices μ_1 and μ_2 and R is the radius of curvature of the curved surface of the lenses, then the focal length of the combination is

- (A) $\frac{R}{\mu_1 - \mu_2}$
 - (B) $\frac{2R}{\mu_1 - \mu_2}$
 - (C) $\frac{R}{2(\mu_1 - \mu_2)}$
 - (D) $\frac{R}{\mu_1 + \mu_2}$
-

8. A person has a minimum distance of distinct vision of 50 cm. The power of lenses required to read a book at a distance of 25 cm is

- (A) 3 D
 - (B) 1 D
 - (C) 2 D
 - (D) 5 D
-

9. The inputs to a digital circuit are as shown below. The output Y is



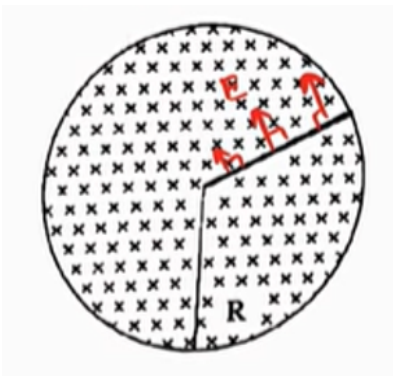
- (A) $A + B + \bar{C}$

- (B) $(A + B)\vec{C}$
 (C) $\vec{A} + \vec{B} + \vec{C}$
 (D) $\vec{A} + \vec{B} + C$

10. Two spherical soap bubbles of radii r_1 and r_2 in vacuum coalesce under isothermal condition. The newly formed bubble has a radius (r) given by

- (A) $r_1 + r_2$
 (B) $\frac{r_1 + r_2}{2}$
 (C) $\frac{r_1 r_2}{r_1 + r_2}$
 (D) $\sqrt{r_1^2 + r_2^2}$

11. A uniform but time varying magnetic field is present in a circular region of radius 'R'. The magnetic field is perpendicular and into the plane of loop and the magnitude of field is increasing at a constant rate α . There is a straight conducting rod of length $2R$ placed as shown in figure. The magnitude of induced emf across the rod is

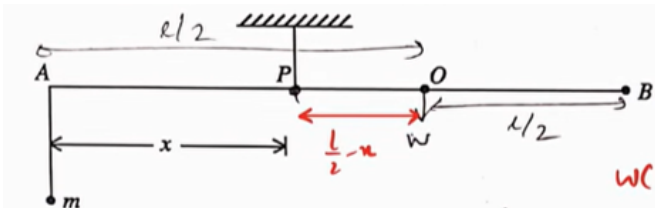


- (A) $\pi R^2 \alpha$
 (B) $\frac{1}{2} \pi R^2 \alpha$
 (C) $\frac{1}{2} R^2 \alpha$
 (D) $\frac{1}{4} \pi R^2 \alpha$

12. There is a ring of radius r having linear charge density λ and rotating with a uniform angular velocity ω . The magnitude of the magnetic field produced by this ring at its own centre would be ($\mu_0 =$ permeability of air)

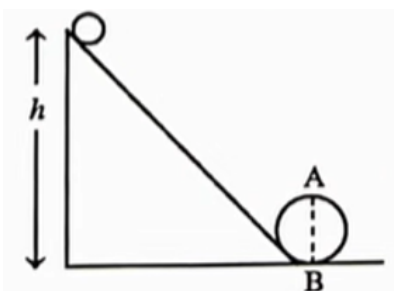
- (A) $\frac{\lambda\omega^2}{2\mu_0}$
- (B) $\frac{\mu_0\lambda^2\omega}{\sqrt{2}}$
- (C) $\frac{\mu_0\lambda\omega}{2}$
- (D) $\frac{\mu_0\lambda}{2\omega^2}$

13. A uniform rod AB is suspended from a point P, at a variable distance x , from A, as shown in figure. To make the rod horizontal, a mass 'm' is suspended from its end A. Which set of variables will give a straight line when they are plotted?



- (A) m, x^2
- (B) $m, \frac{1}{x^2}$
- (C) $m, \frac{1}{x}$
- (D) m, x

14. A body initially at rest and sliding along a frictionless track from a height 'h' (as shown in figure) just completes a vertical circle of diameter $AB = d$. The height 'h' is equal to

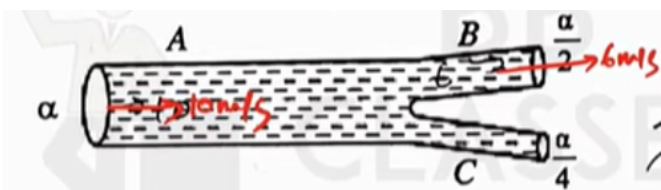


- (A) $\frac{3}{2}d$
- (B) $\frac{5}{4}d$
- (C) $\frac{7}{5}d$
- (D) $\frac{d}{2}$

15. The equation of a transverse wave is $y = y_0 \sin 2\pi \left(ft - \frac{x}{\lambda} \right)$. If the maximum particle velocity be four times that of wave velocity then

- (A) $\lambda = \frac{\pi y_0}{4}$
- (B) $\lambda = \frac{\pi y_0}{2}$
- (C) $\lambda = \pi y_0$
- (D) $\lambda = 2\pi y_0$

16. A pipe A is connected with other pipes B and C as shown in the figure. The areas of cross-section of A, B and C are respectively α , $\frac{\alpha}{2}$ and $\frac{\alpha}{4}$. If the velocities of flow of water through A and B are 10 m/sec and 6 m/sec, respectively, then velocity of flow, V_c along C is



- (A) 21 m/sec
- (B) 12 m/sec
- (C) 28 m/sec
- (D) 18 m/sec

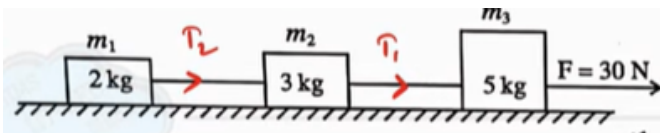
17. A body of density ' ρ' ' is dropped slowly on the surface of a lake of depth d . If the density of the lake water be ' ρ ' ($\rho' < \rho$) then the time taken by the body to reach the bottom of the lake is

- (A) $\left[\frac{2d\rho}{g(\rho-\rho')} \right]^{\frac{1}{2}}$
 (B) $\left[\frac{2gd}{\rho(\rho-\rho')} \right]^{\frac{1}{2}}$
 (C) $\left[\frac{2d\rho'}{\rho g(\rho-\rho')} \right]^{\frac{1}{2}}$
 (D) $\left[\frac{g(\rho-\rho')}{2d\rho} \right]^{\frac{1}{2}}$

