SKVedge

Sample Paper

(Class XII studying/XIIth Passed)

(Medical)

Section – I (Physics)

1. A pendulum bob of mass m carrying a charge q is at rest with its string making an angleθ with the vertical in a uniform horizontal electric field E. The tension in the string is

   (a) $\frac{qE}{sin\theta}$ (b) $\frac{qE}{cos\theta}$ (c) $\frac{mg}{sin\theta}$ (d) mg

2. A hollow spherical conductor of radius 2m carries a charge of 500μ C. Then electric field strength at its surface is

   (a) $1.125 \times 10^6 N/C$ (b) $2.25 \times 10^6 N/C$

   (c) zero   (d) $44.5 \times 10^6 N/C$

3. If P.D. across a capacitor is changed from 15 V to 30 V, work done is W. What will be the work done when P.D. is changed from 30 V to 60 V?

   (a) W   (b) 3 W

   (c) 4 W   (d) 2 W

4. Ammeter is always used

   (a) in parallel with the element through which current is to be determined

   (b) to simulate the element across which voltage is to be determined

   (c) in series with the element through which current is to be determined

   (d) to simulate the element through which resistanceis to be determined

5. Two charges - 10C and +10C are placed 10 cm apart. Potential at the centre of the line joining the two charges is:

   (a) zero   (b) 4 V   (c) 2 V   (d) – 2 V

6. The resistances of the four arms P, Q, R and S in a Wheatstone's bridge are 10 ohm, 30 ohm, 30 ohm and 90 ohm, respectively. The emf and internal resistance of the cell are 7 volt and 5 ohm respectively. If the galvanometer resistance is 50 ohm, the current drawn from the cell will be:

   (a) 0.2 A   (b) 1.0 A

   (c) 0.1 A   (d) 2.0 A

7. A particle having charge 100 times that of an electron is revolving in a circular path by radius 0.8 m with one rotation per second. The magnetic field produced at the centre is:

   (a) $10^{-15}\mu_0$ (b) $10^{-17}\mu_0$

   (c) $10^{-16}\mu_0$ (d) $10^{17}\mu_0$

8. The deflection in moving coil galvanometer falls from 50 divisions to 10 divisions, when a shunt of12Ω is applied, the resistance of galvanometer coil is

   (a) 50Ω (b) 48Ω (c) 12Ω (d) 24Ω

9. Tiem period of oscillation of a magnetic needle is

   (a) $T = 2\pi\sqrt{\frac{I}{MB}}$ (b) $T = \sqrt{\frac{I}{MB}}$ (c) $T = 2\pi\sqrt{\frac{MB}{I}}$ (d) $T = \pi\sqrt{\frac{MB}{I}}$

10. Two bar magnets having same geometry with magnetic moments Mand 2Mare firstly placed in such a way that their similar poles are on the same side and its period of oscillation is T_1 . Now the polarity of one of the magnets is reversed and its time period becomes T_2 . Then,

    (a) $T_1 < T_2$ (b) $T_1 = T_2$

    (c) $T_1 > T_2$ (d) $T_2 = \infty$

11. A pair of adjacent coils has a mutual inductance of 1.5 H. If the current in one coil changes from 0 to 20 A in 0.5 s, change of flux linkage with the other coil is
(a) 45 Wb　　　　　(b) 35 Wb　　　　　(c) 40 Wb　　　　　(d) 30 Wb

12. A uniformly wound long solenoid of inductance L and resistance R is broken into two equal parts in the ratio $\frac{\eta}{1}$, which are then joined in parallel. This combination is then joined to a cell of emf ε. The time constant of the circuit is
(a) $\frac{L}{R^2}$　　　　　(b) $\frac{L}{R}$　　　　　(c) $\frac{2L}{R}$　　　　　(d) $\frac{L}{2R}$

13. A transformer is used to light a 100 W and 110 V lamp from a 220 V mains. If the main current is 0.5 A, the efficiency of the transformer is approximate:
(a) 50%　　　　　(b) 90%　　　　　(c) 30%　　　　　(d) 10%

Section – I (Chemistry)

14. The plant cell will shrink when placed in:
(a) hypotonic solution　　　　　　　　(b) water
(c) hypertonic solution　　　　　　　　(d) isotonic solution

15. Which one of the following pairs will from an ideal solution?
(a) Phenol and aniline　　　　　　　　(b) n – hexane and n - heptane
(c) chloroform and acetone　　　　　　(d) ethanol and acetone

16. A compound $CaCl_2 \cdot 6H_2O$ undergoes complete dissociation in water. The Van't Hoff factor **i** is:
(a) 3　　　　　(b) 4　　　　　(c) 9　　　　　(d) 6

17. The conductivity of 0.20 M solution of KCl at 298 K is 0.0248 S cm^{-1}. Calculate its molar conductivity.
(a) 124.0 S cm^2 mol^{-1}　　　　　　　(b) 122.0 S cm^2 mol^{-1}
(c) 129.0 S cm^2 mol^{-1}　　　　　　　(d) 120.0 S cm^2 mol^{-1}

18. When $KMnO_4$ acts as an oxidizing agent and ultimately forms, MnO_4^{2-} MnO_2, Mn_2O_3 and Mn^{2+}, then the number of electrons transferred in each case:
(a) 3, 5, 7, 1
(b) 1, 3, 4, 5
(c) 4, 3, 1, 5
(d) 1, 5, 3, 7

