

F.Y.B.Sc. Semester II April 2021

Physics Paper II

Sample Questions

1	In a series L-R ac circuit, a) $I_o = \frac{V_o}{\sqrt{R^2 + \omega^2 L^2}}$ b) $V_o = \frac{I_o}{\sqrt{R^2 + \omega^2 L^2}}$ c) $I_o = \frac{V_o}{R^2 + \omega^2 L^2}$ d) $I_o = V_o \sqrt{R^2 + \omega^2 L^2}$
	Answer: Mark1

2	In a parallel LCR ac circuit, L= 40mH, R= 40Ω and C = 1 μF. The frequency at which resonance occurs is a) 780kHz b) 780Hz c) 78Hz d) 600Hz
	Answer: Mark 1

3	In a series CR circuit, the voltage V_C^* is given as: a) $V_C^* = \frac{j}{\omega C} I^*$ b) $V_C^* = \omega C I^*$ c) $V_C^* = -\frac{j}{\omega C} I^*$ d) $V_C^* = j\omega C I^*$
	Answer: Mark 1

4	In De Sauty's Capacitance Bridge, $C_1 = 0.22\mu\text{F}$, $R_2 = 1720\Omega$ and $R_4 = 1200\Omega$. The value of the other capacitance when the bridge is balanced is a) 0.315F b) 0.315μF c) 315 μF d) 0.153 μF
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	Answer:	Mark 1

5	In a Wein bridge circuit, $R_1 = 1k\Omega$, $R_2 = 2k\Omega$, $C_1 = 0.1\mu F$, $C_2 = 0.2\mu F$ and $R_4 = 1k\Omega$. The value of R_3 and the frequency of the applied voltage needed to balance the bridge is	
	a) $2.5 k\Omega$, $796kHz$ b) $2.5 k\Omega$, $796Hz$ c) $25 k\Omega$, $796Hz$ d) $25 k\Omega$, $796kHz$	
	Answer:	Marks 1

6	Superposition theorem does not work for _____	
	(a)	Current
	(b)	Voltage
	(c)	Power
	(d)	Works for all: current, voltage and power
	Answer:	Marks: 1

7	Ripple factor of half wave rectifier is _____	
	(a)	1.414
	(b)	1.21
	(c)	1.3
	(d)	0.48
	Answer:	Marks: 1

8	The universal gate is _____.	
	(a)	NAND gate
	(b)	OR gate
	(c)	AND gate
	(d)	NOT gate
	Answer:	Marks: 1

9	Which of the following is not a necessary component in a clamper	
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	circuit?	
(a)	Diode	
(b)	Capacitor	
(c)	Resistor	
(d)	Independent DC Supply	
Answer:		Marks: 1

10	EX-OR output is 1 if the inputs are _____	
(a)	Different	
(b)	Same	
(c)	Anything	
(d)	All of the above	
Answer:		Marks: 1

11	As per Coulomb's law, the force of attraction or repulsion between two point charges is directly proportional to the	
(a)	sum of the magnitude of charges	
(b)	square of the distance between them	
(c)	product of the magnitude of charges	
(d)	cube of the distance	
Answer:		Marks: 1

12	The force per unit charge is known as	
	electric flux.	
	electric field	
	electric potential	
	electric current	
Answer:		Marks: 1

13	If a unit positive charge is taken from one point to another over an equipotential surface, then	
(a)	work is done on the charge.	
(b)	work is done by the charge	
(c)	work done is constant.	

	(d) no work is done	
	Answer:	Marks: 1

14	Which of the following cannot be computed using the Biot Savart law?	
	(a)	Magnetic field intensity
	(b)	Magnetic flux density
	(c)	Electric field intensity
	(d)	Permeability
	Answer:	Marks: 1

15	The magnetic field strength of a solenoid can be increased by inserting which of the following materials as the core?	
	(a)	Copper
	(b)	Silver
	(c)	Iron
	(d)	Aluminium
	Answer:	Marks: 1