18. A square of side L lies in the $x - y$ plane, where the magnetic field is given by $\vec{B} = B_0(2\hat{i} + 3\hat{j} + 4\hat{k})$ where B_0 is constant. The magnetic flux passing through the square is

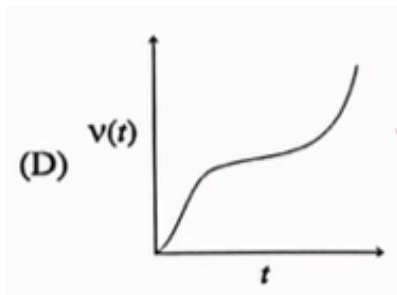
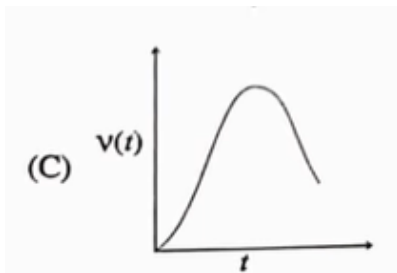
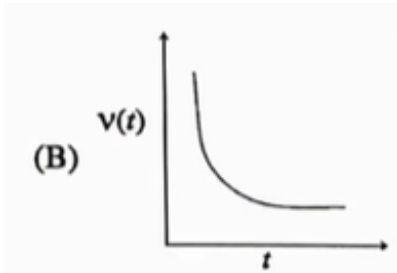
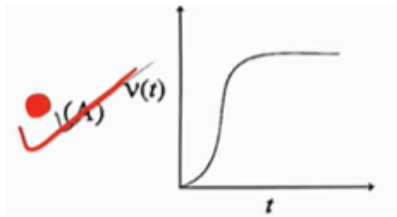
- (A) $5B_0L^2$
 (B) $2B_0L^2$
 (C) $3B_0L^2$
 (D) $4B_0L^2$

19. Three blocks of masses $m_1 = 2 \text{ kg}$, $m_2 = 3 \text{ kg}$ and $m_3 = 5 \text{ kg}$ are placed on a horizontal frictionless surface and a force of 30 N pulls the system as shown below. The value of tension T will be



- (A) 15 N
 (B) 30 N
 (C) 6 N
 (D) 10 N

20. Which one of the following graphs represents the velocity-time ($v - t$) graph of a small spherical body falling in a viscous liquid?



- (A) Fig A
- (B) Fig B
- (C) Fig C
- (D) Fig D

21. If a vector $\vec{v} = 3\hat{i}$ is rotated in the $x - z$ plane by an angle θ with respect to x -axis in the

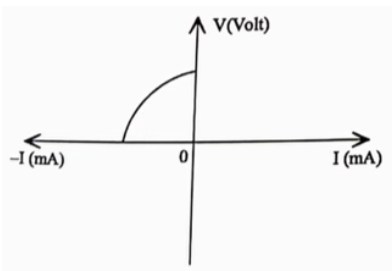
clockwise direction, then for an observer at $+y$ axis the vector will be

- (A) $3 \sin \theta \hat{i}$
 - (B) $3 \cos \theta \hat{i}$
 - (C) $3 \sin \theta \hat{i} + 3 \cos \theta \hat{k}$
 - (D) $3 \cos \theta \hat{i} + 3 \sin \theta \hat{k}$
-

22. The velocity v of a particle at time t is given by $v = at + \frac{b}{t+c}$, where a , b and c are constants. The dimension of a , b and c are, respectively

- (A) LT^{-2}, LT, L
 - (B) L, LT, T^2
 - (C) LT^{-2}, L, T
 - (D) L^2, T, LT^2
-

23. The I-V characteristics graph shown below is exhibited by



- (A) LED
 - (B) Zener diode
 - (C) Photodiode
 - (D) Solar cell
-

24. Three vectors \vec{a} , \vec{b} and \vec{c} are such that $|\vec{a}| = 1$, $|\vec{b}| = 2$ and $|\vec{c}| = 4$ along with $(\vec{a} + \vec{b} + \vec{c}) = 0$. Then, the value of $4\vec{a} \cdot \vec{b} + 3\vec{b} \cdot \vec{c} + 3\vec{c} \cdot \vec{a}$ will be

- (A) 27
 - (B) -26
 - (C) -68
 - (D) -34
-

25. The magnetic moment of an iron bar is M . It is now bent in such a way that it forms an arc section of a circle subtending an angle of 60° at the centre. The magnetic moment of the arc section is

- (A) $\frac{3M}{\pi}$
 - (B) $\frac{4M}{\pi}$
 - (C) $\frac{M}{\pi}$
 - (D) $\frac{2M}{\pi}$
-

26. A ray of light travelling in air is incident on one face of a parallel glass slab of thickness t and refractive index μ at an angle of incidence i . Total time spent by the ray inside the slab is

- (A) $\frac{\mu^2 t}{c\sqrt{1-\mu^2 \sin^2 i}}$
 - (B) $\frac{\mu t}{c\sqrt{\mu^2 - \sin^2 i}}$
 - (C) $\frac{\mu^2 t}{c\sqrt{\mu^2 - \sin^2 i}}$
 - (D) $\frac{t}{c\sqrt{\mu^2 - \sin^2 i}}$
-

27. Density and volume of a body are given as $(20 \pm 4) \text{ gm/cm}^3$ and $(10 \pm 1) \text{ cm}^3$ respectively. The absolute error in measurement of mass is

- (A) 20 gm
 - (B) 30 gm
 - (C) 45 gm
 - (D) 60 gm
-

28. A simple pendulum of length l has a bob of mass m , with a charge q . On it a vertical sheet of charge with surface charge density σ passes through the point of suspension. At equilibrium, if the string makes an angle θ with the vertical, then

- (A) $\tan \theta = \frac{\sigma q}{2\varepsilon_0 mg}$
 - (B) $\tan \theta = \frac{\sigma q}{\varepsilon_0 mg}$
 - (C) $\cot \theta = \frac{\sigma q}{2\varepsilon_0 mg}$
 - (D) $\cot \theta = \frac{\sigma q}{\varepsilon_0 mg}$
-

29. A resistor of resistance 'R' draws power 'P' when connected to an AC source. If an inductance is now placed in series with R, such that the impedance of the circuit becomes 'Z', the power drawn will be

- (A) $P \left(\frac{R}{Z} \right)$
 - (B) $P \left(\frac{R}{Z} \right)^3$
 - (C) $P \left(\frac{R}{Z} \right)^2$
 - (D) $P \sqrt{\frac{Z}{R}}$
-

30. Radiation of wavelength λ is incident on a photocell. The fastest emitted electron has speed v . If the wavelength is changed to $\frac{3\lambda}{4}$, then the speed of the fastest emitted electron will be

