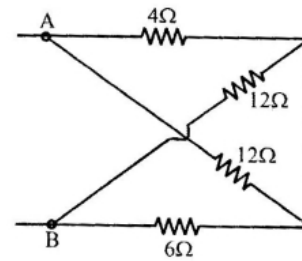
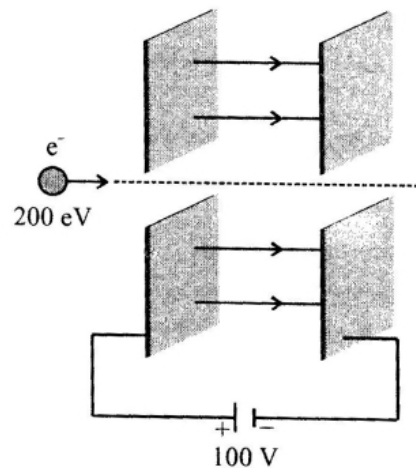


- The physical quantity "Energy Density" has same dimensional formula as :
  - Pressure
  - Stress
  - Young's modulus of elasticity
  - All of these
- Two masses  $m_1$  and  $m_2$  start to move towards each other due to mutual gravitational force. If distance covered by  $m_1$  is  $x$ , then the distance covered by  $m_2$  is :
  - $\frac{m_2 x}{m_1 + m_2}$
  - $\frac{m_2 x}{m_1}$
  - $\frac{m_1 x}{m_2}$
  - $\frac{m_1 x}{m_1 + m_2}$
- The total momentum of electrons in a straight wire of copper of length 1 metre carrying a current of 16 A is :-
  - $91 \times 10^{-12}$  kg m/sec
  - $91 \times 10^{-15}$  kg m/sec
  - $91 \times 10^{-14}$  kg m/sec
  - $91 \times 10^{-6}$  kg m/sec
- Which of the following is not a unit of self-inductance -
  - Weber/Ampere
  - Ohm-Second
  - Joule-Ampere
  - Joule-Ampere<sup>-2</sup>
- Select the **correct** statement regarding stream line flow :-
  - The momenta of all particles arriving at a point are same
  - The momenta of all particles are same through out the tube
  - The kinetic energy of all particles passing through a point are same
  - Both (1) & (3)
- Choose the correct statement :
  - In a straight line motion a particle can increase its velocity with decreasing acceleration
  - In a straight line motion acceleration can revert its direction without its velocity reverting its direction
  - A body at rest may be accelerated
  - All of these

- The torque acting on a body about centre of mass due to normal reaction :
  - Must be zero
  - Must be non-zero
  - May be non-zero on stationary or moving body
  - Infinite
- In given Network the equivalent resistance between A & B is :-

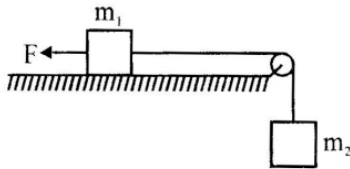


- $\frac{12}{7} \Omega$
  - $7 \Omega$
  - $10 \Omega$
  - $24 \Omega$
- Two large parallel plates are connected with the terminal of 100 V power supply. These plates have a fine hole at the centre. An electron having energy 200 eV is so directed that it passes through the holes. When it comes out its de-Broglie wavelength will be :

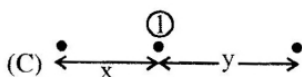
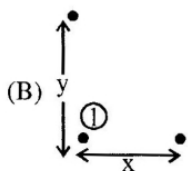
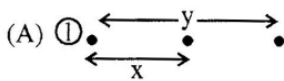


- $1.22 \text{ \AA}$
  - $1.75 \text{ \AA}$
  - $2 \text{ \AA}$
  - None of these

10. Consider the situation shown in figure. The force  $F$  is equal to the  $m_2g/2$ . If the area of cross-section of the string is  $A$  and its Young's modulus  $Y$ , find the strain developed in it. The string is light and there is no friction anywhere :-

