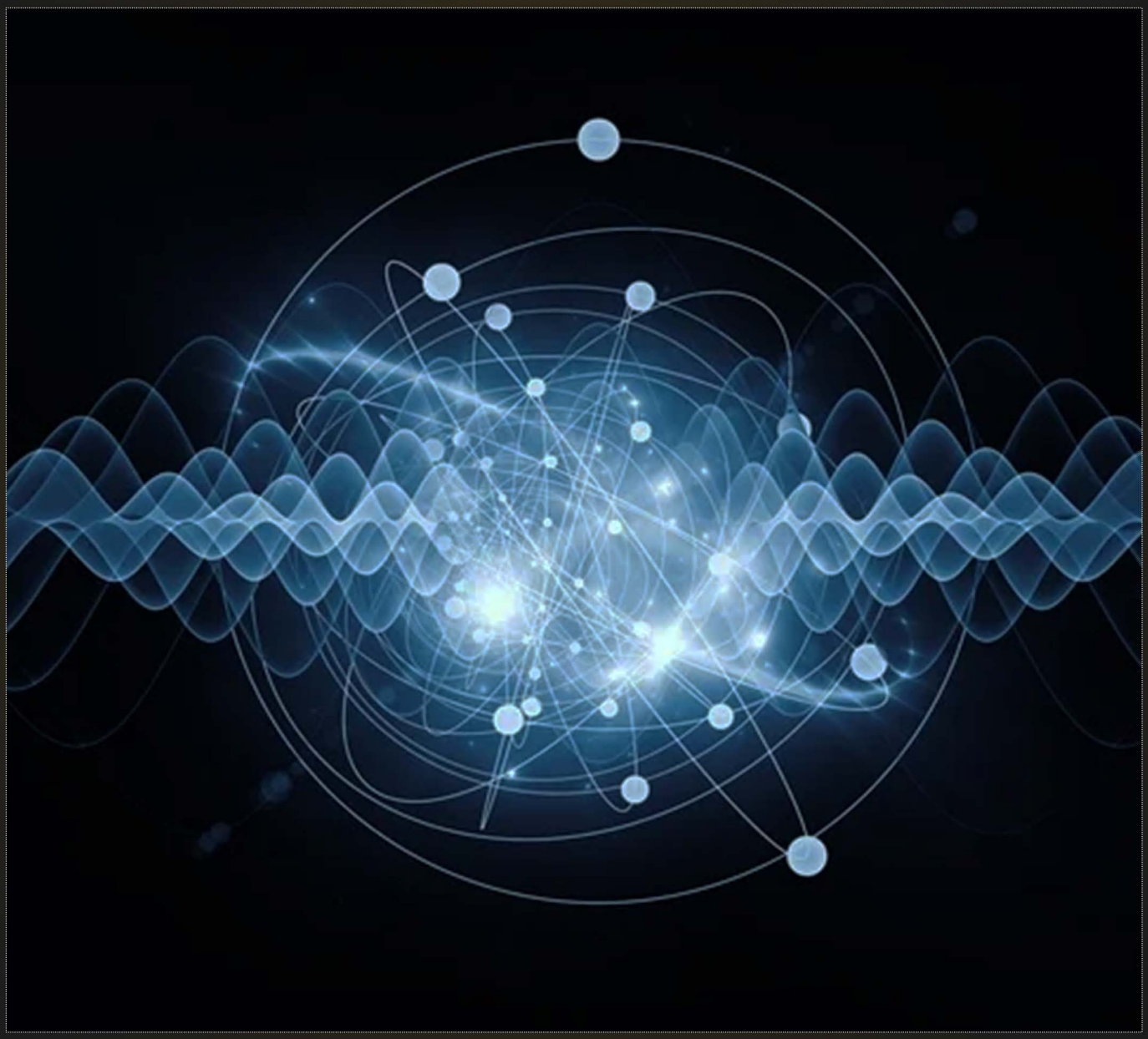
CAREERS360



JKBOSE Class 12 Physics

Model Test Paper

Model Question Paper

Class 12th | Subject :- Physics
Time: - 3 Hours | Max. Marks :- 70

Section –A (Five Questions each of 1 mark)

Q No 1 :- If a wire of Resistance "R" is stretched so that its length is doubled. Calculate the Change in resistance?

