Note: This is Model Paper only for guidance of students & teachers.

Model Paper Physics Objective

Intermediate Part – II (12th Class) Examination Session 2012-2014 and onward

Total marks: 17 Paper Code_____ Time Allowed: 20 minutes

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

Q. 1	QUESTIONS	(A)	(B)	(C)	(D)
1	When some dielectric is inserted between the plates of a capacitor, then	Charge remain constant	Potential decreases	Capacitance increases	All of these
2	A charge of 1 μc experiences a force of 10^{-6} N at a point then the electric intensity at that point is	10^{6} N/C	10^{-6} N/C	10^{-12} N/C	1 N/C
3	Temperature coefficient of resistivity of a material is measured in	Ω-K	Ω-m	K^{-1}	K
4	The galvanometer in which the coil comes to rest quickly after the current passed through it, is called as	Stable Galvanometer	Dead beat Galvanometer	Both A & B	Sensitive Galvanometer
5	In CRO, the number of electrons is controlled by operating	Anodes	Cathodes	Grid	Filament
6	A transformer steps 220 V to 40 V. If secondary turns are 40 then primary turns are	20	40	120	220
7	In RLC Series circuit, at low frequency	$X_C < X_L$	$X_C > X_L$	$X_C = X_L$	None of these
8	The electric or magnetic field does not radiate in space whenever a charge is	At rest	Moving with uniform velocity	Either of these	None of these
9	When a ferromagnetic substance is heated to a temperature above its curie temperature, it	Behaves like a paramagnetic substance	Behaves like a diamagnetic substance	Remains ferromagnetic substance	Is permanently magnetized
10	In electromagnetic induction, the induced *emf* is independent of	Change of magnetic flux	time	number of turns	resistance of coil
11	The reverse current in a pn-junction flows due to	Minority charge carries	Majority charge carries	Both A & B	None of these
12	The output of NAND gate is zero when	All the inputs are at 1	All the inputs are at 0	At least one input is at 1	None of these
13	The mass of an object becomes double when it moves with speed	2.6×10^{8} m/sec	1.6×10^{8} m/sec	3×10^{8} m/sec	3.6×10^{7} m/sec
14	Which of these is the ratio of K.E. to P.E. of the electron in any Bohr orbit of hydrogen atom?	2	$^{1}/_{2}$	$^{-1}/_{2}$	-2
15	Laser is a beam of light, which is	Monochromatic	Coherent	Unidirectional	All of these
16	The ionizing power of β particle is	Equal to α particle	Equal to γ particle	Greater than α particle	Less than α particle
17	A pair of quark and anti quark make a	Meson	Hardon	Lepton	Baryon

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Model Paper Physics Subjective

Intermediate Part – II (12th Class) Examination Session 2012-2014 and onward

Total marks: 83 **Time: 3:10 hours**

SECTION --- I

2. Write answers of any EIGHT questions. (8 x 2 = 16)

(i) Electric lines of force never cross each other. Why?
(ii) What is Coulomb's force between two point charges if the distance between them is doubled? What happens when mass of charges is made 4 times?
(iii) Differentiate between electric potential and electrical potential difference.
(iv) What is polarization and how dipoles are formed in dielecric?
(v) What is function of a grid in CRO?
(vi) What is a stable or dead beat galvanometer?
(vii) What is back *emf* effect in D.C. motors?
(viii) Describe the change in the magnetic field inside a solenoid carrying a steady current I if
  (a) Length of solenoid is doubled but the number of turns remains the same.
  (b) The number of turns is doubled but the length remains same.
(ix) How can you use a magnetic field to separate isotopes of a chemical element?
(x) How would you position a flat loop of wire in a changing magnetic field so that there is no *emf* induced in the loop?
(xi) Describe working principle of an A.C. generator.
(xii) How the power losses can be minimized in a transformer?

3. Write answers of any EIGHT questions. (8 x 2 = 16)

(i) A potential difference is applied across the ends of a copper wire. What is the effect on drift velocity of free electrons by
  (i) Increasing the potential difference.
  (ii) Decreasing the length and temperature of the wire.
(ii) Why terminal potential difference of a battery decreases when the current drawn from it increases.
(iii) Why we prefer Potentiometer in place of Voltmeter for measuring potential difference?
(iv) How does doubling the frequency affect the reactance of
  (a) An inductor.
  (b) A capacitor.
(v) How the radio waves are received?
(vi) Write four important properties of series resonance circuit.
(vii) What are the responsible factors for production of magnetic field in an atom?
(viii) Why the charge carriers are not present in depletion region?
(ix) Distinguish between intrinsic and extrinsic semiconductors. How would you obtain N type and P type material from pure Silicon?
(x) What are hard and soft magnetic materials? Explain.
(xi) What is difference between inverting and non inverting amplifier?
(xii) Why resistance of semiconductor decreases with rise in temperature?