19. Electrolysis of dilute aqueous NaCl solution was carried out by passing 10 milliampere current. The time required to liberate 0.01 mol of H_2 gas at the cathode is (1 Faraday = 96500 C mol^{-1})
(a) $1.93 \times 10^5 s$　　　　　　　　(b) $19.3 \times 10^5 s$
(c) $9.34 \times 10^4 s$　　　　　　　　(d) $1.93 \times 10^4 s$

20. Unit of rate constant for the zero order reaction is:
(a) mol^{-2} L^2 s^{-1}　　　　　　　　(b) s^{-1}
(c) mol^{-1} L s^{-1}　　　　　　　　(d) mol L^{-1} s^{-1}

21. The half – life period for a zero order reaction is equal to
(where [R]$_0$ is initial concentration of reactant and k is rate constant)
(a) $\frac{2k}{[R]_0}$　　　　　　　　(b) $\frac{2.303}{k}$
(c) $\frac{[R]_0}{2k}$　　　　　　　　(d) $\frac{0.693}{k}$

22. Which of the following is paramagnetic as well as coloured ion?

(a) Sc^{3+} (b) Ti^{4++}

(c) Cu^+ (d) Cu^{2+}

23. Silver ornaments turn black by the presence of which gas in the atmosphere?

(a) O_2 (b) N_2 (c) H_2S (d) Cl_2

24. On addition of small amount of $KMnO_4$ to concentrated H_2SO_4, a green oily compound is obtained which is highly explosive in nature. Identify the compound from the following.

(a) MnO_2 (b) Mn_2O_2 (c) Mn_2O_3 (d) $MnSO_4$

25. The pair $[Co(NH_3)_4Cl_2]Br_2$ and $[Co(NH_3)_4Br_2]Cl_2$ will show:

(a) Ionization isomerism

(b) Hydrate isomerism

(c) Coordinate isomerism

(d) Linkage isomerism

26. Which of the following species is not expected to be a ligand?

(a) NH_4^+ (b) H_2O (c) CO (d) NH_3

Section – III (Biology)

27. Which one of the following is not found in a female gametophyte of an angiosperm?

(a) Synergids   (b) Filiform apparatus

(c) Central cell   (d) Germ pore

28. The term polyadellphous is related to:

(a) Corolla   (b) Androecium   (c) Gynoecium   (d) Calyx

29. Which one from those given below is the period for Mendel's hybridization experiments?

(a) 1857 - 1869   (b) 1840 - 1850

(c) 1870 - 1877   (d) 1856 - 1863

30. The gene which controls many characters is called:

(a) Polygene   (b) Multiple gene   (c) Pleitropic gene   (d) Codominant gene

31. Out of 64 codons, the number of codons with GGG is:

(a) 4   (b) 2   (c) 1   (d) 6

32. Autoradiogram of VNTR probe gives many band of different size. It differ from individual to individual except:

(a) Heterozygotic twins   (b) Monozygotic twins or identical twins

(c) Real brothers   (d) Real sisters

33. During anaerobic digestion of organic waste, such as in producing biogas, which one of the following is left undergraded?

(a) Hemi - cellulose   (b) Cellulose

(b) Lignin   (d) Lipids

34. Which of these is not an important component of initiation of parturition in humans?

(a) Release of prolactin

(b) Increase in estrogen and progesterone ratio.

(c) Release of oxytocin

(d) Synthesis of prostaglandins

35. Inner cell mass (embryo) contain certain cells that contain cells called stem cells which have the potency to:

(a) Give rise only vital organs

(b) Give rise reproductive organs

(c) Give rise all the tissues and organs

(d) Give rise hearts only

36. The emergency contraceptives used to avoid possible pregnancy due to rape or unprotected intercourse is:

(a) Combination of oxytocin ane estrogen within 72 hours

(b) Uses of a double dose of normal oral contraceptive pills

(c) Combination of progestogen and estrogen within 72 hours

(d) Use of plants within skin

37. Which of the following is correctly matched?

(a) Insulin -   Diabetes insipidus

(b) Thyroxine -   Tetanus

(c) Parathyroid -   Tetany

(d) Adrenaline -   Hepatitis

38. Cancer cells can be easily be destroyed by radiations due to:

(a) Rapid cell division   (b) Lack of mutation

(c) Lack of oxygen   (d) Fast mutation

39. Biodiversity Act of India was passed by the parliament in the year:

(a) 2002   (b) 1996   (c) 2000   (d) 1992

40. The three zones of biosphere reserves are

(a) Protected zone, buffer zone and natural zone

(b) Natural zone, buffer zone and transition zone.

(c) Core zone, natural zone and central zone

(d) Main zone, middle zone and outer zone

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
(a)	(a)	(c)	(c)	(a)	(a)	(b)	(b)	(a)	(a)
11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
(d)	(b)	(b)	(c)	(b)	(a)	(a)	(b)	(a)	(d)
21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
(c)	(d)	(c)	(b)	(a)	(a)	(d)	(b)	(d)	(c)
31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
(c)	(b)	(c)	(a)	(c)	(c)	(c)	(a)	(a)	(b)