



# PHYSICS

## BOOKS - UNITED BOOK HOUSE

### MODEL PAPER SET-18

#### Exercise

1. The length of one side of a cube is  $L$ . If a charge  $q$  is placed at the centre of that cube, what will be the total flux through the cube

A.  $\frac{q}{\epsilon_0}$

B. 0

C.  $6q \frac{L^2}{\epsilon_0}$

D.  $\frac{q}{6} L^2 \epsilon_0$

**Answer:**



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2. The three colours of a carbon resistance are Violet, Green and Yellow, the fourth band is golden. What will be the resistance-

A.  $750k\Omega \pm 5\%$

B.  $75k\Omega \pm 5\%$

C.  $750 \times k\Omega \pm 10\%$

D.  $75k\Omega \pm 10\%$

**Answer:**



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**3.** To energise an electron from 1st Bohr orbit to the 3rd Bohr orbit for  $Li^{2+}$  ion, what is the required energy?

A. 36.3eV

B. 108.8eV

C. 122.4eV

D. 12.1eV.

**Answer:**



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4. For any transistor  $\alpha = 0.96$ , what is the value of its  $\beta$ ?—

A. 6

B. 12

C. 24

D. 48

**Answer:**



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**5. What is the focal length of sunglass?**

A. 0

B.  $+1D$

C.  $\infty$

D.  $-1D$

**Answer:**



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**6.** The de Broglie wavelength for an electron moving under potential  $V$  is  $\lambda$ . What will be the wavelength if the potential be  $4V$

A.  $\frac{\lambda}{6}$

B.  $\frac{\lambda}{2}$

C.  $\frac{\lambda}{4}$

D.  $\frac{2}{\lambda}$

**Answer:**



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7. The self inductance of a coil having 400 turns is 10 mH. What is the magnetic flux

through the cross section of the coil  
corresponding to current 2 mA ?

A.  $2 \times 10^{-5} \text{wb}$

B.  $4 \times 10^{-5} \text{T}$

C.  $4 \times 10^{-10} \text{wb}$

D. None of the above.

**Answer:**



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8. At any place the horizontal component of earth is  $\sqrt{3}$  times the vertical one. What is the angle of dip at that place?—

A.  $60^\circ$

B.  $45^\circ$

C.  $30^\circ$

D.  $90^\circ$

**Answer:**



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9. The real object distance and real image distance from a concave mirror are  $p$  and  $q$  respectively. Draw a graph between  $\frac{1}{p}$  and  $\frac{1}{q}$ .

A. Straight line

B. Parabola

C. Rectangular Hyperbola

D. Elliptical

**Answer:**



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10. The radius of earth is  $8 \times 10^6 m$  and the height of the TV tower is 100m. What will be the maximum range of the signal Transmission?

A.  $40 \times 10^4 m$

B.  $4 \times 10^4 m$

C.  $4 \times 10^4 cm$

D.  $40 \times 10^4 km$

**Answer:**



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11. The phase difference between current and voltage is  $\theta$ . What is the wattles current?

A.  $I \cos \theta$

B.  $I \sin \theta$

C.  $I \tan \theta$

D.  $I \cos^2 \theta$

**Answer:**



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**12.** Convert the binary  $(1111)_2$  into decimal.



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**13.** The household voltage is (220V, 50Hz).

What is the instantaneous value of the voltage(equation)



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**14.** What is the unit of magnetic pole strength?



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**15.** What do you mean by the statement—  
“Half life of Radium is 1622 year’s.”



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**16.** Two bulbs, (220V-60W) and (220V-100W) are connected in series and biased by a 220V(mains line. Which one will glow better?



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**17.** State the Bohr's postulate about atomic structure.



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**18.** A wire has resistance  $5\Omega$ . If it is stretched to increase the Length by 10% then what will be its final resistance?



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**19.** How to convert 0-50mV milli voltmeter ( $R = 50\Omega$ ) into ammeter of range "0-1A".



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20. Draw the diagram of a NAND gate. Write its Truth Table.



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21. What do you mean by electric dipole?



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22. 1BOT = \_\_\_Joule?



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23. The focal length of an equiconvex lens is  $\frac{2}{3}$  times the radius of curvature of the surface.

What is the refractive index of the medium?



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24. Two parallel conductors are 4 cm apart in air medium. If 25 Amp and 5 Amp be the current through them, what length of the conductor will experience a force of 0.125 dyne.





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**25.** What is the meaning of the statement—  
“The angle of dip for , Calcutta is  $31^\circ N$ ”?



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**26.** A magnet of length 10 cm is present on earth. If it is placed facing North pole at the geographical north and the neutral point lies 15cm apart from the each pole, then what will

be the pole strength of the magnet.

$$[B_H = 0.4 \times 10^{-4}]$$



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**27.** The length of wings for an aeroplane is 5m.

If it moves with  $100\text{m/s}$  velocity parallel to the ground then what will be the induced emf about the wings? [Given angle of dip =

$$30^\circ, B_H = 4 \times 10^{-4} \text{wb/m}^2]$$



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