

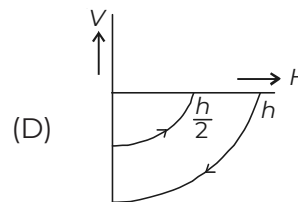
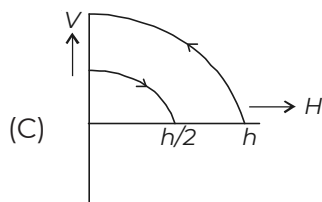
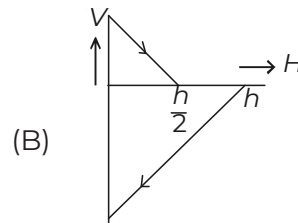
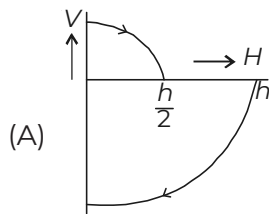
PHYSICS

1. In the expression $P = \frac{a-t^2}{bx}$, P is pressure, t is time and x is the distance. The dimension of $\frac{a}{b}$ will be

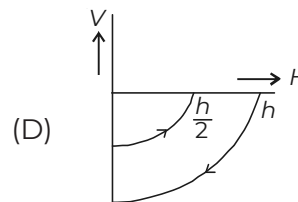
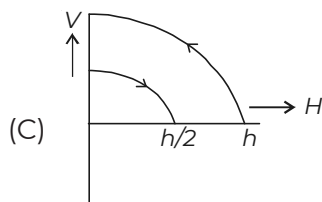
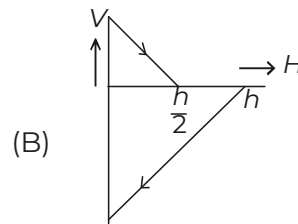
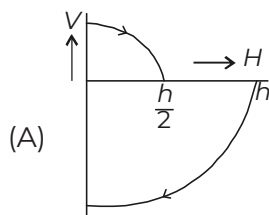
(A) LT^2 (B) MT^{-2}
(C) ML^2T^{-4} (D) M^2LT^{-2}

- 1ú $P = \frac{a-t^2}{bx}$ &OüîîãA;îoPÒ°W;àš,tÒ°îîÚ&α}x™[f fè¹â«ÒÚtîα $\frac{a}{b}$ &¹³ààîî)îA;tîÒîα
(A) LT^2 (B) MT^{-2}
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2. An object is released from a height of h and after rebound it attains a height of $\frac{h}{2}$. Which of the following velocity (V) vs. height (H) graphs describes this journey correctly? (velocity in upward direction is positive)



- 2ú &A;[i; αÑñîA; h l;üZW;tà è=îA;³à[i;t; éó;°à Ò°³à[i;t; î)Qàit;¹š¹t;à $\frac{h}{2}$ l;üZW;tà š™ç"z *îk;îú [>îW;¹ èA;à>
K[t;îαK (V) α>à³ l;üZW;tà (H) è°][W;y &Oü š[¹yû³à î[k;A;®;àîα šøA;àÅA;î¹? (\$«Ç³ăă K[t;îαK <>àâ«A;)



3. An object is thrown horizontally from the roof of a house at a velocity of 10 m/s. What is the height of the house if the object hits the ground at an angle of 45° ?

(A) 10 m (B) 7.2 m
(C) 5 m (D) 3.6 m

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4. A spring of spring constant 'k' is divided in such a way that length of one section is thrice that of the other. The new spring constant of the longer section will be

(A) $\frac{3k}{4}$ (B) $\frac{4k}{3}$
(C) 4k (D) $\frac{9}{4}k$

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5. When a coin is kept at a distance of 4 cm from the centre of a circular table rotating at an angular velocity of ω around its own axis, it starts slipping. If the angular velocity is 2ω , what will be the minimum distance from the centre where the coin will start slipping?

(A) 2 cm (B) 3 cm
(C) 1 cm (D) 8 cm

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6. A boat of length L and mass M is floating on a stationary lake water. A person of mass m walks on the boat from one end to the other. Displacement incurred by the boat with respect to bank of the lake is

(A) $\frac{M}{M+m}L$
(C) $\frac{m}{M+m}L$

(B) $\frac{m}{M+m}L$
(D) $\frac{M}{M+m}L$

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7. If a stone weighs ' W ' at the equatorial surface of earth of radius ' R ', then its weight at an elevation $\frac{R}{2}$ from the surface will be

