JKBOSE PATTERN TEST PAPER CLASS – XII SUBJECT PHYSICS

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General Instructions
1. There are total of four sections in the question paper. All questions are compulsory.
2. Section- A contains 10 Very Very Short Answer Type Question of 1 Mark each
1x10 = 10 marks
3. Section-B contains 9 Very Short Answer Type Question of 2 Marks each
to be answered in 20 to 30 words. 2x9 = 18 marks
4. Section-C contains 9 Short Answer Type Questions of 3 Marks each to be
answered in 50 to 70 words 3x9 = 27 marks
5. Section-D contains 3 Long Answer Type Questions of 5 Marks each to be

Section A:Objective Type Questions   (1marks each)

(i) Lenz law is a consequence the law of conservation of :

(a) Charge

(b) Mass

(c) Momentum

(d) Energy

(ii) The magnitude of Saturation Photo-electric current depends upon :

(a) Frequency

(b) Intensity

(c) Work function

(d) Stopping potential

(iii) The average power dissipation in pure capacitor in AC circuit is:

(a) $\frac{1}{2}cv^2$ (b) cv^2

(c) $\frac{1}{2}Q^2/C$ (d) Zero

(iv) Which waves among the following waves cannot be Polarized ?

(a) X-rays

(b) Sound waves

(c) Radio waves

(d) γ-rays

(v) What is the stopping potential, when the metal with work function 0.6 eV is illuminated with the light of 2 eV ?

(a) 2.6 V

(b) 3-6 V

(c) 0.8 V

(d) 1-4 V

(vi) The refracting angle of a prism is 60° and minimum deviation 30°, the angle of incidence will be :

(a) 30°

(b) 45°

(c) 60°

(d) 90°

(vii) Transformer is based upon the principle of :

(a) Self-induction

(b) Mutual induction

(c) Eddy current

(d) None of the above

(viii) Threshold frequency of potassium is $3 \times 10^{14}\, Hz$. The work function is :

(a) $3 \times 10^{-19}\, J$

(b) $2 \times 10^{-19}\, J$

(c) $4 \times 10^{-19}\, J$

(d) $2 \times 10^{-19}\, J$

(xi) The average binding energy of a nucleus is :

(a) 8 eV

(b) 8 KeV

(c) 8 MeV

(d) 8 J

(x) A semiconductor is heated from T_1 K to T_2 K. Its resistance.

(a) will decrease

(b) will increase

(c) will not change

(d) will first decrease and then increase

TIME : 3 Hours MAX. MARKS : 70

Section B:Very Short type Questions (2 marks each)

Q.No.2: Find the capacitive reactance of $10\mu F$ capacitor when it is a part of a circuit whose frequency is 100 Hz

Q.No.3: Explain the term stopping potential and threshold frequency

Q.No.4: Explain mass defect

Q.No.5: State laws of photoelectric effect.

Q.No.6: Give Boolean expression and truth table of NOR gate.

Q.No.7: Define work function and give its S. I. Units.

Q.No.8: Define binding energy. Sketch the graph between binding energy per nucleon and mass number

Q.No.9: What are the limitations of Bohr's atomic model?

Q.No.10: Give the logic symbol and truth table for NOT gate.

Section C:Short answer type question (3marks each)

Q.No. 11: What are Diamagnetic Substances ? Give properties of dia- magnetic substances.

Q.No.12: What is Einstein's explanation of photoelectric effect.

Q.No.13: State the postulates of Bones model of atom.

Q.No.14: Find wavelength of first line of Layman series

Q.No15: Establish the relation between drift velocity of electrons and electric current.

Q.No.16: State Faraday's laws of electromagnetic induction.

Q.No.17: Show that the De-Broglie wavelength 'λ' of electrons of energy E is given by the relation $\lambda = \dfrac{h}{\sqrt{2mE}}$

Q.No.18: Define binding energy and mass defect. Obtain an expression for binding energy per nucleon.

Q.No.19: How will you convert galvanometer into Voltmeter ?

Section D:Long answer type questions (5 marks each)

Q.No.20: What are dia, para and ferromagnetic materials ? Discuss their important properties.

OR

Describe the principle, construction and working of moving coil galvanometer.

Q.No.21: What is Electric Potential? Derive an expression for electric potential at a distance 'r' from a charge 'q'.

Or

What is Parallel Plate Capacitor ? Obtain an expression for the capacitance of a parallel plate capacitor

Q.No.22: Define total internal reflection. State its conditions. How do optical fibres transmit light without absorption ?

Or

Derive the conditions for constructive and destructive interference.