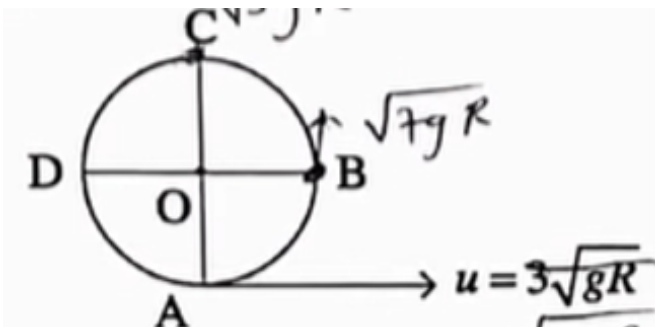
- (A) greater than $v \sqrt{\frac{4}{3}}$
- (B) less than $v \sqrt{\frac{4}{3}}$

- (C) equal to $v\sqrt{\frac{4}{3}}$
 (D) equal to $v\sqrt{\frac{3}{4}}$

31. An electromagnetic wave, whose wave normal makes an angle of 45° with the vertical, is travelling in air and strikes a horizontal liquid surface. While travelling through the liquid, it gets deviated by 15° . If the speed of electromagnetic wave in air is 3×10^8 m/s, then the speed of electromagnetic wave in the liquid will be

- (A) $\frac{\sqrt{2}}{3} \times 10^8$ m/s
 (B) 1.5×10^8 m/s
 (C) 2.1×10^8 m/s
 (D) 2.5×10^8 m/s

32. A particle of mass m is suspended from a point O by a string of length R . It is given a velocity $u = 3\sqrt{gR}$ at the bottom. The difference in tension at point B and at the point C is



- (A) 6 mg
 (B) 4 mg
 (C) 3 mg
 (D) 8 mg

33. 2 moles of an ideal gas with $\frac{C_p}{C_v} = \frac{5}{3}$ are mixed with 3 moles of another ideal gas with $\frac{C_p}{C_v} = \frac{4}{3}$.

The value of $\frac{C_p}{C_v}$ for the mixture is

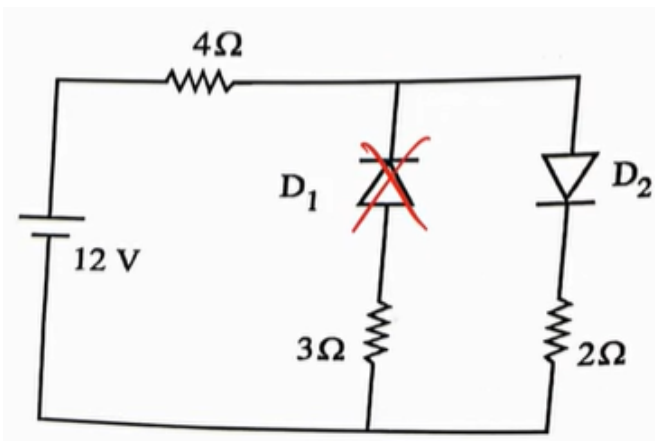
- (A) 1.5
- (B) 1.42
- (C) 1.48
- (D) 1.6

34. The de-Broglie wavelength of an electron in 4th orbit is (where r = radius of the 1st orbit)

- (A) $2\pi r$
- (B) $4\pi r$
- (C) $8\pi r$
- (D) $16\pi r$

35. The circuit has two oppositely connected ideal diodes in parallel as shown in the figure.

What is the current flowing in the circuit?



- (A) 1.33A
- (B) 1.71A
- (C) 2.00A

(D) 2.31A

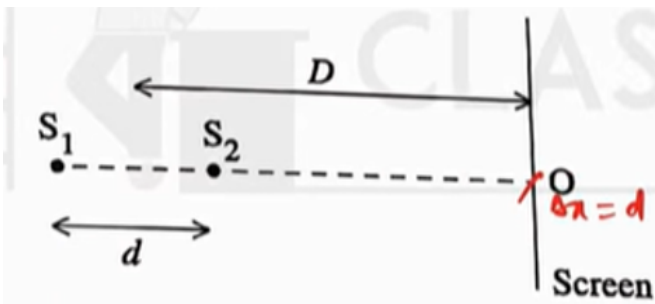
36. The displacement current flows through a capacitor when the voltage across its plates

- (A) becomes zero
- (B) is increasing with time
- (C) is decreasing with time
- (D) attains a constant value

37. For Boolean variables A and B, $A \oplus B = A\bar{B} + \bar{A}B$. Then, which of the following statements is/are correct?

- (A) $1 \oplus A = \bar{A}$
- (B) $A \oplus A = 0$
- (C) $0 \oplus A = 0$
- (D) $A \oplus \bar{A} = 1$

38. Two points of monochromatic and coherent sources of light of wavelength λ each, are placed as shown in figure. The initial phase difference between the sources is zero, ($D \gg d$). Mark the correct statement(s).



- (A) If $d = \frac{7\lambda}{2}$, O will be a minima

- (B) If $d = \lambda$, only one maxima can be observed on the screen
- (C) If $d = 4.8\lambda$, then total 5 minima would be there on the screen
- (D) If $d = \lambda$, the intensity at O would be minimum

