Model Paper Physics Objective

Intermediate Part – II (12th Class) Examination Session 2015-2017 and onward

Total marks: 17 **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.

1.	A Potential barrier of 0.7 volt exist across p-n junction made from :			
	(A) Silicon	(B) Germanium	(C) Indium	(D) Gallium
2.	In 1905 the special theory of relativity was proposed by :			
	(A) well	(B) de-Broglie	(C) Bohr	(D) Einstein
3.	The torque on Current Carrying Coil is :			
	(A) τ= NIAB Cosα	(B) τ = BIL Sin α	(C) τ = N1AB Sin α	(D) τ = B1L *Cos*α
4.	Which of the following series lies in the ultraviolet region :			
	(A) Ly*man* series	(B) Balmer series	(C) Pfund series	(D) Bracket series
5.	The highest value reached by voltage or current in one cycle is called :			
	(A) Peak to peak value	(B) Peak value	(C) Instantaneous value	(D) Root mean square value
6.	.The number of protons in an atom are always equal to number of :			
	(A) Electrons	(B) Neutrons	(C) Positron	(D) Mesons
7.	Electric current produces magnetic field was suggested by :			
	(A) Faraday	(B) Oersted	(C) Henry	(D) Lenz
8.	The electric field created by positive charge is :			
	(A) Radially outward	(B) Radially inward	(C) Circular	(D) Zero
9.	Conversion of A.C into D.C. is called :			
	(A) Modulation	(B) Amplification	(C) Oscillation	(D) Rectification
10.	Which one of the following requires a material medium for their propagation :			
	(A) Heat waves	(B) X-rays	(C) Sound waves	(D) Ultraviolet rays
11.	In pure resistive A.C. circuit, instantaneous value of voltage or current :			
	(A) Current lags behind voltage.		(B) Current leads voltage.	
	(C) Both are in phase.		(D) Voltage leads current.	
12.	Tolerance for silver band is :			
	(A) ±10%	(B) ±15%	(C) ± 20%	(D) ± 25%
13.	The direction of induced current is always so as to oppose the change which causes the current is:			
	(A) Farday's law	(B) Lenz's law	(C) Ohm's law	(D) Kirchoffs 1st rule
14.	The anode in the CRO is to :			
	(A) Control no. of waves.		(B) Control brightness of spot formed	
	(C) Accelerate and focus the beam		(D) At negative potential with respect to cathode	
15.	The ratio of applied stress to volumetric strain is called :			
	(A) Young's modulus	(B) Shear modulus	(C) Bulk modulus	(D) Tensile modulus
16.	The radius of atom is of the order of :			
	(A) 10^{10} m	(B) 10^{-10} m	(C) 10^{-14} m	(D) 10^{14} m
17.	Presence of dielectric always :			
	(A) Increases the electrostatic force		(B) Reduces the electrostatic force	
	(C) Does not affect the electrostatic force		(D) Doubles the electrostatic force	

Model Paper Physics Subjective

Intermediate Part – II (12th Class) Examination Session 2015-2017 and onward

Total marks: 68 **Time: 2:40 hours**

SECTION ---------- I

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

(i) Suppose that you follow electric field lines due to a positive point charge. Does the electric field increase or decrease? Explain briefly.

(ii) Describe the force or forces on a positive point charge when placed between parallel plates with similar and equal charges. Explain briefly.

(iii) Do electrons tend to go to region of high potential or of low potential? Give reason.

(iv) The time constant of a series RC circuit is t = RC. Verify that an Ohm times farad is equivalent to second.

(v) Is it possible to orient a current loop in a uniform magnetic field such that the loop not tend to rotate? Explain. briefly.

(vi) How can a current loop be used to determine the presence of a magnetic field in a given region of space?

(vii) Why the voltmeter should have a very high resistance?

(viii) Write the two uses of cathode ray oscilloscope.

(ix) Does the induced current depend on the resistance of the circuit? Explain briefly.

(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) In a transformer, there is no transfer of charge from the primary to the secondary. How is then the power transferred?

(xii) What is meant by back motor effect in generators? Explain briefly.

3. Write short answers to any EIGHT (8) 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 decreasing the length and the temperature of the wire?