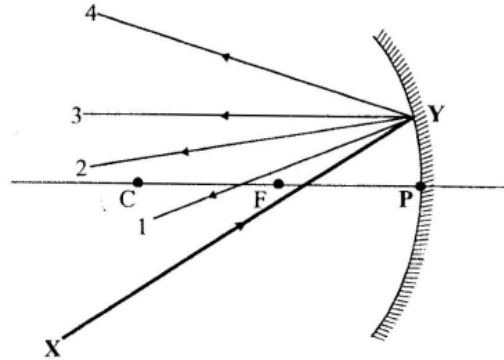


- (1)  $\frac{m_2g(2m_1 + m_2)}{AY(m_1 + m_2)}$       (2)  $\frac{m_2g(m_1 + m_2)}{2AY(m_1 + m_2)}$
- (3)  $\frac{m_2g(2m_1 + m_2)}{2AY(m_1 + m_2)}$       (4) None of these
11. The angle between vectors  $\vec{a}$  and  $\vec{b}$  is  $\frac{\pi}{6}$ . The angle between vectors  $-3\vec{a}$  and  $2\vec{b}$  is :
- (1)  $\frac{\pi}{3}$       (2)  $\frac{\pi}{2}$
- (3)  $\frac{7\pi}{6}$       (4)  $\frac{5\pi}{6}$
12. There are three arrangement of three point masses (each of mass  $m$ ). In which of the following three arrangements they are arranged in order of increasing magnitude of gravitational force on point mass marked as 1 ?

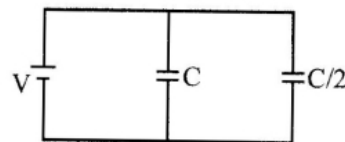


- (1) C, B and A      (2) B, C and A
- (3) C, A and B      (4) A, C and B

13. Figure shows a small concave mirror with  $CP$  as its principal axis. A ray  $XY$  is incident on the mirror. Which of the four rays can be the reflected ray.



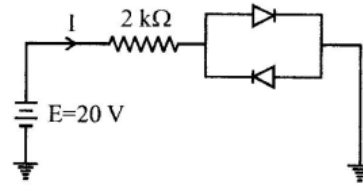
- (1) 1      (2) 2      (3) 3      (4) 4
14. Five elements A, B, C, D and E have work functions 1.2 eV, 2.4 eV, 3.6 eV, 4.8 eV and 6 eV respectively. If light of wavelength  $4000 \text{ \AA}$  is allowed to fall on these elements, then photoelectrons are emitted by :
- (1) A, B and C      (2) A, B, C, D and E
- (3) A and B      (4) Only E
15. A Carnot engine with sink's temperature at  $17^\circ\text{C}$  has 50% efficiency. By how much should its source temperature be changed to increases its efficiency to 60% ?
- (1) 225 K      (2) 128 K
- (3) 580 K      (4) 145 K
16. A particle revolves with constant angular acceleration  $\pi \text{ rad/s}^2$ . If the particle starts from rest, how many revolution will it make in the first 10 seconds?
- (1) 16      (2) 10      (3) 20      (4) 25
17. Two capacitor one of capacitance  $C$  and other capacitance  $C/2$  are connected with a battery of  $V$  volt then heat produced in connecting wire :



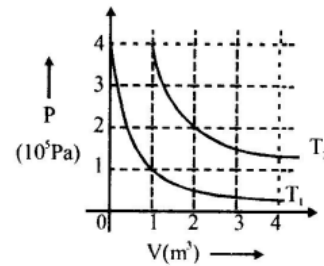
- (1)  $2 CV^2$       (2)  $\frac{1}{4} CV^2$
- (3)  $\frac{3}{4} CV^2$       (4)  $\frac{1}{2} CV^2$