39. Which of the velocity-time ($v - t$) graph(s) can possibly represent one-dimensional motion of a particle?

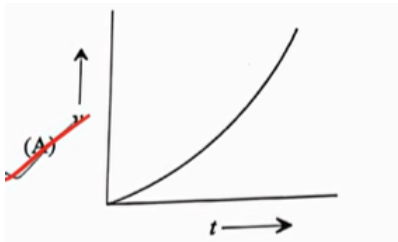


Fig A

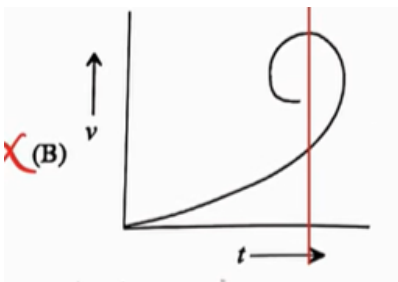


Fig B

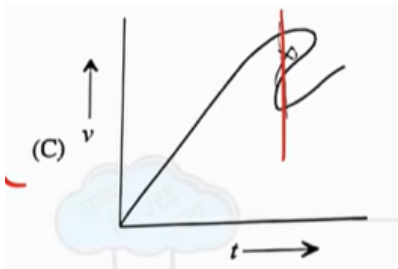


Fig C

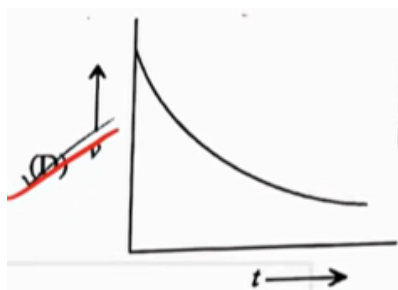


Fig D

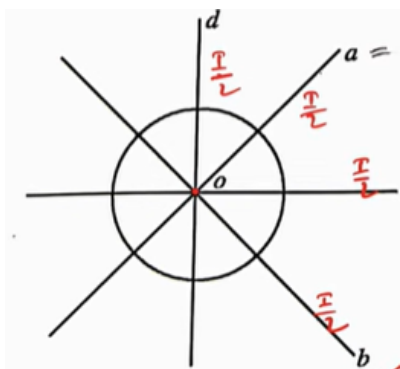
(A) Fig A

(B) Fig B

(C) Fig C

(D) Fig D

40. The moment of inertia of a thin disc about axes a, b, c, d are I_1, I_2, I_3 and I_4 respectively, as shown in figure. If the moment of inertia about an axis passing through the centre and perpendicular to the plane of the disc is I then,



(A) $I = I_1 + I_2$

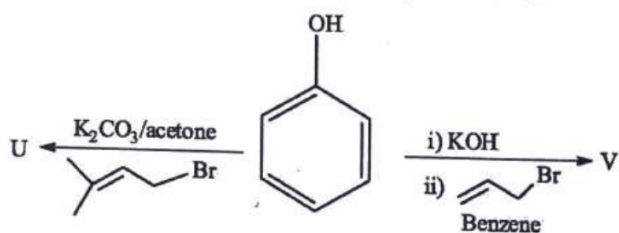
(B) $I = I_3 + I_4$

(C) $I = I_1 + I_3$

(D) $I = I_1 + I_2 + I_3 + I_4$

Chemistry

41. The major products U and V in the following reaction are



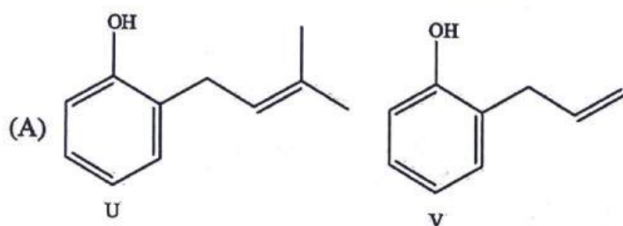


Fig A

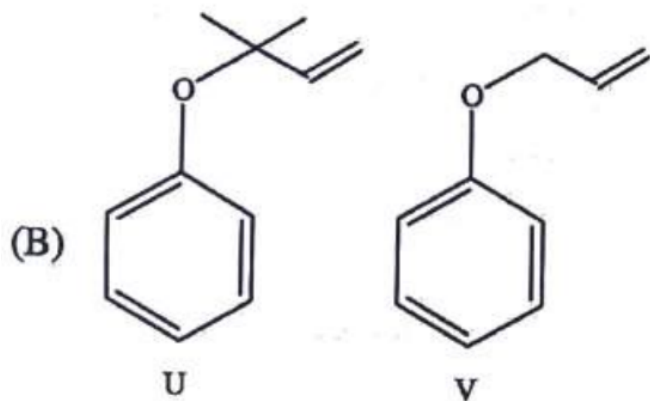


Fig B

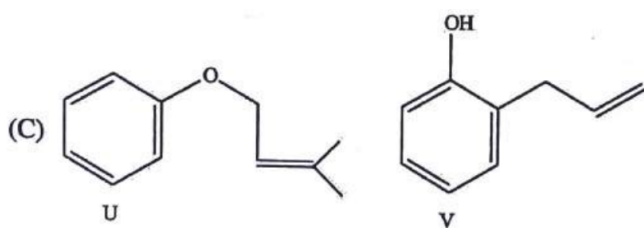


Fig C

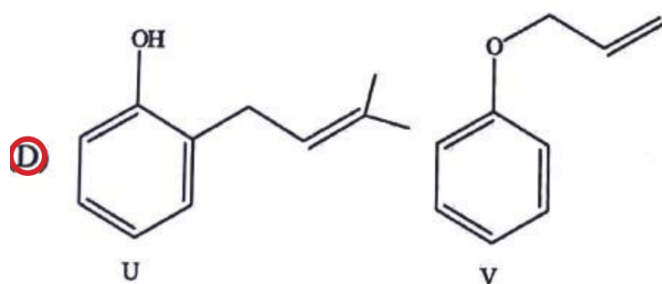


Fig D

(A) Fig A

(B) Fig B

(C) Fig C

(D) Fig D

42. Among N_2O , ClF_2^- , SO_2 and I_3^+ , the species having the linear structures are

- (A) N_2O , ClF_2^-
 (B) ClF_2^- , I_3^+
 (C) I_3^+ , SO_2
 (D) N_2O , SO_2

43. In the following sequence of reactions, what is the end product 'Z'?

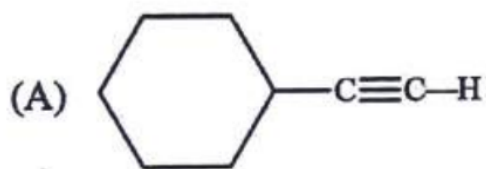
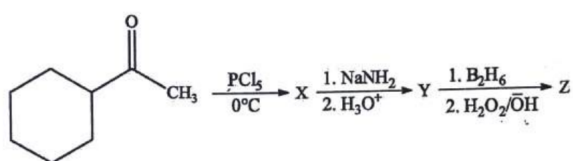


Fig A



Fig B

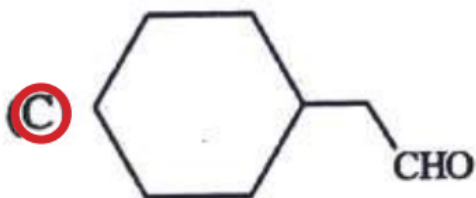


Fig C

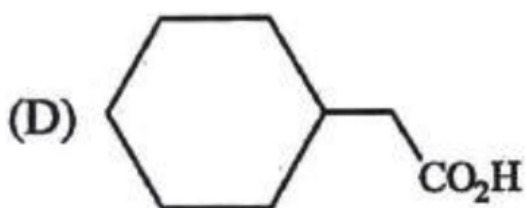


Fig D

- (A) Fig A
 - (B) Fig B
 - (C) Fig C
 - (D) Fig D
-

44. A compound (X) when treated with CuSO_4 solution yields a brown precipitate. On adding hypo solution the precipitate turns white. The compound (X) is

- (A) KBr
 - (B) K_2CrO_3
 - (C) KI
 - (D) K_3PO_4
-

45. Three engines A, B and C take steam at 130°C and reject it at 20°C , 40°C and 50°C respectively. The most efficient engine will be