4. Write answers of any SIX questions. (6 x 2 = 12)

(i) What advantages an electron microscope has over on optical microscope?
(ii) For what angle Compton shift is minimum?
(iii) Why we do not notice the de Broglie wavelength for a pitched cricket ball? Explain.
(iv) What are advantages of lasers over ordinary light?
(v) Why the X rays can not be produced from lighter atoms?
(vi) A particle which produces more ionization is less penetrating. Why?
(vii) What is the difference between an electron and a β particle?
(viii) What is difference between radiation counter and detector?
(ix) What are the main uses of nuclear reactors?

SECTION II (Essay Type)

Note:- Attempt any three questions. **(8 x 3 = 24)**

5.

(a) What is capacitor? Derive a relation for capacitance of a parallel plate capacitor in presence of vacume and dielectric between the plates of capacitor.

(b) The potential difference between the terminals of a battery in open circuit is 2.2 V. When it is connected across a resistance of 5.0 Ω, the potential falls to 1.8 V. Calculate the current and the internal resistance of battery.

6.

(a) Describe principle, construction and working of an alternating current generator in detail.

(b) How fast must a proton move in a magnetic field of 2.50×10^{-3} T such that the magnetic force is equal to its weight.

7.

(a) Explain the main features of energy band theory. How it can be used to explain the electrical behavior of insulators, conductors and semi conductors.

(b) Find the value of current flowing through a capacitance of 0.5μF when connected to a source of 150 V at 50Hz.

8.

(a) What is photo electric effect? How Einstein explained the various results of photo electric effect?

(b) In a certain circuit the transistor has a collector current of 10 mA and a base current of 40 μA. What is current gain of transistor?

9.

(a) Explain Fission reaction in detail.

(b) The wavelength of X ray from copper is 1.377×10^{-10}m. What is the energy difference between two levels from which this transition results?

SECTION III (Practical)

10. (a) **Give answers to any Four Questions.** **4 x 2 = 8**

(i) How we can test the correctness of connections of slide wire Bridge?

(ii) How a galvanometer can be converted into an ammeter?

(iii) The magnetic needle used in the compass needle should be small or large. Justify your answer.

(iv) Why the soft iron cylinder is held between magnetic poles of a moving coil galvanometer?

(v) How NAND gate can be made? Show its truth table.

(vi) Why the deflection of galvanometer varies when the distance of source of light varies from photo cell?

(vii) What are the practical uses of a Potentiometer?

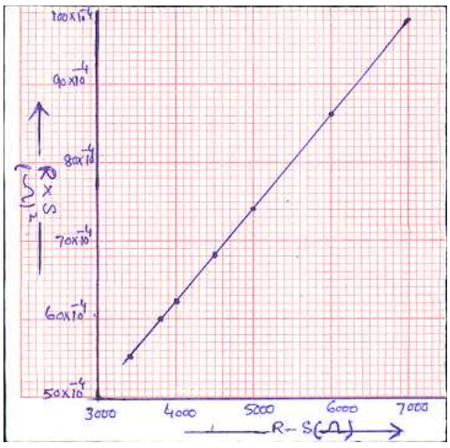
(viii) Why a diode does not conduct when it is reverse biased?

(b) Write down brief procedure to determine the resistance of galvanometer by half deflection method. **[3]**

OR

Write down the brief procedure to make a fire alarm using gates.

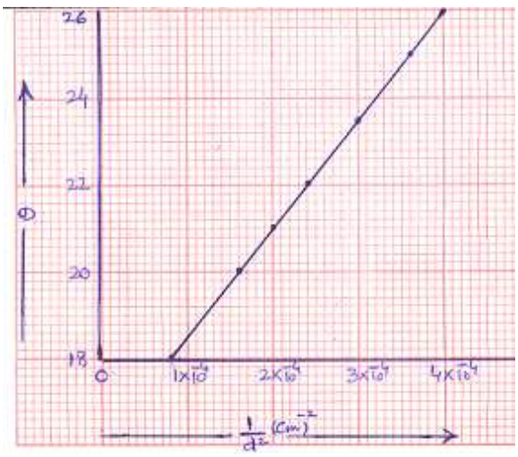
(c) Answer the questions given below on the basis of following graph. **[4]**



1. Find slope of graph.
2. Determine resistance of galvanometer from graph.

OR

Answer the questions given below on the basis of following graph.



1. Find slope of graph.
2. What do you infer from graph?.