Vidyamandir Classes
Gurukul for IITJEE Preparation
Aggarwal Corporate Heights, 3rd Floor, Plot No. A - 7, Netaji Subhash Place,
Pitam Pura, Delhi – 110034, Phone: 011-45221190 - 93. Fax: 25222953

MOCK TEST PAPER # 3

HINTS & SOLUTION

PHYSICS (CLASS-XII)

1. Total charge within a surface
$S = +2q + (-q) = +q$

Electric flux $\phi = \frac{q}{\varepsilon_0}$

2. Use of inductor coil or a capacitor

4. No, it is true only for metallic conductor Commercially available resistors are carbon resistors and wire bound resistors.

5. $\frac{1}{f} = (\mu - 1)\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$

As $\mu_b > \mu_r, \because f_b < f_r$

6. $R_A : R_B = 3 : 1$

8. $\lambda_C = \frac{\lambda_A \lambda_B}{|\lambda_A - \lambda_B|}$

9. (i) P = NAND gate
Q = OR gate

(ii)

Inputs				Outputs
A	B	A.B	$\overline{A.B}$	$X = \overline{A.B} + B$
0	0	0	1	1
1	1	1	0	1

10. (OR) Q = 4.25 MeV

14. (i) $\lambda_e > \lambda_P$ (ii) $P_e < P_P$

15. (a) (i) Distance of the second bright fringe = 6 mm

(ii) Distance of the second dark fringe = 4.5 mm

(b) Fringe with $\beta = \frac{\lambda D}{d}$

When screen is moved away, D increases, therefore width of the fringes increases but the angular seperation (λ/d) remains the same.

17. (i) $B_V = 0.26 \times 10^{-4}$ Wb m^{-2}
(ii) $B = 0.46 \times 10^{-4}$ Wb m^{-2}

18. (i) $\frac{\varepsilon_1}{\varepsilon_2} = \frac{7}{3}$

(ii) Position of null point for the cell = 210 cm
Sensitivity of potentiometer is increased by increasing the length of the potentiometer wire.

20. C = 0.01 μF

22. $V = 9 \times 10^4$ V

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