(ii) What are the difficulties in testing whether the filament of a lighted bulb obeys Ohm's law?

(iii) Write four uses of photo diode.

(iv) How the reception of a particular radio station is selected on your radio set?

(v) How does doubling the frequency affect the reactance of a capacitor?

(vi) How many times per second will an incandescent lamp reach maximum brilliant when connected to a 50 Hz source?

(vii) Distinguish between intrinsic and extrinsic semi conductors.

(viii) Define modulus of elasticity. Also give its unit.

(ix) What is meant by strain energy?

(x) Why is the base current in a transistor very small?

(xi) How does the motion of electrons in n-type substances differ from the motion of holes in p-type substances?

(xii) What is meant by rectification?

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

(i) Does the dilation mean that time really passes more slowly in moving system or that it only seems to pass more slowly. Explain briefly.

(ii) What is wave particle duality? Give its one practical use.

(iii) Why do not we observe a Compton effect with visible light?

(iv) What is meant by a line spectrum? Explain how line spectrum can be used for the identification of elements

(v) What are the advantages of lasers over ordinary light?

(vi) What are isotopes? What do they have in common?

(vii) A particle which produces more ionization is less penetrating. Why?

(viii) Define background radiations. What are their sources?

(ix) How can radio-activity help in the treatment of cancer?

SECTION II

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

5. (a) What is Wheatstone Bridge? How it is used to determine the unknown resistance? 1,4

   (b) A particle having a charge of 20 electrons on it falls through a potential difference of 100 volt. Calculate the energy acquired by it in electron volt. 3

6. (a) How e/m of an electron can be determined? Explain. 5

   (b) A metal rod of length 25 cm is moving at a speed of 0.5 ms^{-1} in direction perpendicular to a 0.25 T magnetic field. Find emf produced along the rod. 3

7. (a) What are semi-conductors? Discuss the formation of P-type and N-type materials with their Schematic diagram. 5

   (b) Find the capacitance required to construct a resonance circuit of frequency 1000 KHz with an inductor of 5 mH. 3

8. (a) What is operational amplifier? Describe operational amplifier as inverting amplifier. Calculate its gain. 5

   (b) A particle of mass 5.0 mg moves with speed of 8.0 ms^{-1}. Calculate its de Broglie wavelength. 3

9. (a) State postulates of Bohr's model of the hydrogen atom and then show that hydrogen atom have quantized radii. 2,3

   (b) Find binding energy of the deuteron nucleus. 3

   Mass of deuteron = $3.3435 \times 10^{-27}\ kg$

   Mass of proton = $1.6726 \times 10^{-27}\ kg$

   Mass of neutron = $1.6749 \times 10^{-27}\ kg$

(Academic Sessions 2015-2017)
(INTERMEDIATE PART-II)

PHYSICS (Practical) **Time Allowed: 3 hours**
Model Paper **Marks: 30**

Note: The candidate will make two experiments from section I and II. The examiner will allot one experiment out of marked experiments, to perform one experiment from each section.

SECTION I

1. Find the value of 'g' by simple pendulum. **10**
2. Find the refractive index of glass by a prisms. **10**
3. Determine the velocity of sound at $O^{o}C$ by two resonance position. **10**

SECTION II

4. Find the specific resistance of a wire by slide wire bridge. **10**
5. Explain variation of current with voltage using tungsten filament. **10**
6. Determine the unkown high resistance by Neon flash lamp. **10**

SECTION III

The candidate will attempt one question from this section.

7. Draw a graph by using data given below: Take N along x-axis and find the value of 1/6.5 from the graph. **5**

N	1	2	3	4	5	6	7	8	9	10
1/N	1	0.50	0.33	0.25	0.20	0.17	0.143	0.125	0.11	0.10

8. Plot a graph between (R-S) and (RxS) take (R-S) along x-axis. Find the resistance of galvanometer from from graph. **5**

(R-S) Ω	3850	4250	4650	5050	5850	6650	7450
(RxS) Ω^2	60×10^4	66×10^4	72×10^4	78×10^4	90×10^4	100×10^4	110×10^4

9. Note book. **2**
10. Viva voce. **3**