- (A) A
 - (B) B
 - (C) C
 - (D) All the three engines will be equally efficient
-

46. In a conductance experiment, aqueous AgNO_3 solution is added to aqueous KCl solution gradually and simultaneously the molar conductivity (λ_m) is measured. The correct plot of λ_m versus volume of AgNO_3 solution is

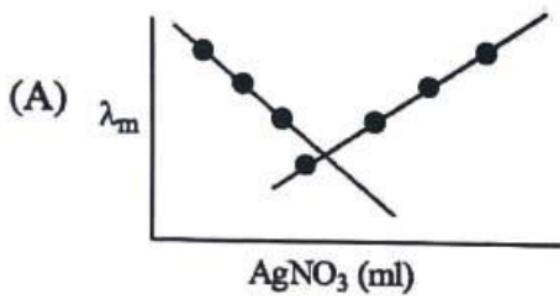


Fig A

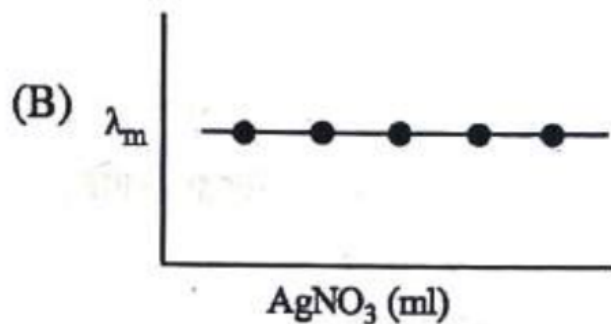


Fig B

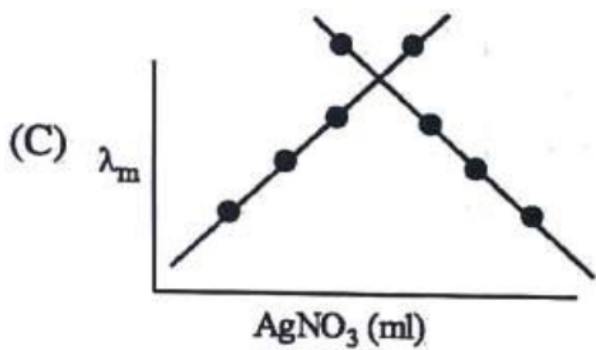


Fig C

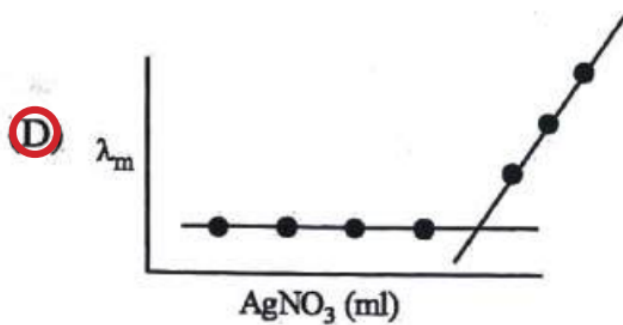


Fig D

(A) Fig A

(B) Fig B

(C) Fig C

(D) Fig D

47. Indicate the major product of the following reaction:

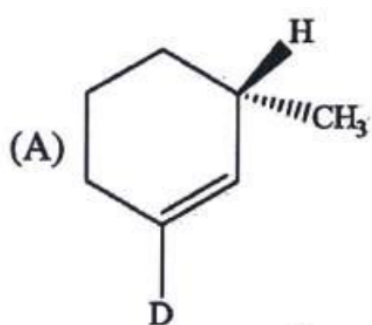
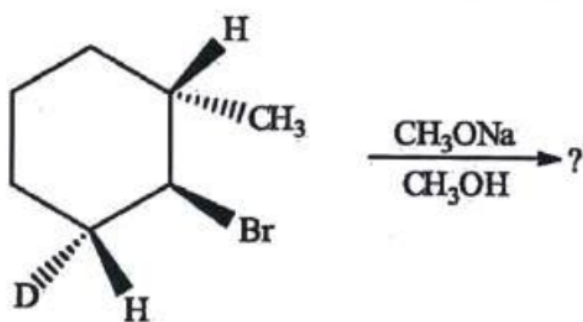


Fig A

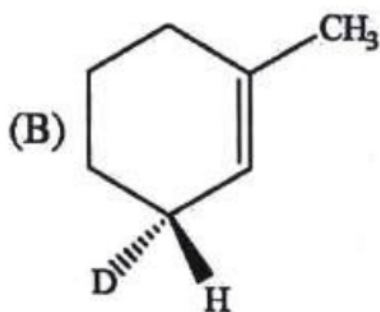


Fig B

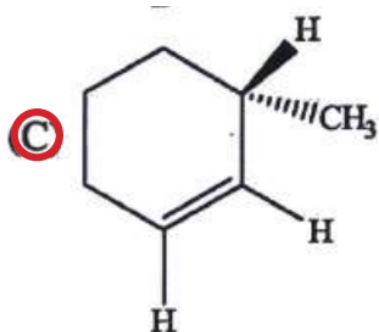


Fig C

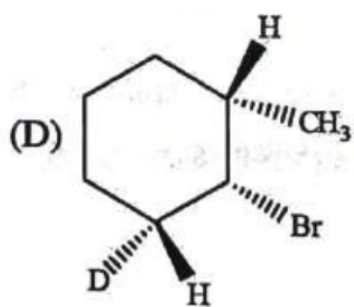


Fig D

- (A) Fig A
- (B) Fig B
- (C) Fig C
- (D) Fig D

48. The van't Hoff Factor (i) for a dilute aqueous solution of Na_2SO_4 is

- (A) $1 - \alpha$
- (B) $1 - 2\alpha$
- (C) $1 + \alpha$
- (D) $1 + 2\alpha$

49. Which of the following is the structure of pyrosulphuric acid?

- (A) $\text{HOO-S(=O)}_2\text{-OH}$
- (B) $\text{HO-S(=O)}_2\text{-O-O-S(=O)}_2\text{-OH}$
- (C) $\text{O}^- \text{-S(=O)}_2\text{-OH}$
- (D) $\text{HO-S(=O)}_2\text{-O-S(=O)}_2\text{-OH}$

50. Peroxide ion is

- (A) Paramagnetic
 - (B) Ferromagnetic
 - (C) Diamagnetic
 - (D) Antiferromagnetic
-

51. How many isomers can a compound with molecular formula C_3H_5Br have?

- (A) 2
 - (B) 3
 - (C) 4
 - (D) 5
-

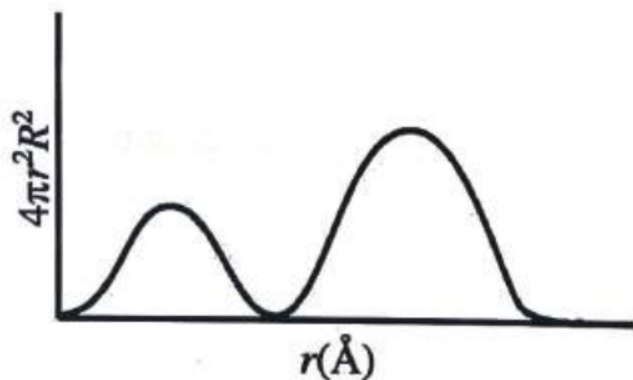
52. Which one of the following cations gives a chocolate brown precipitate upon addition of aqueous solution of $K_4[Fe(CN)_6]$?