18. An object is placed in front of a spherical mirror whose 2 times magnified image is formed on screen. Then choose **CORRECT** option :-  
 (1) Mirror is concave  $m = +2$   
 (2) Mirror is concave  $m = -2$   
 (3) Mirror is convex  $m = +2$   
 (4) Mirror is convex  $m = -2$
19. An atomic power nuclear reactor can deliver 300 MW. The energy released due to fission of each nucleus of uranium atom  $U^{238}$  is 170 MeV. The number of uranium atoms fissioned per hour will be : (Approximately)  
 (1)  $30 \times 10^{25}$  (2)  $4 \times 10^{22}$   
 (3)  $10 \times 10^{20}$  (4)  $5 \times 10^{15}$
20. An insulated box containing a diatomic gas of molar mass  $M$  is moving with a velocity  $v$ . The box is suddenly stopped. The resulting change in temperature is :  
 (1)  $\frac{Mv^2}{2R}$  (2)  $\frac{Mv^2}{3R}$   
 (3)  $\frac{Mv^2}{5R}$  (4)  $\frac{2Mv^2}{5R}$
21. A body of mass 2 kg travels according to law  $x = at + bt^2 + ct^3$ , where  $a = 3 \text{ m/s}$ ,  $b = 4 \text{ m/s}^2$  and  $c = 5 \text{ m/s}^3$ , then force acting on body at  $t = 2 \text{ s}$  :  
 (1) 68 N (2) 136 N  
 (3) 272 N (4) 336 N
22. An electric dipole is situated in an electric field of uniform intensity  $E$  whose dipole moment is  $p$  and moment of inertia is  $I$ . If the dipole is displaced slightly from the equilibrium position, then the angular frequency of its oscillations is  
 (1)  $\left(\frac{pE}{I}\right)^{1/2}$  (2)  $\left(\frac{pE}{I}\right)^{3/2}$   
 (3)  $\left(\frac{I}{pE}\right)^{1/2}$  (4)  $\left(\frac{p}{IE}\right)^{1/2}$
23. Two thin prisms of flint glass, with refracting angles of  $6^\circ$  and  $8^\circ$  respectively, possess dispersive powers in the ratio :  
 (1) 4 : 3 (2) 3 : 4  
 (3) 1 : 1 (4) 9 : 16

24. Assuming the diodes to be of silicon with forward resistance zero, the current  $I$  in the following circuit is :



- (1) 0 (2) 9.65 mA  
 (3) 10 mA (4) 10.36 mA
25. The following graph shows two isotherms for a fixed mass of an ideal gas. The ratio of r.m.s. speed of the molecules at temperatures  $T_2$  and  $T_1$  is:-



- (1)  $2\sqrt{2}$  (2)  $\sqrt{2}$  (3) 2 (4) 4
26. Internal forces acting in a system of particle can change :  
 (1) The kinetic energy but not linear momentum of the system  
 (2) Neither linear momentum nor kinetic energy of the system  
 (3) Both kinetic energy and linear momentum of the system  
 (4) The linear momentum but not the kinetic energy of system
27. An elementary particle of mass  $m$  and charge  $+e$  is projected with velocity  $v$  at a much more massive particle of charge  $Ze$ , where  $Z > 0$ . What is the closest possible approach of the incident particle  
 (1)  $\frac{Ze^2}{2\pi\epsilon_0 mv^2}$  (2)  $\frac{Ze}{4\pi\epsilon_0 mv^2}$   
 (3)  $\frac{Ze^2}{8\pi\epsilon_0 mv^2}$  (4)  $\frac{Ze}{8\pi\epsilon_0 mv^2}$