(A) $\frac{W}{2}$
(C) $\frac{W}{4}$

(B) $\frac{W}{4}$
(D) $\frac{4W}{9}$

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8. The ratio of radii of two solid metal spheres is 1 : 2. They are released in a stationary uniform viscous liquid. When both achieve terminal velocities, the ratio of their momentum will be

(A) 1 : 8

(B) 1 : 16

(C) 1 : 32

(D) 1 : 64

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15. The equation of a running wave is $y = 7 \sin(7t - 0.04x + \pi/3)$, where y and x are in cm and t is in seconds. The velocity of this wave is

- (A) 175π m/s (B) 49π m/s
(C) $\frac{49}{\pi}$ m/s (D) 175π m/s

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16. Infinite number of point charges of same magnitude are kept along X-axis at $x=1$ cm, $x=2$ cm, $x=4$ cm, $x=8$ cm, and so on. If the magnitude of charge is 5 nC and consecutive charges are of opposite sign, the magnitude of electric field at $x=0$ is

- (A) 6×10^4 N/C (B) 12×10^4 N/C
(C) 24×10^4 N/C (D) 36×10^4 N/C

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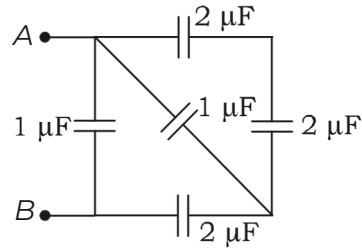
17. 1000 identical spherical mercury droplets are charged to achieve 1 V electric potential each. If all the droplets are fused to form a single mercury sphere, its resultant electric potential will be

- (A) 1 V (B) 10 V
(C) 100 V (D) 1000 V

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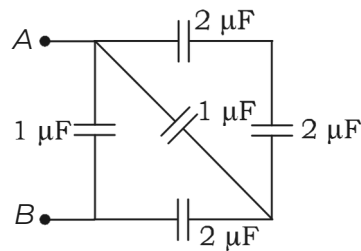
18.



The equivalent capacitance C_{AB} between A and B for the combination drawn here is

- (A) $4\mu\text{F}$ (C) $5\mu\text{F}$ (B) $2\mu\text{F}$ (D) $3\mu\text{F}$

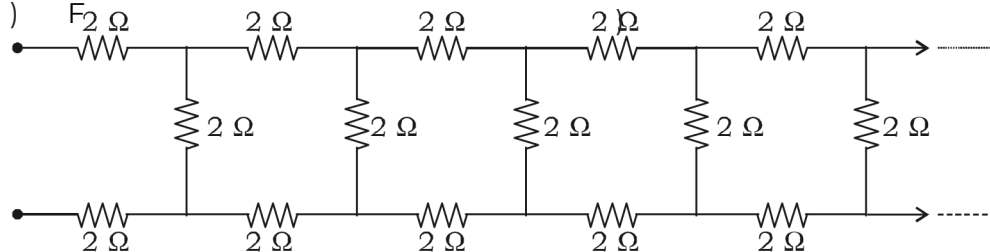
18ú



šøfvî î³œàÚœtç; >ã[ijt; A &œ} B &¹³k, tâi°⁰, <à¹A;â« C_{AB} &¹³à>

- (A) 4μ (B) $2\mu\text{F}$
) F) $3\mu\text{F}$
(C) 5μ (D)
) $F_2 \Omega$

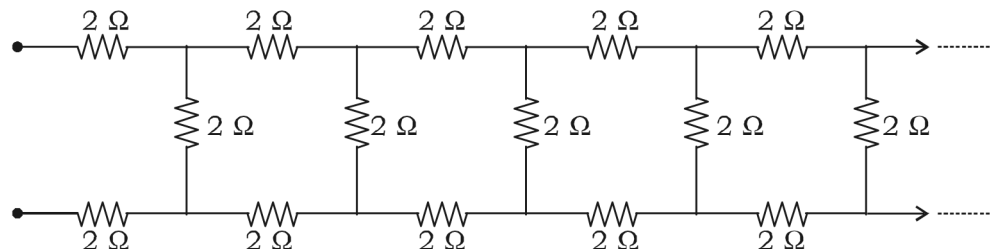
19.