- (A) Fe^{3+}
 - (B) Cu^{2+}
 - (C) Zn^{2+}
 - (D) Ca^{2+}
-

53. A compound contains two types of atoms A and B . Its crystal structure is a cubic lattice with ' A ' atoms at the corner of the unit cells and ' B ' atoms at the body centres. The simplest formula of the compound will be

- (A) A_2B
- (B) AB
- (C) AB_2
- (D) AB_3

54. The plot of radial probability density ($4\pi r^2 R^2$) against r for an electron in np orbital of a many electron atom is given below. The value of n is



- (A) 2
(B) 3
(C) 4
(D) 5

55. A buffer solution contains 100ml of 0.01(M) CH_3COOH and 200ml of 0.02(M) CH_3COONa . 700ml of water is added subsequently to the buffer solution. The pH before and after dilution are [given, $\text{p}K_a = 4.74$; $\log 2 = 0.301$]

- (A) 5.04, 5.04
(B) 5.04, 0.504
(C) 5.04, 1.54
(D) 5.34, 5.34

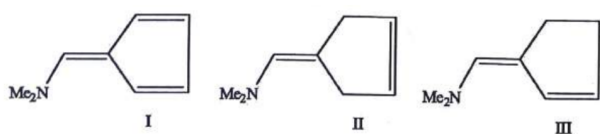
56. The correct order of conductivity of 0.001 (M) separate aqueous solutions of $[\text{Pt}(\text{NH}_3)_6]\text{Cl}_4$ (i); $[\text{Cr}(\text{NH}_3)_6]\text{Cl}_3$ (ii); $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}$ (iii) and K_2PtCl_6 (iv) each containing octahedral complex species is

- (A) (i) < (ii) < (iii) < (iv)
 (B) (i) < (ii) < (iv) < (iii)
 (C) (i) < (iv) < (iii) < (ii)
 (D) (iii) < (iv) < (ii) < (i)

57. Borazole is prepared by heating the product isolated by reacting

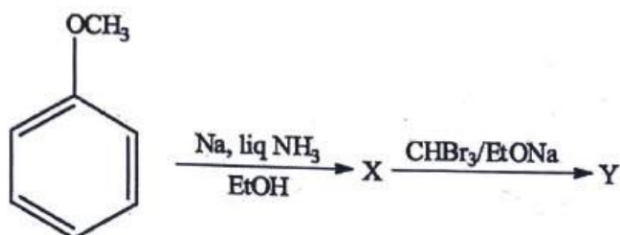
- (A) boron with dinitrogen.
 (B) diborane with ammonium nitrate.
 (C) diborane with ammonia.
 (D) boron with ammonia.

