

Physics(Theory)-Marking Scheme

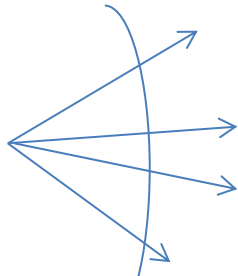
1. Electric field .it is a vector quantity . (1)

2. $I = P/V = 220 /60 =3.67$ amp. (1)

3. $R' = 4R$ (1)

4.  (1)

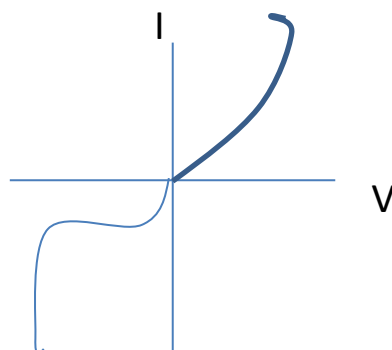
5. eddy currents (1)

6.  (1)

Or

Diverging wavefront.

7. Transducer , Repeater (1)

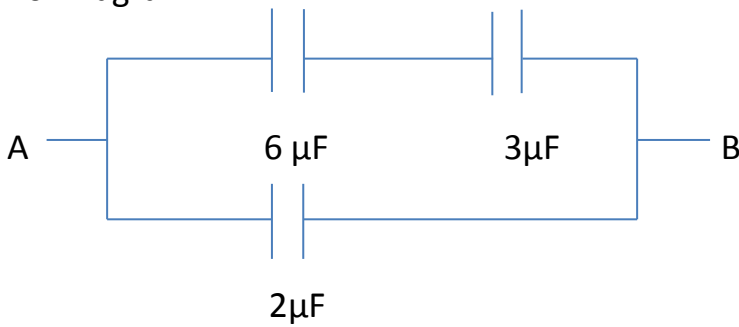
8.  (1)

9. Potential at every point is same. (1)

Proof : (1)

10. Diagram :

(1)



(1)

11. Wheatstone's bridge diagram

(1)

$$\frac{P}{Q} = \frac{R}{S}$$

(1)

12. $I_0 = E_0 / R = NBA\omega / R$

(½)

$$50 \times 0.3 \times 2.5 \times 60 / 500 = 4.5 \text{ amp}$$

(½)

lii Maximum emf - correct answer

(½)

Minimum emf - correct answer

(½)

13. (i) fringes width remains same but the fringes are coloured

(1)

(ii) wavelength decreases in denser medium

(½)

Fringe width decreases

(½)

14. gamma ray , yellow light , microwaves , radiowaves

(1)

Justification

(1)

15. wave length = $\frac{h}{\sqrt{2m E}}$

(1)

Since mass of α particle is more Kinetic Energy is less

(½)

Conclusion

(½)

16. Logic Symbol

(1)

Truth Table (1)

Or

For circuit diagram (1)

For proper biasing (1)

-3-

17. Diagram (1)

Derivation (2)

$$18. r' = \frac{(E-V)}{V} R = \frac{(1.5-1.4)}{1.4} 8.5 \quad (1 \frac{1}{2})$$

$$r' = 0.61 \Omega \quad (\frac{1}{2})$$

$$r = 2r' = 2 \times 0.61 = 1.22 \Omega \quad (1)$$

19. Diagram (1)

Derivation (2)

$$20. \text{ wave length} = \text{velocity} / \text{frequency} = \frac{3 \times 10^8}{5 \times 10^{19}} = 0.6 \times 10^{-11} \text{ m}$$
$$= 6 \times 10^{-12} \text{ m} \quad (1)$$

γ rays – 2 uses (2)

21. Diagram (1)

Derivation (2)

$$22. R.P = \text{wavelength} / 2n \sin \theta$$

(i) frequency increased R.P decreases (1)

(ii) wavelength increased R.P Increases (1)

(iii) aperture is increased R. P decreases (1)

23. Expression for radius of n^{th} orbit electron (1)

Expression for T.E (1)

Total Energy is –ve of Kinetic Energy ($\frac{1}{2}$)

Potential Energy	(½)
24. $\frac{B.E}{A}$ Curve with labeling	(1 ½)
Explanation for fission and fusion	(1 ½)
-4-	
25. Block diagram	(2)
Labelling	(1)
(Or)	
Ground wave definition	(1)
Space wave definition	(1)
Sky wave definition	(1)
26.(a) Values displayed by Suhasini:	
(i) Knowledge about MRI	
(ii) Helped in taking proper decision and arranged the cost of MRI	
(iii) Showed his empathy, helping attitude and caring nature.	(1)
(b) $F = Bqv \sin\theta$	
(i) Maximum force at $\theta=90^\circ$	
$F = 1.6 \times 10^{-15} \text{N}$	
(ii) Minimum force at $\theta=0^\circ$ & 180°	
$F = 0$	(1)
(c) Force will be minimum if charge particle moves parallel or anti-parallel to the magnetic field lines.	(1)
27. AC Generator diagram	(2 ½)
E.M.F expression	(1 ½)
Reason	(1)
(Or)	
Transformer diagram	(1)

Working	(2)
Power losses	(2)
28. Diagram	(2)

-5-

Derivation	(3)
(Or)	
Definition	(1)
Derivation	(3)
Diagram	(1)
29. Diagram of oscillator	(2)
Working	(2)
Wave form	(1)
(Or)	
Forward bias and reverse bias curve	(2)
Working	(2)
Frequency of output	(1)