The nearest value of equivalent resistance of the combination of resistances given above is

- (A) 4.5Ω (B) 5.5Ω
(C) 6.5Ω (D) 7.5Ω

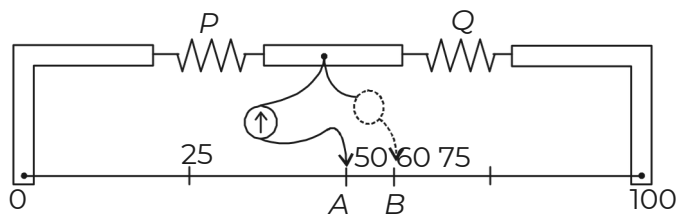
19ú



šøfvî î¹³œtç; >ã[ij¹ tâi°⁰, ë¹àk¹ [>Aijt³³à>

- (A) 4.5Ω (B) 5.5Ω
) 6.5Ω) 7.5Ω
(C) (D)
) 8)

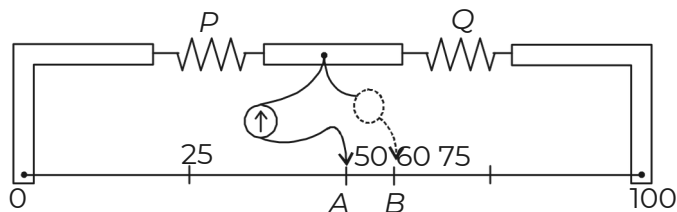
20.



When two equal unknown resistances Y , each are inserted in the gaps P and Q of the meter bridge as shown, the null appears at the middle A . But if a 10Ω resistance is connected parallel to Y at Q , the null shifts 10 cm to the right at B as shown. The value of Y is

- (A) 20Ω (B) 15Ω
(C) 10Ω (D) 5Ω

20ú



[Wiyà>áíàí¹™] > fâ[ij î³³àí¹™] > à>à è¹à< Y,™=àýújî³ [íjâ¹™] > P&Q } Q óòàíAí °àKàì>à ÒÚ ¢öãí\¹ >à°
[kíAí³àc]jâ>A [¢@fâitî šà*Úà™] àÚjÚ [Aí™] > &Aí[ij î³³àí¹™] > Q óòàíAí °àKàì>à Y è¹àí¹ î³à¹ z¹à° î³àíÚ
°àKàì>à ÒÚ >à° [¢@fâitî 10 cm] > [fíAí î¹™] > [¢@fâitî šà*Úà™] àÚjÚ Y&¹à> Ò°

- (A) 20Ω (B) 15Ω
) 10Ω) 5Ω
(C) (D)

21. A 10Ω galvanometer shows full deflection for a current of 1 mA. How much resistance has to be connected in series to convert the galvanometer to a voltmeter which can measure a maximum voltage of 2.5 V ?

- (A) 249Ω (C) 2490Ω (B) 249Ω
(D) 24990Ω

21ú 10Ω è¹àí¹ &Aí[ij Kà,°@,jâ>à[íjâí¹ 1 mA šøàò èKí° tjà šèò¢ [¢íÚjîš èf]àÚjÚ Kà,°@,jâ>à[íjâí¹ [íjâíAí 2.5 V
š™¢"z³àšà¹ lîüš™àvîúj è@jâíAí[íjâí¹ èjšà"z¹tî Aí¹tî èÀøã î³àíÚ Aíjî è¹à<™àvîúj Aí¹tî Òì¢?

- (A) 249Ω (B) 249Ω
) 2490Ω) 24990Ω
(C) 9 (D) [P.T.O.]
))

22. The value of magnetic susceptibility χ of a paramagnetic sample can be represented by (Δ being a small quantity)

(A) $-\Delta < \chi < 0$

(B) $0 < \chi < \Delta$

(C) $1 < \chi < 1 + \Delta$

(D) $1 - \Delta < \chi < 1$

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23. An electron is moving in a circular trajectory under the influence of a transverse magnetic field $3.57 \times 10^{-2} \text{ T}$. If value of e/m is $1.76 \times 10^{11} \text{ C/kg}$, frequency of revolution of the electron is close to

(A) 1 GHz

(B) 100 MHz

(C) 62.8 MHz

(D) 6.28 MHz

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24. If the instantaneous current in a coil of self-inductance 2 mH is given by $I = t^2 e^{-t}$, then how long it will take to make the induced emf zero?

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(B) 2s

(C) 3s

(D) 4s

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25. A ray of light passes through a prism of refractive index $\sqrt{2}$ and angle of prism 60° . For minimum deviation the angle of incidence of the incoming ray must be

- (A) 30° (B) 45°
(C) 60° (D) 75°

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26. The radius of curvature of a planoconvex lens is 25 cm. If refractive index of glass used is 1.5, the power of the lens in diopter unit is

- (A) 2 (B) 3
(C) 4 (D) 8

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27. In a Young's experiment a monochromatic light of wavelength 600 nm is used. If slit separation is 6 mm, then fringe width on a perpendicular screen kept at a distance 80 cm will be

- (A) 0.04 mm (B) 0.08 mm
(C) 0.12 mm (D) 0.2 mm

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28. A proton and an α particle are accelerated by same 100V potential difference. If the de Broglie wavelength associated with proton is λ , then the de Broglie wavelength corresponding to the α particle will be

(A) $\frac{\lambda}{2}$

(B) $\frac{\lambda}{\sqrt{2}}$

(C) $\frac{\lambda}{2\sqrt{2}}$

(D) $2\sqrt{2}\lambda$

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(C) $\frac{\lambda}{2\sqrt{2}}$

(D) $2\sqrt{2}\lambda$

29. The mass of a radioactive sample is 10.38 kg. If half-life of the sample is 3.8 days, then how much of the sample is retained after 19 days?