58. The increasing order of basicity of the following compounds is



- (A) I < III < II
 (B) III < I < II
 (C) II < I < III
 (D) II < III < I

59. The products X and Y in the following reaction sequence are



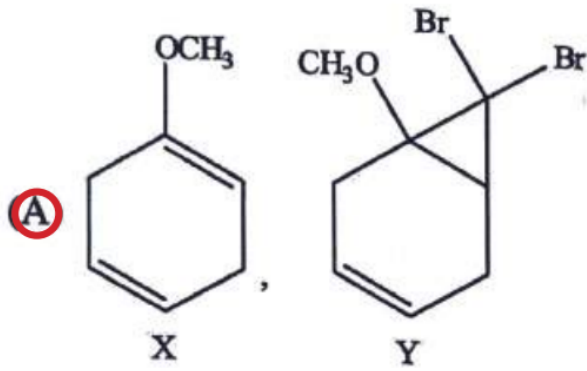


Fig A

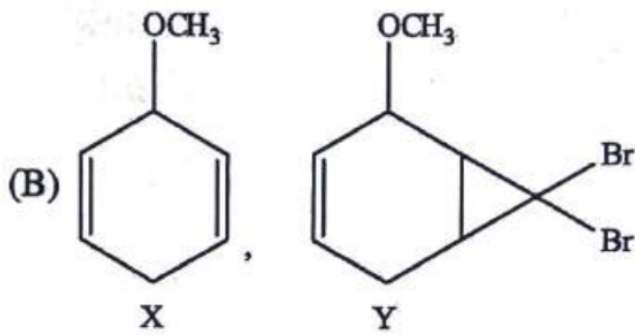


Fig B

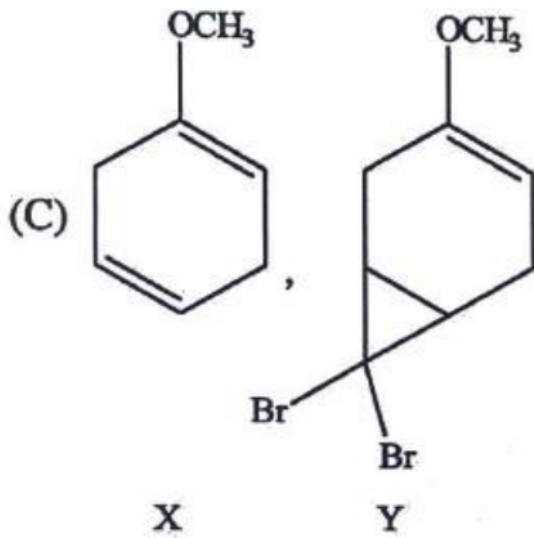


Fig C

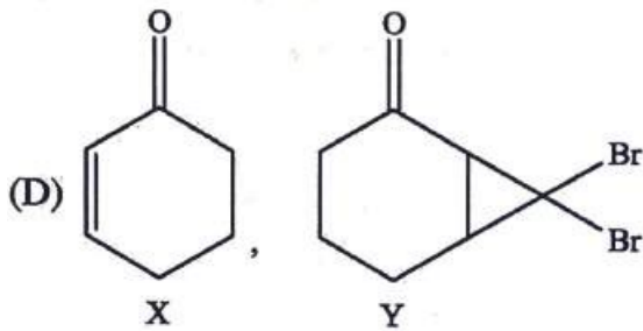


Fig D

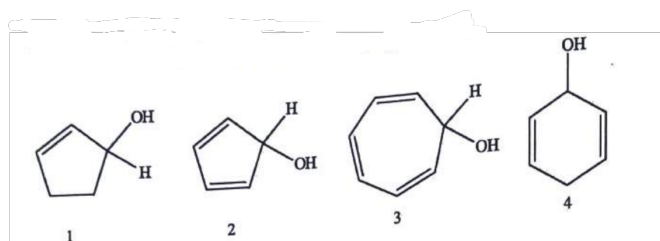
(A) Fig A

- (B) Fig B
(C) Fig C
(D) Fig D
-

60. The van der Waal's equation : $(P + \frac{a}{4V^2})(V - \frac{b}{2}) = \frac{RT}{2}$ is valid for

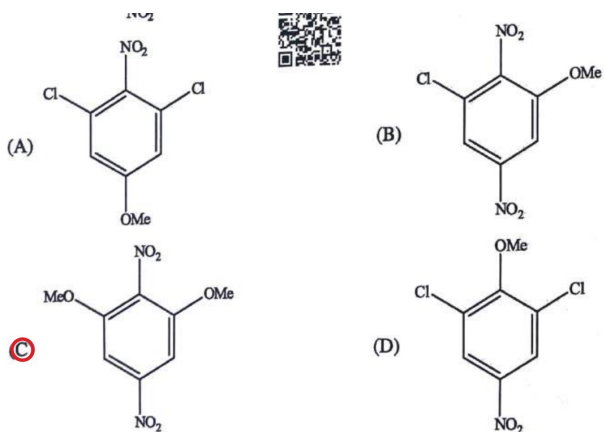
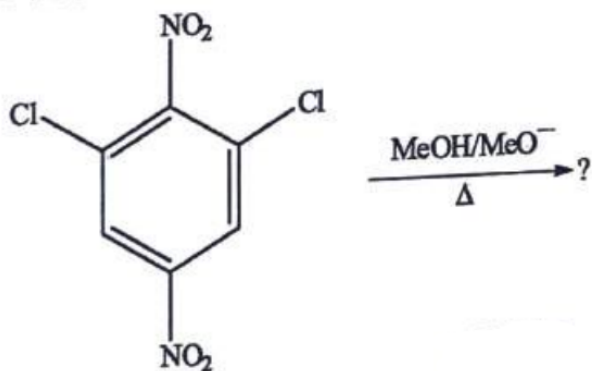
- (A) 1 mole of an ideal gas.
(B) 2 moles of a real gas.
(C) $\frac{1}{2}$ mole of an ideal gas.
(D) $\frac{1}{2}$ mole of a real gas.
-

61. Which one of the following does not lose water even in conc. H_2SO_4 ?



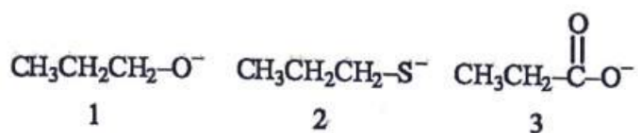
- (A) 1
(B) 2
(C) 3
(D) 4
-

62. The major product in the following reaction is



- (A) A
 (B) B
 (C) C
 (D) D

63. Rank the following anions in order of decreasing nucleophilicity in a polar protic solvent (most → least nucleophilic).



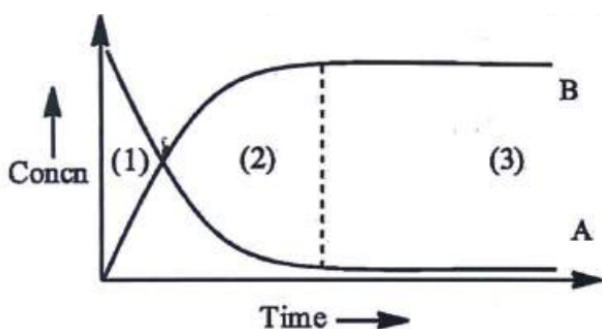
- (A) $3 > 2 > 1$
 (B) $2 > 3 > 1$
 (C) $1 > 3 > 2$

(D) $2 > 1 > 3$

64. In which of the following species, sp^3d^2 hybridisation is not associated?

- (A) XeF_6
 - (B) BrF_5^+
 - (C) IF_5
 - (D) XeF_4
-

65. For the reaction $A \rightleftharpoons B$, variation of concentration is plotted against time as shown below.



- (A) Region (1) indicates equilibrium
 - (B) Region (2) indicates equilibrium
 - (C) Region (3) indicates equilibrium
 - (D) Both the Regions (2) and (3) indicate equilibrium
-

66. In a first order reaction, the concentration of reactant decreases from $400 \text{ moles lit}^{-1}$ to $50 \text{ moles lit}^{-1}$ in $7.5 \times 10^3 \text{ s}$. The rate constant of the reaction is (approximately)

- (A) $1 \times 10^{-2} \text{ s}^{-1}$
- (B) $2.5 \times 10^{-3} \text{ s}^{-1}$

(C) $1 \times 10^{-5} \text{ s}^{-1}$

(D) $2.77 \times 10^{-4} \text{ s}^{-1}$

67. In the following reaction sequence, the product Y is

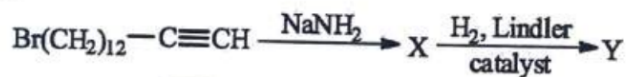


Fig A

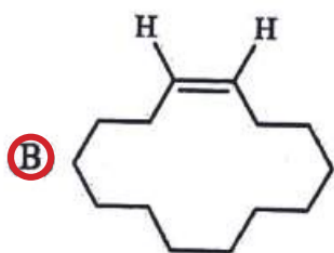


Fig B

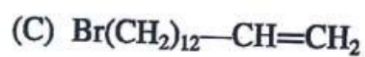


Fig C

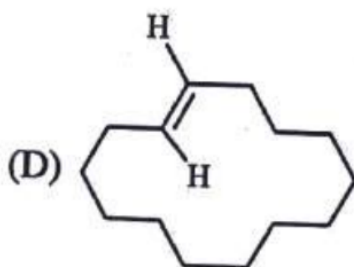


Fig D

(A) Fig A

(B) Fig B

(C) Fig C

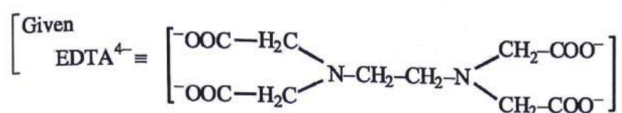
(D) Fig D

68. The mass of an electron is $9.1 \times 10^{-31} \text{ kg}$. If its K.E. is $3.0 \times 10^{-25} \text{ J}$, its wavelength is

