

B.Sc. Part-III Honours
Final internal Assessment
Sub: CHEMISTRY(physical)

Paper-XII, F.M-20, Time:30 Minutes

Date:20.07.20, Time:10 A.M. to 10-30 A.M

ANSWER ALL MCQ QUESTIONS EACH CARRY 2 MARKS

1. For a reaction $2A \rightarrow \text{Product}$. The initial concentration of A is 0.1M and the rate constant is $2.0 \times 10^{-3} \text{ dm}^3 \text{ mol}^{-1} \text{ s}^{-1}$. The half life period of the reaction is
(a) 5sec (b) 50 sec (c) 500sec. (d) 5000 sec
2. Consider the following in respect of zero order reaction
(i) $t_{1/2}$ is directly proportional to the initial concentration
(ii) time taken for the completion of reaction is twice of $t_{1/2}$
(iii) Concentration of the reactant decreases linearly with time
Which of the following statements given above are correct?
(a) i & ii only (b) i & iii only (c) ii & iii only. (d) i, ii & iii.
3. Which of the following will result in deviation from Beer's law
(i) change in refractive index of medium
(ii) Dissociation of analyte on dilution
(iii) Polychromatic light
(iv) Pathlength of cuvette
(a) i, ii & iii (b) ii, iii & iv (c) i, iii & iv (d) i, ii & iv
4. The adsorption isotherm is defined as the dependence
(a) Surface coverage on the temperature at a fixed pressure.
(b) Surface coverage on the pressure at a fixed temperature.
(c) Surface coverage on the oxidation state of the surface material.
(d) Rate of a surface reaction on the pressure at a fixed temperature.
5. Isothermal which has fractional coverage, linearly dependent on pressure at low pressures but almost independent at high pressure is called
(a) BET isotherm (b) Langmuir isotherm
(c) Freundlich isotherm (d) Temkin isotherm
6. A crystal has the lattice parameters $\alpha = \beta = \gamma = 90^\circ$ and $a \neq b \neq c$, The crystal system is
(a) tetrahedral (b) monoclinic. (c) cubic (d) orthorhombic
7. The Miller indices of the planes that intersect the crystallographic axes at the distances $(2a, 2b, \infty c)$ are
(a) (011) (b) (111) (c) (110) (d) (100)
8. Which of the functions below is a common eigen function of d/dx and d^2/dx^2 operators?
(a) $\cos x$ (b) kx (c) e^a (d) e^{-x^2}
9. The coagulation of colloidal particles of the sol can be caused by
(a) Heating (b) Adding oppositely charged sol
(c) Adding electrolyte (d) All of the above
10. Lyophilic sols are more stable than lyophobic solutions because
(a) The colloidal particles have positive charge
(b) The colloidal particles have negative charge
(c) The colloidal particles are solvated
(d) There are strong electrostatic repulsions between the negatively charged colloidal particles