28. Laser light (630 nm) incident on a pair of slits produces an interference pattern in which the bright fringes are separated by 8.3 mm. A second light produces an interference pattern in which the bright fringes are separated by 7.6 mm. What is the wavelength of this second light :
- (1) 576.86 nm                      (2) 57.86 nm  
 (3) 676.66 nm                      (4) 5766.6 nm
29. Pure Si at 500 K has equal number of electron ( $n_e$ ) and hole ( $n_h$ ) concentrations of  $1.5 \times 10^{16} \text{ m}^{-3}$ . Doping by indium increases  $n_h$  to  $4.5 \times 10^{22} \text{ m}^{-3}$ . The doped semiconductor is of :
- (1) p-type having electron concentration,  $n_e = 5 \times 10^9 \text{ m}^{-3}$   
 (2) n-type with electron concentration,  $n_e = 5 \times 10^{22} \text{ m}^{-3}$   
 (3) p-type with electron concentration,  $n_e = 2.5 \times 10^{10} \text{ m}^{-3}$   
 (4) n-type with electron concentration,  $n_e = 2.5 \times 10^{23} \text{ m}^{-3}$
30. The temperature of furnace is  $200^\circ\text{C}$ , in its spectrum the maximum intensity is obtained at about  $400\text{\AA}$ . If the maximum intensity is at  $200\text{\AA}$ . Calculate the temperature of the furnace in  $^\circ\text{C}$ .
- (1)  $400^\circ\text{C}$                               (2)  $673^\circ\text{C}$   
 (3)  $946^\circ\text{C}$                               (4) None of these
31. Select incorrect statement regarding mechanical energy of a body/system :
- (1) It is sum of kinetic and potential energy  
 (2) It may be conserved even if non-conservative force acts on the body/system  
 (3) Work done by conservative force is always equal to negative of change in mechanical energy  
 (4) Both (1) & (2)
32. Two magnets are held together in a vibration magnetometer and are allowed to oscillate in the earth's magnetic field. With like poles of magnets together, 12 oscillations per minute are made but for unlike poles together only 4 oscillations per minute are executed. The ratio of their magnetic moments is
- (1) 3 : 1                                  (2) 1 : 3  
 (3) 3 : 5                                  (4) 5 : 4
33. The first diffraction minima due to a single slit diffraction is at  $\theta = 30^\circ$  for a light of wavelength  $5000 \text{ \AA}$ . The width of the slit is :
- (1)  $5 \times 10^{-5} \text{ cm}$                       (2)  $1.0 \times 10^{-4} \text{ cm}$   
 (3)  $2.5 \times 10^{-5} \text{ cm}$                       (4)  $1.25 \times 10^{-5} \text{ cm}$
34. In an n-p-n transistor, 108 electrons enter the emitter in  $10^{-8} \text{ s}$ . If 1% electrons are lost in the base, the fraction of current that enters the collector and current amplification factor  $\beta$  are respectively :
- (1) 0.8 and 49                              (2) 0.9 and 90  
 (3) 0.7 and 50                              (4) 0.99 and 99
35. The simple harmonic motion of a particle is represented by the equation  $x = 4 \cos \left[ 88t + \frac{\pi}{4} \right]$ . The frequency (in Hz) and the initial position (in m) of the particle are :-
- (1) 14;  $2\sqrt{2}$                               (2) 16;  $2\sqrt{2}$   
 (3) 14;  $3\sqrt{2}$                               (4) 16;  $3\sqrt{2}$
36. A balloon of mass  $m$  is descending down with an acceleration  $\frac{g}{2}$ . How much mass should be removed from it so that it starts moving up with same acceleration?
- (1)  $\frac{2m}{3}$                                       (2)  $\frac{m}{2}$   
 (3)  $3m$                                       (4)  $\frac{4}{3}m$
37. A thin circular wire carrying a current  $I$  has a magnetic moment  $M$ . The shape of the wire is changed to a square and it carries the same current. It will have a magnetic moment
- (1)  $M$                                       (2)  $\frac{4}{\pi^2}M$   
 (3)  $\frac{4}{\pi}M$                                       (4)  $\frac{\pi}{4}M$
38. What is the coefficient of mutual inductance when the magnetic flux changes by  $2 \times 10^{-2} \text{ Wb}$  and change in current is  $0.01 \text{ A}$  -
- (1) 2 henry                                  (2) 3 henry  
 (3)  $1/2$  henry                                  (4) Zero

39. The electric field part of an electromagnetic wave in a medium is represented by

$$E_x = 0 ;$$

$$E_y = 2.5 \frac{N}{C} \cos \left[ \left( 2\pi \times 10^6 \frac{\text{rad}}{\text{m}} \right) t - \left( \pi \times 10^{-2} \frac{\text{rad}}{\text{s}} \right) x \right];$$

$$E_z = 0.$$

The wave is :

- (1) moving along X-direction with frequency  $10^6$  Hz and wave length 100 m
- (2) moving along X-direction with frequency  $10^6$  Hz and wavelength 200 m
- (3) moving along -X-direction with frequency  $10^6$  Hz and wavelength 200 m
- (4) moving along Y-direction with frequency  $2\pi \times 10^6$  Hz and wavelength 200 m

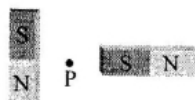
40. The wave described by  $y = 0.25 \sin(10\pi x - 2\pi t)$ , where x and y are in meters and t in seconds, is a wave travelling along is :-

- (1) +ve x direction with frequency 1 Hz and wavelength  $\lambda = 0.2$  m.
- (2) -ve x direction with amplitude 0.25 m and wavelength  $\lambda = 0.2$  m.
- (3) -ve x direction with frequency 1 Hz.
- (4) +ve x direction with frequency  $\pi$  Hz and wavelength  $\lambda = 0.2$  m.