(approximately)

- (A) 250 nm
 - (B) 990 nm
 - (C) 400 nm
 - (D) 850 nm
-

69. The calculated magnetic moment for low spin $[\text{Ru}(\text{EDTA})]^-$ is



- (A) 2.73 BM
 - (B) 1.73 BM
 - (C) 3.23 BM
 - (D) 0.00 BM
-

70. Glucose is added to 1 litre of water to such an extent that $\Delta T_f/K_f$ equals to $\frac{1}{1000}$. The weight of glucose added is

- (A) 180 gm
 - (B) 18 gm
 - (C) 1.8 gm
 - (D) 0.18 gm
-

71. A 5.0 cm^3 solution of H_2O_2 liberates 1.27 g of iodine from an acidified KI solution. The percentage strength of H_2O_2 is close to

- (A) 11.2
(B) 5.8
(C) 1.9
(D) 3.4
-

72. An organic compound undergoes first order decomposition. The time taken for its decomposition to $\frac{1}{8}$ th and $\frac{1}{10}$ th of its initial concentration are $t_{1/8}$ and $t_{1/10}$ respectively. The value of $\left[\frac{t_{1/8}}{t_{1/10}} \right]$ is [Given $\log_{10} 2 = 0.3$]

- (A) 0.9
(B) 0.6
(C) 0.3
(D) 0.5
-

73. For the metal complex $[\text{Co}(\text{NH}_3)_5\text{SO}_4]\text{Br}$, coordination number, oxidation number, number of d -electrons and number of unpaired d -electrons are respectively

- (A) 6, 3, 6, 0
(B) 7, 2, 6, 2
(C) 6, 2, 6, 0
(D) 6, 2, 7, 0
-

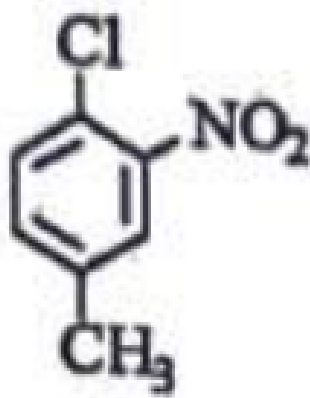
74. $\text{RO}-\text{CH}_2-\text{C}\equiv\text{CH} \xrightarrow{\text{X}} \xrightarrow{\text{Y}} \text{RO}-\text{CH}_2-\text{C}\equiv\text{C}-\text{CH}_2\text{CH}_2-\text{Br}$

To carry out the above conversion X and Y are respectively

- (A) NaNH_2 , $\text{Br}-\text{CH}_2-\text{CH}_2-\text{Cl}$
(B) NaNH_2 , $\text{I}-\text{CH}_2-\text{CH}_2-\text{Br}$
(C) NaNH_2 , $\text{F}-\text{CH}_2-\text{CH}_2-\text{Br}$
-

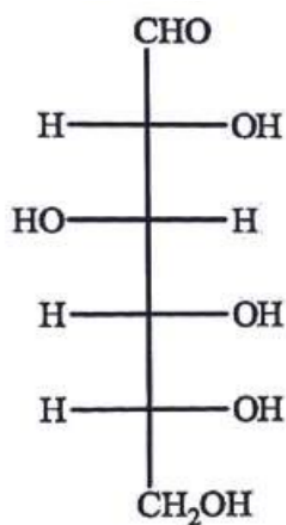
(D) NaNH_2 , $\text{CH}_2 = \text{CH} - \text{Br}$

75. The IUPAC name of the given compound is



- (A) 1-Chloro-2-nitro-4-methylbenzene
(B) 1-Chloro-4-methyl-2-nitrobenzene
(C) 2-Chloro-1-nitro-5-methylbenzene
(D) m-Nitro-p-chlorotoluene
-

76. Which of the following statement(s) is/are correct about the given compound?



- (A) It exhibits ring-chain tautomerism.
 - (B) It forms osazone with phenylhydrazine.
 - (C) It gives eight (8) stereoisomers.
 - (D) It responds to Tollen's reagent.
-

77. 1 mole of an ideal gas undergoes the following processes:

Process A → Isothermal expansion at 400K from volume V_1 to volume V_2 , such that $V_2 = 4V_1$.

Process B → Adiabatic expansion from volume V_1 to volume V_2 , such that $V_2 = 4V_1$.

Consider the following statements and select the correct one/s.

- (A) Work done by gas in Process A is greater than in Process B.
 - (B) Final temperature in Process B is less than 400K.
 - (C) Change in internal energy is 0 in Process A but non-zero in Process B.
 - (D) Heat absorbed by the gas is positive in Process A but zero in Process B.
-

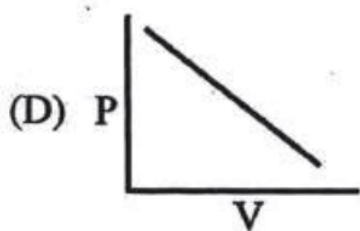
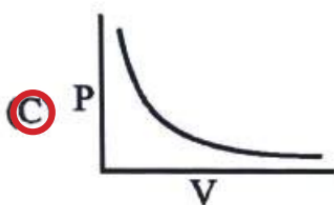
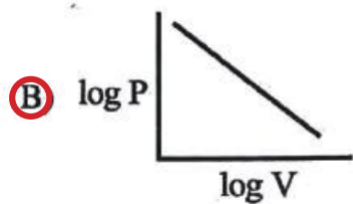
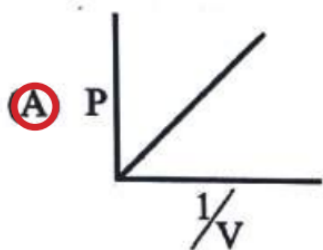
78. Which of the following statement(s) is/are correct?

- (A) Starch is composed of repeating α -D-glucose units.
 - (B) Nylon-6 is an addition polymer whereas nylon-6,6 is a condensation polymer.
 - (C) Isoprene is the monomer unit of natural rubber.
 - (D) Bakelite is obtained from reaction between phenol and acetaldehyde.
-

79. Which of the following have tetrahedral structures?

- (A) $[\text{Ni}(\text{CN})_4]^{2-}$
- (B) $[\text{Ni}(\text{CO})_4]$
- (C) $[\text{NiCl}_4]^{2-}$
- (D) CrO_4^{2-}

80. Which of the following plot(s) is/are correct representation(s) of Boyle's Law?



- (A) A
- (B) B
- (C) C
- (D) D