(A) 0.151 kg

(B) 0.16 kg

(C) 0.32 kg

(D) 1.51 kg

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30. The current amplification factor α of a transistor is 0.95. If change in the emitter current is 10 mA, then corresponding change in the base current for that transistor will be

(A) 0.95mA

(B) $\frac{200}{19}$ mA

(C) 9.5mA

(D) 0.5mA

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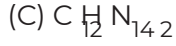
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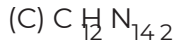
CHEMISTRY

31. 0.93 gm of an organic compound containing carbon, hydrogen and nitrogen as the element upon complete combustion produces 2.64 gm CO and 0.63 gm HO. Molecular

mass of the compound is 186. Determine its molecular formula.



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32. Energy of which orbit of He-atom is equal to the energy of second orbit of H-atom?

(A) Fourth

(B) Second

(C) First

(D) Third

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(A) Fourth

(B) Second

(C) First

(D) Third

33. Between the elements A_a and B_b there exists the relation $b - a = 5$. Mention the period and group of the element B.

(A) 2, 15

(B) 2, 14

(C) 2, 16

(D) 1, 14

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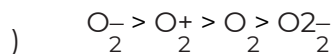
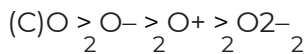
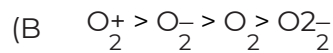
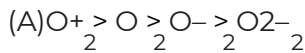
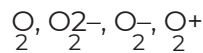
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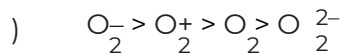
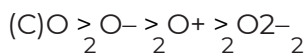
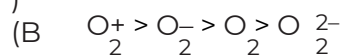
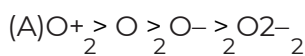
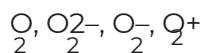
(C) 2, 16

(D) 1, 14

34. Predict the correct bond order considering the following molecule and ions :



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35. 5 moles of nitrogen gas at 5 atm pressure shows 100 lit volume. The same gas assumes 200 lit volume upon absorbing 30.26 kJ heat against an external pressure of 2 atm. Calculate the internal energy changes of this process. [Given 1 lit-atm = 101.32 J]

- (A) 50.52 kJ (B) 60.66 kJ
(C) 0.14 kJ (D) 10 kJ

35ú 5 ě³à° >àÒüi;öàì\> Kà,Î 5 atm W;àìš 100 lit "àÚt; > ěf]àÚ;ú 30.26 kJ t;àšĤÀàÈo A;ĭ¹ Kà,Î[ĭ; 2 atm
 ¢[ÒÑ,W;àìš¹ [¢¹ç;ì†ý; šłà[¹t; ÒiÚ "àÚt; > 200 lit Ò°;ú Kà,Î[ĭ;¹ "à"z¹Ĥ[v;û;¹ š[¹¢tç; > [oćÚ A;ĭ¹;ú
 [1 lit-atm = 101.32 J]

- (A) 50.52 kJ (B) 60.66 kJ
(C) 0.14 kJ (D) 10 kJ

36. In a first-order reaction, a reactant loses its 75% initial concentration on 32 minutes. Determine the half-life of the reactant.

- (A) 8 minutes (B) 16 minutes
(C) 4 minutes (D) 12 minutes

36ú &A;[ĭ; šø³ yû;ĭ³¹ [¢[yû;ÚàÚ "¢àÚà [¢oćÚ A;ĭ¹;ú
 32 [[¢¹; &A;[ĭ;¹ [¢[yû;ÚA;ĭ¹ šøà=[³A; KàØñià«¹ Ĥ;A;¹à 75 ®]àK A;ĭ³;ú [¢[yû;ÚA;[ĭ;¹

- (A) 8 [³]>ĭ; (B) 16 [³]>ĭ;
(C) 4 [³]>ĭ;) 12 [³]>ĭ;
(D)

37. 3.7 gm of a gas at 25 °C occupies some volume. At 17 °C, 0.184 gm hydrogen gas occupies same volume when pressures of both gases are same. What will be the molecular weight of the gas?