41. A particle moves with a constant velocity in X-Y plane. Its possible angular momentum w.r.t. origin is :

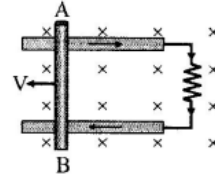
- (1) Increasing
- (2) Zero
- (3) Constant
- (4) Both (2) & (3)

42. Two equal bar magnets are kept as shown in the figure. The direction of resultant magnetic field, indicated by arrow head at the point P is (approximately)



- (1)  $\rightarrow$
- (2)  $\nearrow$
- (3)  $\searrow$
- (4)  $\uparrow$

43. Consider the situation shown in the figure. The wire AB is sliding on the fixed rails with a constant velocity. If the wire AB is replaced by semicircular wire, the magnitude of the induced current will -



- (1) Increase
- (2) Remain the same
- (3) Decrease
- (4) Increase or decrease depending on whether the semicircle bulge is towards the resistance or away from it

44. Select **incorrect** statement regarding turbulent flow :-

- (1) It dissipates kinetic energy in form of heat
- (2) It promotes mixing of fluids
- (3) It increases the rate of transfer of momentum and energy
- (4) It decreases rate of transfer of momentum and energy

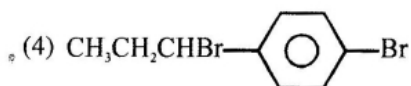
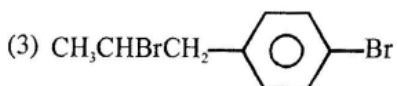
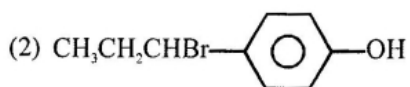
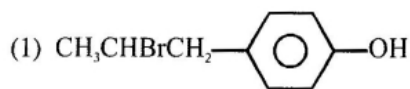
45. The vibrations of a string of length 60 cm fixed at both the ends are represented by the equation

$$y = 2 \sin\left(\frac{4\pi x}{15}\right) \cos(96\pi t) \text{ where } x \text{ and } y \text{ are in cm. The maximum number of loops that can be formed in it is :-}$$

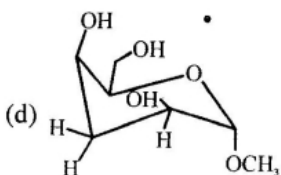
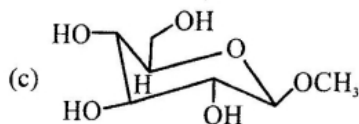
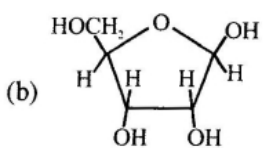
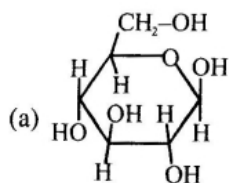
- (1) 6
- (2) 16
- (3) 5
- (4) 15

46. 1 g metal nitrate produces 0.86 g of metal sulphate then equivalent weight of metal will be :  
 (1) 38 (2) 45.85 (3) 41.3 (4) 76
47. What is the ratio of diffusion rate of oxygen to hydrogen ?  
 (1) 1 : 4 (2) 4 : 1 (3) 1 : 8 (4) 8 : 1

48. The reaction of  $\text{CH}_3\text{CH}=\text{CH}-\text{C}_6\text{H}_4-\text{OH}$  with HBr gives :



49. Which of the following compound will show mutarotation :



- (1) a, b, c (2) a, b  
 (3) b, c (4) b, c, d

50. In which of the following pairs, the difference between the covalent radii of the two metals is maximum :-

- (1) K, Ca (2) Mn, Fe  
 (3) CO, Ni (4) Cr, Mn

51. Which of the following set of quantum numbers are allowed ?

(1)  $n = 1, \ell = 1, m = 1, s = \frac{1}{2}$

(2)  $n = 2, \ell = 1, m = 1, s = 1$

(3)  $n = 3, \ell = 0, m = -1, s = \frac{1}{2}$

(4)  $n = 3, \ell = 1, m = 1, s = \frac{1}{2}$

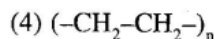
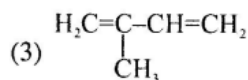
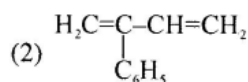
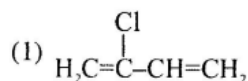
52. How much volume of 5M  $\text{HNO}_3$  is required to oxidise 16 g  $\text{Fe}^{+2}$  if  $\text{HNO}_3$  is converting into NO :

