ETDET D	www.Padasalai.Net			
FIRST R	EVISION TEST	r - 2024	Reg. No.	
	XII -	PHYSIC	cs	5
Time Allowed : 3.0	00 Hrs.		Ma	eximum Marks:70
I. Choose the 1. An electron e P.D of 1000 V	correct answer: nters between two ho /. The force on electro	Part - I rizontal plates on is	separated by 2	15 x 1 = mm and having
a) 8 x 10 <sup>-12</sup>	N b) 8 x 10 <sup>-14</sup> N	c) 8x1	0 <sup>9</sup> N d)8>	10 <sup>14</sup> N
2. A toaster oper	rating at 240 V has a	resistance of 1	20 Ω. Its power i	s
a) 400 W	b) 2 W	c) 480 \	N d) 24	0 W
<ol> <li>A bar magnet bent in the for The new mag</li> </ol>	of length / and magne of an arc as shown netic dipole moment i	etic moment P <sub>r</sub> 1 in figure. is	"IS	60°
a)P <sub>m</sub> t	b) $\frac{3}{2}P_{m}$ c) $\frac{2}{2}F$	$m = d) \frac{1}{2}$	Pm	÷.
4. The flux linke induced emf a	d with a coll at any ir at t = 3 sec. is	nstant 't' is give	en by $\phi_{B} = 10t^2$	- 50t + 250. T
a) -190 V	b) -10 V	c) 10 V	d) 19	v
5. Cyclotron freq	uency does not depe	nd upon		
<ul> <li>a) radius</li> <li>6. An LC circuit</li> </ul>	<li>b) magnetic in contains inductance</li>	duction c) vel L = 1 µH and	ocity d) not capacitance C	e of these = 0.01 μF. T
wavelength of	electromagnetic wav	e generated is	nearly	
a) 0.5 m	b) 5 m	c) 188 n	n d) 30	m
7. A light bulb is	placed between two p	lane mirrors inc	clined at an angl	e of 60°. Numb
	ned are			the second
of images for		100 G		
a) 2	b) 4	c) 5	d) 6	
a) 2 8. An object is pl and minimum real and magn	<li>b) 4 aced in front of a con distance of an object infied</li>	c) 5 vex mirror of fo t from the mirro	d) 6 In the second second Second second s	nd the maximu image formed
a) 2 8. An object is pl and minimum real and magn a) 2f and c	<ul> <li>b) 4</li> <li>aced in front of a condistance of an object</li> <li>inified</li> <li>b) c and x</li> </ul>	c) 5 vex mirror of fo t from the mirro c) f and	d) 6 ocal length of f a or such that the 0 d) nor	nd the maximu image formed
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- 15. Which one of the following is the natural nano material?
  - a) peacock feather
  - c) grain of sand

- d) skin of the whale
- Part II

II. Answer any 6 questions. (Q.No.24 is compulsory) 16. Mention any two applications of capacitors.

- 17. Find the heat energy produced in a resistance of 10  $\Omega$  when 5 A current flows through it for 5 minutes.
- State Fleming's left hand rule.
- 19. What are the methods of producing induced emf.
- 20. Compute the speed of the electromagnetic wave in a medium if the amplitude of electric and magnetic fields are 3 x 10<sup>4</sup> N/C and 2 x 10<sup>-4</sup> Tesla respectively.
- 21. Why do clouds appear white?
- 22. What is Bremsstralung?
- 23. What are the advantages of frequency modulation?
- 24. <sub>92</sub>U<sup>235</sup> emits 2α, 3β and 2γ particles. What is resulting atomic number and mass number?

### Part - III

6 x 3 = 18

- III. Answer any 6 questions. (Q.No.33 is compulsory) 25. Obtain the expression for capacitance of a parallel plate capacitor.
- 26. Resistance of a material at 20°C and 40°C are 45  $\Omega$  and 85  $\Omega$  respectively. Find its temperature co-efficient of resistivity.
- Give an account of magnetic Lorentz Force.
- 28. Find out the phase relationship between voltage and current in a pure resistive circuit.
- 29. Discuss the Hertz experiment.
- 30. Obtain an expression for Fresnel's distance.
- 31. Write the characteristics of photons.
- 32. Give the Barkhausen conditions for sustained oscillations. Mention any two uses of oscillators.
- 33. calculate the number of nuclei of carbon-14 undecayed after 22,920 years if the intial number of carbon-14 atoms is 10,000. The half life of carbon-14 is 5730 years.

#### Part - IV

IV. Answer all the questions.

- 5 x 5 = 25
- Calculate the electric field due to a dipole on its equitorial plane. (OR) 34. a)
  - Prove law of reflection using Huygen's principle. b)
- Explain the determination of the internal resistance of a cell using Voltmeter. 35. a)

(OR)

- Find out the phase relationship between voltage and current in a capacitve circuit. b)
- Calculate the magnetic field inside and outside of the long solenoid using 36. a) Ampere's circuital law. (OR)
  - Write down Maxwell equations in integral form. b)
- Obtain the equation for lateral displacement of light passing through a glass 37. a) slab. (OR)
  - Obtain Einstein's photo electric equation with necessary explanation. b)
- Explain the J.J.Thomson experiment to determine the specific charge of electron. 38. a)

## (OR)

b) Draw the circuit diagram of a half wave rectifier and explain its working.

# 12 - Physics - 2

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#### 6 x 2 = 12