GUJCET 2024 Question Paper Mar 31 (Physics and Chemistry)

GUJCET Physics Questions

Ques 1. The magnitude of the drift velocity per unit electric field is known as ____.

Ans. Mobility

Ques 2. A solenoid has a core of a material with a relative permeability of 400. The solenoid windings are insulated from the core and carry a current of 2A. If the number of turns is 1000 per meter then the value of magnetic intensity will be ____.

Ans. 8×10^5 Am^{-1}

Ques 3. A square loop of side 10 cm and resistance 0.5 Ω is placed vertically in the cast-west plane. A uniform magnetic field of 0.10 T is set across the plane in the northeast direction. The magnetic field decreases to zero at 0.70 S at a steady rate. Then the magnitude of the induced current during this time interval will be ____.

Ans. 2.0×10^{-3} A

Ques 4. As shown in the circuit diagram, find the value of I _____.

Ans. 2.5 A

Ques 5. Vs/Am is the unit of which physical quantity?

Ans. μ0

Ques 6. A silver wire has a resistance of 2 152 27,5°C and a resistance of 270 at 100°C Then the temperature coefficient of the resistivity of silver will be _____.

Ans. $3.9 \times 10^{-3}\ °C^{-1}$

Ques 7. An ideal ammeter and an ideal voltmeter has resistances of ____ Ω and ____ Ω respectively.

Ans. (0, ∞)

Ques 8. A short bar magnet placed with its axis at 30° and a uniform external magnetic field of 0.5T experiences a torque of magnitude equal to 4.5×10^{-2} J Then the magnitude of the magnetic moment of the magnet will be _____.

Ans. $36 \times 10^{-2}\ JT^{-1}$

Ques 9. The SI unit of the current density is ____.

Ans. Am^{-2}

Ques 10. A coil has N turns and current passes through it is I ampere then we obtain L Henry of self inductance. Now if the current charge to 51, then the new self-inductance will be _____ H.

Ans. L

Ques 11. An arure inductor of 50.0 mH is connected to a source of 220 V. Then the rms current in the circuit will be _____. The frequency of the source is 50 Hz.

Ans. 14 A

Ques 12. In LCR series a. c. circuit at resonance, the value of power factor will be _____.

Ans. 1

Ques 13. For obtaining wattless current ____ is connected with a.c. supply.

Ans. Only L

Ques 14. As indicated below which one is the equation of Ampere-Maxwell law?

Ans. $\oint B \cdot dl = \mu_0 i_c + \mu_0 \varepsilon_0 \, d\Phi_B/dt$

Ques 15. A parallel plate capacitor with ar between the plates has a capacitance of 4 pF If the distance between the plates is reduced by half and the space between them is filled with a substance of dielectric constant 6 un the value of capacitance will be

Ans. 48 pF

Ques 16. Tor plane mirror focal length is _____ m.

Ans. ∞

Ques 17. A ray coming from an object which is situated at o distance in the air and falls on a spherical glass surface (n=1.5) Then the distance of the image will be _____. R is the radius of curvature of a spherical glass.

Ans. 3R

Ques 18. For a thin prism, if the angle of the prism is with a refractive index of 1.6, then the angle of minimum deviation will be _____.

Ans. 2.4°

Ques 19. Cellular phones use radio waves to transmit voice communication in the _____ band.

Ans. UHF

Ques 20. The phase difference between any two particles in a given wavefront is ____ rad.

Ans. 0

Ques 21. To emit an electron from the metal, the minimum electric field required is ____.

Ans. 10^8 Vm^{-1}

Ques 22. Consider a refracting telescope whose objective has a focal length of lm and the eyepiece a focal length of 1cm, then the magnifying power of this telescope will be _____.

Ans. 100

Ques 23. The refractive index of glass is 1.6 and the speed of light in glass will be speed of light in vacuum is 3.0 x 10^8 ms^{-1}.

Ans. 1.88 x 10^8 m/s

Ques 24. Js is the unit of _____ physical quantity.

Ans. Angular Momentum

Ques 25. In Young's double-slit experiment, the slits are separated by 0.28 mm, and the screen is placed 1,4 m away. The distance between the central bright fringe and the fourth bright fringe is measured to be 12 cm Then the wavelength of light used in the experiment is _____.