- (A) 41.98 (C) 20.94 (B) 20.6
(D) 7

37ú 3.7 Køà³ &A;[ĭ; Kà,Î 25 °C t;àš³àÿàÚ ě™ "àÚt; > "[A;à¹ A;ĭ¹, 0.184 Køà³ ÒàÒüi;öàì\> Kà,Î &A;Òü W;àìš &¢}
 17 °C t;àš³àÿàÚ ěĬü "àÚt; > Òü "[A;à¹ A;ĭ¹;ú Kà,Î[ĭ;¹ "àò[¢A; ®]¹ A;ĭ;?

- (A) 41.98 (B) 20.67
(C) 20.94 (D) 41.34

38. At constant volume 2.94 mole I is heated with 8.1 mole H(g) at 444 °C till the equilibrium reached. If 5.64 mole HI is being generated following this reaction, then calculate the value of equilibrium constant.

- (A) 502 (B) 5.02
(C) 50.2 (D) 0.02

38ú 444 °C t;àš³àÿàÚ &¢} [Ñ,¹ "àÚt; > 2.94 ě³à° I &¢} 8.1 ě³à° H(g) ĭ;üv;œ; A;ĭ¹à Ò°, ™t;Ú;o >à
 ĭà³à, Ñ,àÚ ěš]iààÚ;ú [¢[yû;ÚàÚ ™[f 5.64 ě³à° HI ĭ;ü;šĤ ÒÚ, t;ĭ¢ ĭà³, ¢ç;¢i A;ĭ¹³à > [oćÚ A;ĭ¹;ú

- (A) 502 (B) 5.02
(C) 50.2 (D) 0.02

- (A) 0.4 gm (B) 40 gm
(C) 4 gm (D) 0.04 gm

(A) 0.4 gm (B) 40 gm
(C) 4 gm (D) 0.04 gm

- (A) 2, 4, 2 (B) 3, 8, 3
(C) 1, 3, 1 (D) 4, 7, 4

(A) 2, 4, 2 (C) 1, 3, 1 (B) 3, 8, 3
) 4, 7, 4

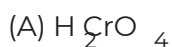
- (A) 22.2 gm (B) 54.2 gm
(C) 15 gm (D) 59.8 gm

(A) 22.2 gm (B) 54.2 gm
(C) 15 gm (D) 59.8 gm

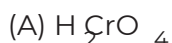
- (A) 66.67 (B) 65.67
(C) 65.06 (D) 66.06

(A) 66.67 (B) 65.67
(C) 65.06 (D) 66.06

43. If H_2O_2 is added to acidic (dil. HSO_4) KCr_2O_7 solution followed by shaking of resulting solution with diethyl ether, then the ether layer turns blue. This blue colour is due to the formation of which of the following ?



43. H_2O_2 (aq) added to acidic (dil. HSO_4) KCr_2O_7 solution followed by shaking of resulting solution with diethyl ether, then the ether layer turns blue. This blue colour is due to the formation of which of the following ?



44. Find the basicity of the following acids :

Hypophosphorous acid, metaphosphoric acid, phosphorous acid, orthophosphoric acid, pyrophosphoric acid.

(A) 1,1,2,3,3

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

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

(D) 1,2,3,3,2

44. Find the basicity of the following acids :

Hypophosphorous acid, metaphosphoric acid, phosphorous acid, orthophosphoric acid, pyrophosphoric acid.

(A) 1,1,2,3,3

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

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

(D) 1,2,3,3,2

45. Dipole moment value of the halogen acids follows which trend actually?

(A) $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$

(B) $\text{HI} > \text{HBr} > \text{HCl} > \text{HF}$

(C) $\text{HI} > \text{HF} > \text{HCl} > \text{HBr}$

(D) $\text{HI} > \text{HCl} > \text{HF} > \text{HBr}$

45. Dipole moment value of the halogen acids follows which trend actually?

(A) $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$

(B) $\text{HI} > \text{HBr} > \text{HCl} > \text{HF}$

(C) $\text{HI} > \text{HF} > \text{HCl} > \text{HBr}$

(D) $\text{HI} > \text{HCl} > \text{HF} > \text{HBr}$

46. To oxidise 1 mole sulfide ion in acid medium, tell the required molar amount of KMnO_4

- (A) 1/5 (B) 2/5
(C) 3/5 (D) 4/5

46. 1 mole S^{2-} ion in acid medium, tell the required molar amount of KMnO_4

- (A) 1/5 (B) 2/5
(C) 3/5 (D) 4/5

47. Which of the following ions are white colour or colourless in aqueous medium?

Ti^{3+} , V^{3+} , Cu^+ , Sc^{3+} , Mn^{2+} , Fe^{3+} , Co^{2+}

- (A) Cu^+ , Co^{2+} (B) Fe^{3+} , V^{3+}
(C) Cu^+ , Sc^{3+} (D) Ti^{3+} , Mn^{2+}