- (1) 16 ml (2) 19.05 ml  
 (3) 38.1 ml (4) 32 ml

53. The compound X ( $\text{C}_5\text{H}_8$ ) reacts with ammonical  $\text{AgNO}_3$  to give a white precipitate and reacts with excess of  $\text{KMnO}_4$  to give the acid,  $(\text{CH}_3)_2\text{CH}-\text{COOH}$ , therefore X is :

- (1)  $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}-\text{CH}_3$   
 (2)  $\text{CH}_3(\text{CH}_2)_2\text{C}\equiv\text{CH}$   
 (3)  $(\text{CH}_3)_2\text{CHC}\equiv\text{CH}$   
 (4)  $(\text{CH}_3)_2\text{C}=\text{C}=\text{CH}_2$

54. Structure of monomer unit of natural rubber is :




55. The trivalent ion having largest size in following is :-

- (1) Ti (2) Zr (3) Hf (4) La

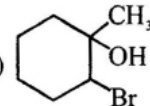
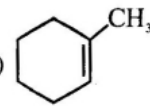
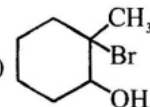
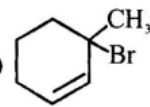
56. Enthalpy of sublimation of a substance is equal to :

- (1) Enthalpy of fusion + enthalpy of vapourisation  
 (2) Enthalpy of fusion  
 (3) Enthalpy of vapourisation  
 (4) Twice of enthalpy of vapourisation

57.  $\text{Co} | \text{Co}^{+2} (\text{C}_2) || \text{Co}^{+2} (\text{C}_1) | \text{Co}$   
for this cell,  $\Delta G$  is negative if :
- (1)  $\text{C}_2 > \text{C}_1$  (2)  $\text{C}_1 > \text{C}_2$   
(3)  $\text{C}_1 = \text{C}_2$  (4) Unpredictable
58. Iodoform test is not given by :
- (1)  $\text{CH}_3\text{COCH}_2\text{COOC}_2\text{H}_5$   
(2)  $\text{CH}_3\text{COCH}_3$   
(3)  $\text{CH}_3\text{CH}_2\text{COCH}_3$   
(4)  $\text{CH}_3\text{CH}_2\text{CHOHCH}_3$
59. Which one of the following is antibiotic :
- (1) Aspirin (2) Brufen  
(3) Chloromycetin (4) Chloroquine
60. Which reactions involves a change in the electron-pair geometry for the underlined geometry :-
- (1)  $\underline{\text{BF}}_3 + \text{F}^- \rightarrow \underline{\text{BF}}_4^-$   
(2)  $\underline{\text{NH}}_3 + \text{H}^+ \rightarrow \underline{\text{NH}}_4^+$   
(3)  $2\underline{\text{SO}}_2 + \text{O}_2 \rightarrow 2\underline{\text{SO}}_3$   
(4)  $\text{H}_2\underline{\text{O}} + \text{H}^+ \rightarrow \text{H}_3\underline{\text{O}}^+$
61. The emf of the cell reaction is 1.1 V. Then calculate free energy change for the reaction :  
 $\text{Zn(s)} + \text{Cu}^{+2}(\text{aq}) \longrightarrow \text{Zn}^{+2}(\text{aq}) + \text{Cu(s)}$
- (1) -106.3 kJ (2) -298.3 kJ  
(3) +463.8 kJ (4) -212.3 kJ
62. What is the 3<sup>rd</sup> half life of the second order decomposition of a compound, given that its first half life is 20 s ?
- (1) 20 s (2) 40 s  
(3) 80 s (4) 84 s
63. In the reaction
- $$\text{Propene} \xrightarrow{\text{Cl}_2 / 500^\circ\text{C}} \text{A} \xrightarrow[\text{dry ether}]{\text{Na}} \text{B}$$
- B is :
- (1)  $\text{CH}_3\text{CH}=\text{CH}-\text{OH}$   
(2)  $\text{HOCH}_2\text{CH}=\text{CH}_2$   
(3)  $\text{CH}_2=\text{CH}(\text{CH}_2)_2\text{CH}=\text{CH}_2$   
(4) 
64. Which reaction is not possible for calcination :-
- (1)  $\text{PbSO}_4 \rightarrow \text{PbO}$   
(2)  $\text{PbCO}_3 \rightarrow \text{PbO}$   
(3)  $\text{PbS} \rightarrow \text{PbSO}_4$   
(4)  $\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O} \rightarrow \text{Fe}_2\text{O}_3$