Q No 2 :- How does the angle of minimum deviation (δ_m) of a glass prism vary, if incident violet light is replaced by red light?

Q No 3 :- What is work function in photoelectric effect.

QNo4 :- Optical effects are produced by E-vector or B-Vector in electromagnetic waves.

Q No 5 :- What are eddy currents definition only.

Section –B (Five Questions each of 2 marks)

Q No 6:- What is Malus Law in polarisation

OR

What is Fringe width in interference? Write down its mathematical expression.

Q No 7 :- Write properties and uses of Radio-Waves.

Q No 8 :- Calculate the radius (r) of the loop when a charged particle is projected perpendicular to a Magnetic field Intensity(B) ?

Q No 9:- Calculate the wavelength of radiation emitted when transition occurs from ist- excitation state to ground state.

Q No 10:- Write two properties of materials suitable for making

a) A permanent Magnet.
b) An electromagnet.

Section –C (Five Questions each of 3 marks)

Q No 11:-

a) What is Kirchhoff's 2nd Law? Write down the sign convention for currents and e.m.f's

b) Derive Principle of wheat stone bridge using Kirchhoff's law.

Q No: - 12 Define mutual inductance between a pair of coils. Derive an expression and discuss its units.

OR

Define the self inductance of a coil. Obtain the expression for Energy stored in an inductor (L) connected across a source of e.m.f.

Q No 13:-

a) State Biot- Savart law & express this law in the vector form.
b) Two identical circular coils P & Q each of radius R, carrying 1A & √3A respectively, are placed concentrically and perpendicular to each other lying in XY & YZ planes. Find the Magnitude and direction of net magnetic field at centre of coils.

Q No 14 :- Derive the expression for capacitance of a parallel plate capacitor.

Q No 15:-

a) A monochromatic light of wave length 589nm is incident from air on water surface. If μ for water is 1.33, find the wavelength, frequency and speed of the refracted light .
b) Write down laws of refraction.

Q No 16:- Draw the circuit diagram of a Full wave rectifier and state how its works.

Q No 17 :- Derive Einstien's Photoelectric Equation . How it explains the features which were not explained by wave-theory.

Q No 18:- Draw a block diagram of communication system. Write functions of each of the following.

a) Transmitter
b) Channel
c) Receiver.

Q No 19 :- Derive Mirror Formula for a concave Mirror.

Q No 20:- Differentiate:-

a) Grand wave propagation
b) Sky Wave propagation and
c) Explain why T.V transmission is not possible in sky wave propagation.

Q No 21:- Write down the principle and working of a Meter bridge.

Q No 22:- What are AND, NOT & OR Gates; Draw truth tables also.

Section –D (One Value based question of 4 marks)

Q No 23:- Mrs. Rashmi singh broke her reading glasses. When she went to shop keeper to order new specs, he suggested that she should get spectacles with plastic lenses instead of glass lenses. On getting the new spectacles, she found that new ones were thicker than the earlier ones. She asked the question to the shopkeeper but he could not offer satisfactory explanation for this. At home, Mrs. Singh raised the same question to her daughter Anuja who explained why plastic lenses were thicker.

i) Write two qualities displaced each by Anuja and her mother.

ii) How do you explain this fact using lens maker's formula?

Section –E (Three questions of 5 marks)

Q No 24:-

a) Derive the expression for the electric field due to dipole on axial line.

b) Draw a graph of E versus r

OR

a) Using Gauss's law find Electric field due to a solid metallic sphere.

b) Draw a graph of E versus r

Q No 25 :- Define a wave front? Use Huygen's principle to verify laws of refraction.

OR

Discuss interference theory . Determine positions of dark and bright spots and derive expression for fringe width.

Q No 26 :- Draw a labeled diagram of A.C generator. Obtain the expression for the e.m.f induced.

OR

In an L.C.R series circuit, discuss phase relation between current and e.m.f and derive expression for impedance.