47. Which of the following ions are white colour or colourless in aqueous medium?

Ti^{3+} , V^{3+} , Cu^+ , Sc^{3+} , Mn^{2+} , Fe^{3+} , Co^{2+}

- (A) Cu^+ , Co^{2+}
(B) Fe^{3+} , V^{3+}
(C) Cu^+ , Sc^{3+}
(D) Ti^{3+} , Mn^{2+}

48. Which ion among the following is diamagnetic?

$[\text{NiCl}_4]^{2-}$, $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{CuCl}_4]^{2-}$, $[\text{CoF}_6]^{3-}$

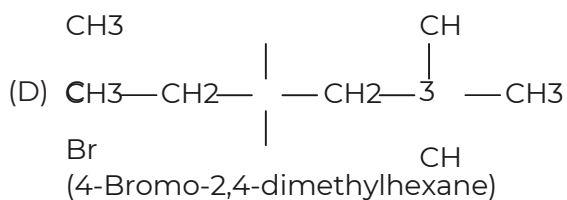
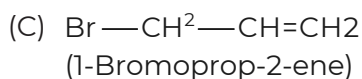
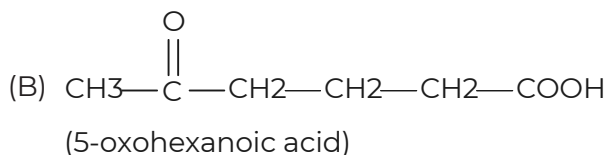
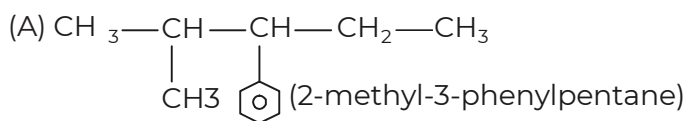
- (A) $[\text{NiCl}_4]^{2-}$
(B) $[\text{Ni}(\text{CN})_4]^{2-}$
(C) $[\text{CuCl}_4]^{2-}$
(D) $[\text{CoF}_6]^{3-}$

48. Which ion among the following is diamagnetic?

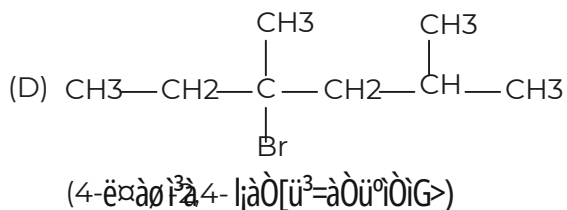
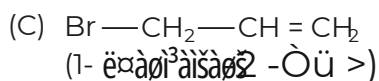
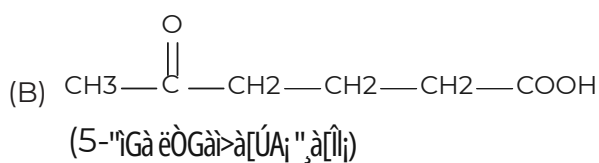
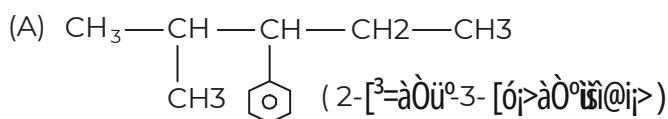
$[\text{NiCl}_4]^{2-}$, $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{CuCl}_4]^{2-}$, $[\text{CoF}_6]^{3-}$

- (A) $[\text{NiCl}_4]^{2-}$
(B) $[\text{Ni}(\text{CN})_4]^{2-}$
(C) $[\text{CuCl}_4]^{2-}$
(D) $[\text{CoF}_6]^{3-}$

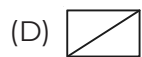
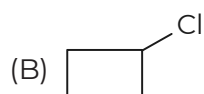
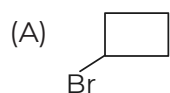
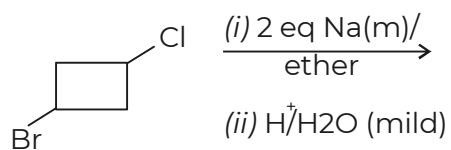
49. According to IUPAC-nomenclature, which among the following is incorrect — specify it.