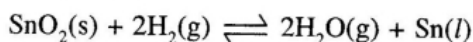
65. In which of the following molecules/ions are all the bond angles not equal :-
- (1)  $\text{SiF}_4$  (2)  $\text{ICl}_4^-$  (3)  $\text{SF}_4$  (4)  $\text{PCl}_4^+$
66. In a closed packed arrangement, A type of atoms are at corners, B type of atoms are at face centres, C type of atoms are at tetrahedral voids and D type of atoms are at octahedral Voids. If all the atoms along any one body diagonal are removed, then what will be formula of compound.
- (1)  $\text{AB}_4\text{C}_8\text{D}_4$  (2)  $\text{AB}_8\text{C}_4\text{D}_4$   
(3)  $\text{AB}_8\text{C}_4\text{D}_8$  (4) None of these
67. If the rate constant (K) of a reaction is  $1.6 \times 10^{-3} \text{ mol L}^{-1} \text{ min}^{-1}$  the order of reaction is:
- (1) 0  
(2) 1  
(3) 2  
(4) cannot be determined

68. The product in the reaction  + HBr is :

- (1)   
(2)   
(3)   
(4) 

69. The electrolyte  $[\text{Co}(\text{NH}_3)_5\text{Cl}] \text{Cl}_2$  is which of the following type :-
- (1) 1:2 (2) 1:3  
(3) 2:3 (4) 4:1
70. A diatomic molecule has a dipole moment of 1.2 D. If its bond length is equal to  $10^{-10} \text{ m}$  then the fraction of an electronic charge on each atom will be :-
- (1) 42% (2) 52%  
(3) 37% (4) 25%

71. For the reaction



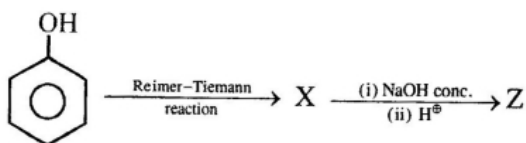
At equilibrium, the mixture of steam and hydrogen contains 40%  $\text{H}_2$  by volume then find  $K_p$  for the reaction :

- (1)  $\frac{9}{4}$  (2)  $\frac{3}{2}$   
 (3)  $\frac{6}{4}$  (4) None of these

72. A plot of  $\log \frac{x}{m}$  vs  $\log P$  for the adsorption of a gas on a solid gives a straight line with slope equal to :

- (1)  $\frac{1}{n}$  (2)  $\log K$   
 (3)  $-\log K$  (4)  $n$

73. In the reaction :



Product Z is :

- (1)
- (2) and
- (3)
- (4)

74. What is electronic arrangement of metal atom/ion in octahedral complex with  $d^4$  configuration, If  $\Delta_0 <$  pairing energy :-

- (1)  $t_2g^4 e_g^0$  (2)  $e_g^4 t_2g^0$   
 (3)  $t_2g^3 e_g^1$  (4)  $e_g^2 t_2g^2$

75. Arrange the following molecules from most to least polar :-

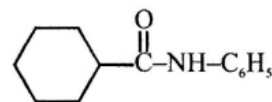
- I II III IV V  
 $\text{CH}_4$   $\text{CF}_2\text{Cl}_2$   $\text{CF}_2\text{H}_2$   $\text{CCl}_4$   $\text{CCl}_2\text{H}_2$

- (1)  $\text{II} > \text{III} > \text{V} > \text{IV} = \text{I}$   
 (2)  $\text{II} > \text{V} > \text{III} > \text{IV} > \text{I}$   
 (3)  $\text{III} > \text{II} > \text{V} > \text{IV} > \text{I}$   
 (4)  $\text{V} > \text{III} > \text{II} > \text{IV} = \text{I}$

76. 1 cc of 0.1 M HCl is added to 999 cc solution of 0.1 N NaCl. The pH of resulting solution will be :

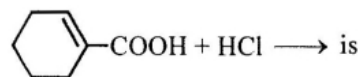
- (1) 7 (2) 4  
 (3) 2 (4) 1

77. IUPAC name of the following compound is :



- (1) N-cyclo hexylbenzamide  
 (2) N-phenyl-N-cyclohexylmethanamide  
 (3) N-phenyl cyclohexane carboxamide  
 (4) N-cyclohexyl-N-phenyl methyl amide

78. The major product in the reaction :



- (1)
- (2)
- (3)
- (4)