Ans. 600 nm

Ques 26. If the primary coil of a transformer has 100 turns and the secondary has 200 turns. Then for an input of 220 V at 10 A, find the output current, in the step-up transformer.

Ans. 0.5 A

Ques 27. A radius of spherical charged shell is 10 cm and electric potential on its surface is 100 V, then the potential at 2 cm from the centre of the shell will be _____.

Ans. 0 V

GUJCET Chemistry Questions

Ques 1. Reaction 2A--->B+3C is zero order reaction. What will be the rate of production for "C"?

Ans. $10.5x10^{-4}$ mol L^{-1} S^{-1}

Ques 2. Which one of the following is amphoteric oxide?

Ans. Cr_2O_3

Ques 3. Which of the following ion show the highest spin-only magnetic moment value?

Ans. Mn2+

Ques 4. Name the member of the lanthanide series which is well known to exhibit a +4 oxidation state.

Ans. Cerium

Ques 5. Which reagent will be used for the following reaction?
$CH_3CH_2CH_2CH_3$----->

Ans. CL_2/ UV Light

Ques 6. In the complex $K[Cr(H_2O)_2(C2O_4)_2]$, Central metal ion is ____ and _____.

Ans. +3, 6

Ques 7. $KMnO_4$ acts as an oxidising agent in an acidic medium in an acidic solution is____.

Ans. 2/5

Ques 8. Hybridizations is $[NI(CO)_4]$ and $[NI(CN)_4]^{-3}$ are respectively.

Ans. sp^3 and dsp^2

Ques 9. Which one of the correct formula for coordination compound tris [ethan -1,2-diamlne] cobal (lll) suplate

Ans. $[Co(en)_3]_2 (SO_4)_3$

Ques 10. Identify the optically active compound from the following

Ans. $[Co(en)_3]Cl_3$

Ques 11. 'R'+CH_3-CO-CH_3------> Schiff's base what is 'R' in this reaction?

Ans. CH_3-NH_2

Ques 12. Which of the following carboxylic acid has least pKa value among all?

Ans. HCOOH

Ques 13. Which is the correct order of the basic strength of given aminos?

Ans. $(C_2H_5)_2NH > C_2H_5NH_2 > NH_3 > C_6H_5NH_2$

Ques 14. Which diazonium salt is water insoluble and stable at room temperature?

Ans. $C_6H_5N_2BF_4$

Ques 15. Lactose is compound of which units?

Ans. B-D-Galactose and B-D-Glucose

GUJCET 2024 Answer Key Mar 31 (Physics and Chemistry)

Physics	
Question No.	**Answer Key**
1	Mobility
2	$8 \times 10^{5}\ Am^{-1}$
3	$2.0 \times 10^{-3}\ A$
4	2.5 A
5	μ0
6	$3.9 \times 10^{-3}\ °C^{-1}$
7	(0, ∞)
8	$36 \times 10^{-2}\ JT^{-1}$
9	Am^{-2}
10	L
11	14 A
12	1
13	Only L
14	$\oint B \cdot dl = \mu_0 i_c + \mu_0 \varepsilon_0 \, d\Phi_B/dt$
15	48 pF
16	∞

17	3R
18	2.4°
19	UHF
20	0
21	10^8 Vm^{-1}
22	100
23	1.88 x 10^8 m/s
24	Angular Momentum
25	600 nm
26	0.5 A

Chemistry	
Question No.	**Answer Key**
1	$10.5x10^{-4}$ mol L^{-1} S^{-1}
2	Cr_2O_3
3	Mn2+
4	Cerium
5	CL_2/ UV Light
6	+3, 6
7	2/5
8	sp^3 and dsp^2

9	$[Co(en)_3]_2(SO_4)_3$
10	$[Co(en)_3]Cl_3$
11	$CH_3\text{-}NH_2$
12	HCOOH
13	$(C_2H_5)_2NH > C_2H_5NH_2 > NH_3 > C_6H_5NH_2$
14	$C_6H_5N_2BF_4$
15	B-D-Galactose and B-D-Glucose