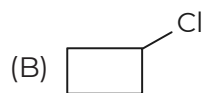
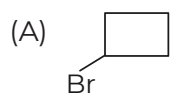
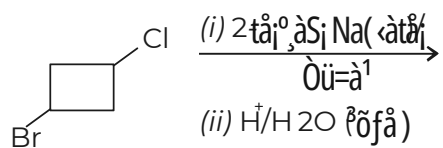
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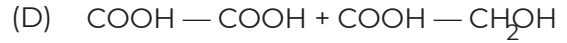
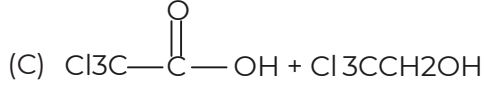
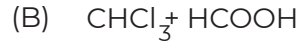
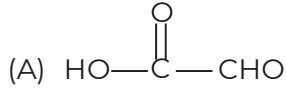
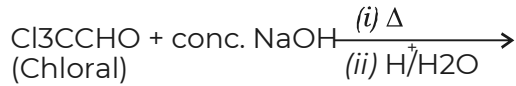
50. Predict the product of the following reaction :



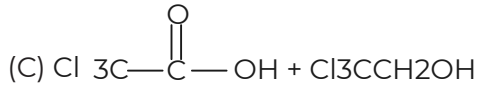
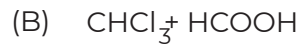
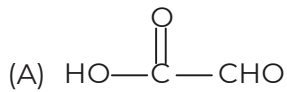
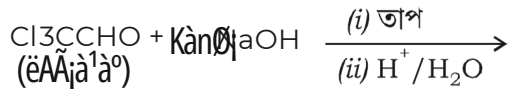
50. Predict the product of the following reaction :



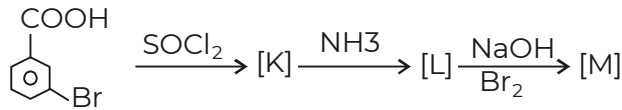
53. Predict the Product(s) of the following reaction :



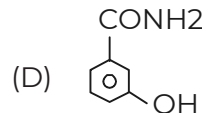
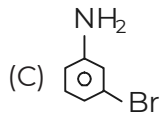
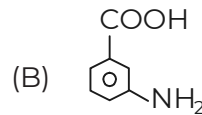
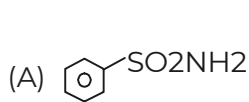
53. Predict the Product(s) of the following reaction :



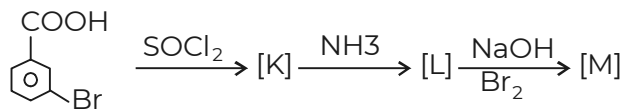
54. Identify the Product (M) observing the following reactions :



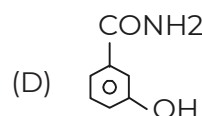
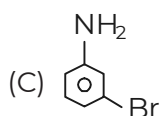
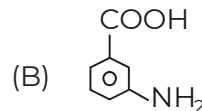
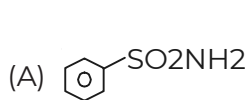
Product M will be :



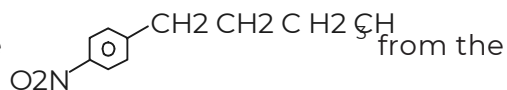
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Product M will be :

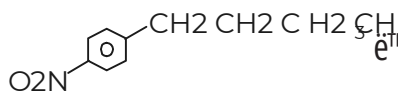


55. Find the appropriate synthetic route to synthesise



- (A) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$
- (B) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}} \xrightarrow[\text{conc. HCl}]{\text{Zn/Hg}} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$
- (C) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3} \xrightarrow[\text{conc. HCl}]{\text{Zn/Hg}}$
- (D) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}} \xrightarrow[\text{ether}]{\text{LiAlH}_4} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$

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- (A) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$
- (B) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}} \xrightarrow[\text{conc. HCl}]{\text{Zn/Hg}} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$
- (C) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3} \xrightarrow[\text{conc. HCl}]{\text{Zn/Hg}}$
- (D) $\text{C}_6\text{H}_6 \xrightarrow[\text{AlCl}_3]{\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl}} \xrightarrow[\text{ether}]{\text{LiAlH}_4} \xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$

56. Best process to synthesise $\text{Me}_3\text{C}-\text{CN}$ will be

- (A) $\text{Me}_3\text{C}-\text{OH}$ is allowed to react with HCN (B) $\text{Me}_3\text{C}-\text{Br}$ is treated with NaCN
- (C) $\text{Me}_3\text{C}-\text{Li}$ is reacted with NH_2CN (D) Me_3CMgBr is coupled with $\text{Cl}-\text{CN}$

56ú $\text{Me}_3\text{C}-\text{CN}$

- (A) $\text{Me}_3\text{C}-\text{OH} \xrightarrow{\text{HCN}}$ (B) $\text{Me}_3\text{C}-\text{Br} \xrightarrow{\text{NaCN}}$
- (C) $\text{Me}_3\text{C}-\text{Li} \xrightarrow{\text{NH}_2\text{CN}}$ (D) $\text{Me}_3\text{CMgBr} \xrightarrow{\text{Cl}-\text{CN}}$

57. Which of the following pairs forms biodegradable polymer?

- (A) $\text{HN}_2\text{CH}_2\text{COOH}$ and $\text{HN}(\text{CH}_2)_5\text{CO}_2\text{OH}$
 (B) $\text{HOCH}_2\text{CHOH}_2$ and $\text{HOOC}-\text{C}_6\text{H}_4-\text{COOH}$
 (C) $\text{C}_6\text{H}_5-\text{CH}=\text{CH}_2$ and $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$
 (D) $\text{CH}_2=\text{CH}-\text{CN}$ and $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$

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- (A) $\text{HN}_2\text{CH}_2\text{COOH}$ & ¢ } $\text{HN}(\text{CH}_2)_5\text{CO}_2\text{H}$
 (B) $\text{HOCH}_2\text{CHOH}_2$ & ¢ } $\text{HOOC}-\text{C}_6\text{H}_4-\text{COOH}$
 (C) $\text{C}_6\text{H}_5-\text{CH}=\text{CH}_2$ & ¢ } $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$
 (D) $\text{CH}_2=\text{CH}-\text{CN}$ & ¢ } $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$

58. D(+) glucose on reaction with hydroxylamine produces an oxime. The structure of the generated oxime is

- (A) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$ (B) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$
 (C) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$ (D) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$

58ú D(+) N Ā ã i A ; à \ 1 ĩ U Ò à Ø ù l ; ö [G ° " , à [3 > 1 [¢ [y ú ; Ú à Ú & A ; [i ; " [G 3 K [k t ; Ø Ú ; ú l ; ü ; š Ä " [G i 3 1 K k > Î } i A ; t ; Ø °

- (A) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$ (B) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$
 (C) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$ (D) $\begin{array}{c} \text{CH}=\text{NOH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{HO}-\text{C}-\text{H} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{H}-\text{C}-\text{OH} \\ | \\ \text{CH}_2\text{OH} \end{array}$

59. Doxycycline belongs to which of the following classes of antimicrobial?

- (A) Broad-spectrum bactericidal antibiotic
- (B) Narrow-spectrum bacteriostatic antibiotic
- (C) Broad-spectrum bacteriostatic antibiotic
- (D) Limited-spectrum bacteriostatic antibiotic

59. Doxycycline belongs to which of the following classes of antimicrobial?

- (A) Broad-spectrum bactericidal antibiotic
- (B) Narrow-spectrum bacteriostatic antibiotic
- (C) Broad-spectrum bacteriostatic antibiotic
- (D) Limited-spectrum bacteriostatic antibiotic

60. Which of the following is the example of liquid detergent used to clean utensils?

- (A) $\text{CH}_3(\text{CH}_2)_{210}\text{CH}_2\text{OSO}_3\text{Na}^+$
- (B) $\text{H}_{19}\text{C}_9 - \text{C}_6\text{H}_4 - \text{O} - (\text{CH}_2 - \text{CH}_2\text{O})_5\text{CH}_2\text{CH}_2\text{OH}$
- (C) $\text{HC}_3 - \text{C}_6\text{H}_4 - \text{SO}_3\text{Na}^+$
- (D) $\text{CH}_3(\text{CH}_2)_{215} - \text{N}(\text{CH}_3)_3\text{Br}^-$

60. Which of the following is the example of liquid detergent used to clean utensils?

- (A) $\text{CH}_3(\text{CH}_2)_{210}\text{CH}_2\text{OSO}_3\text{Na}^+$
- (B) $\text{H}_{19}\text{C}_9 - \text{C}_6\text{H}_4 - \text{O} - (\text{CH}_2 - \text{CH}_2\text{O})_5\text{CH}_2\text{CH}_2\text{OH}$
- (C) $\text{HC}_3 - \text{C}_6\text{H}_4 - \text{SO}_3\text{Na}^+$
- (D) $\text{CH}_3(\text{CH}_2)_{215} - \text{N}(\text{CH}_3)_3\text{Br}^-$