**Balochistan Board of Intermediate and Secondary Education, Quetta**

Model Paper for HSSC Examination 2017 and Onwards

Subject: Physics Total Marks = 85 Class XII

**Section A** 16 Marks

**Note: Attempt all parts**

Q.1 (a) Choose the correct option

 i) Value of dielectric constant for vacuum is (less than one, greater than one, one, zero)

 ii) The force of a current carrying conductor is (BLxI, lLxB, B.LI, none of these (1)

 iii) The number of valance electrons in Ge and Si atoms are (2,3,4,5) (1)

 iv) Joule- sec is the unit of (Energy, momentum, plank’ constant, power) (1)

 v) Unit of induced emf is (Volt, Henry, Ampere, Joule) (1)

 vi) Positrons are created in process of (fission, fusion, laser, pair production)

 vii) Number of neurons in atoms ( Z-A, A-Z, ZxA, Z+A) (1)

 viii) S.I unit of conductivity is (ohmxm, ohm-1 m-1, ohm/m, none of them) (1)

 ix) Coulomb/volt is called (electron volt, Farad, ampere, Joule) (1)

x. In carbon resistor the value of white colour is (6, 7, 8, 9)

(b) Fill in the blanks

 i. l e v =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Joule (1)

 ii. A PN-Junction diode is represented by a symbol\_\_\_\_\_\_\_\_\_\_\_\_\_ (1)

 iii. For pair production\_\_\_\_\_\_\_\_ MeV energy is required. (1)

 iv. The value of plank’s constant \_\_\_\_\_\_\_\_\_\_\_ (1)

 v. The direction of induced current is determined by \_\_\_\_\_\_ law (1)

 vi. The unit of magnetic flux is\_\_\_\_\_\_\_\_\_ (1)

**SECTION - B**

**Q.2 Attempt any fourteen parts the answer to each part should not be exceed 03 to 04 lines**

 **except where necessary.**  14 x 3 = 42

1. Write down the formula of stokes law and define terminal velocity.
2. Differentiate electric potential energy and potential difference.
3. Why the resistance of conductor increases with the increase in its temp.
4. Convert 2ev into joule and 3.2x103 joule in electron volt.
5. Why the wire of a heater becomes red hot when current passes through the wire.
6. Which gate is called inverter gate write down its truth table with symbol.
7. Do bands in the wire effect its electrical resistance, explain?
8. How many electrons per second pass through a cross section of wire carrying a current of 0.7 ampere.
9. If r1=0.053mm then find the radius of 3rd and the 5th orbit.
10. What are isotopes? Write down the names of the three isotopes of hydrogen.
11. How diode acts as a rectifier.
12. What is the peak value of voltage and current if its rms value is 2v and 2 A respectively.
13. Why a voltmeter always has a high resistance
14. What is the reverse process of pair production explain
15. Define non-ohmic conductor draw a graph for non-ohmic conductors.
16. Why does not current flow through insulators.
17. A plan surface of area 25cm is inclined at an angle of 45 with an electric field of intensity700 N/C calculate the electric flux through the plane surface.
18. What do you know about paschan and balmer series.

**Section C** (18 marks)

**Attempt any three questions**

Q. 3: Prove that E= $\frac{F}{qo}$ define coulombs law (6)

Q. 4: Define steady current write down the effect of temperature on resistance also prove that Rt=Ro(1 +$ ∝t$) (6)

Q.5: How the diodes act as a full wave rectification in case of centre tapped transformer. (6)

Q.6: What are the postulates of Einstein’s theory of relativity also prove that p=$\frac{h}{λ}$ (6)

Q.7: Discuss in detail LC series resonance circuit (6)

**Section D** (9 marks)

**Note: Attempt any three problems**

Q. 8: Two parallel metallic plates are connected across 24 v battery. The electric

 Intensity between them is 250 N/C. Find the distance between two plates (3)

Q. 9: Find the resistivity of copper wire 100m long and diameter of 2mm when its resistance

 Is 0.54 ohm

Q. 10 Find the magnitude of induced emp in a conductor of 5 H in which current falls from 3 Amp to

 1 Amp in 0.002 seconds (3)

Q. 11 In a certain current the transistor has a collector current of 10mA and base current of 40

 µA what is the current gain of in transistor.

Q. 12 A sodium surface is illuminated with light of wave length 300nm the work function of sodium metal is 2.46ev find the kinetic energy of ejected electron. (3)

**Model Paper Physics Practical “B”**

Time 02 hours Marks 15 Pass marks 05

Note: Perform only one experiment as allotted by the examiner.

 Within first 15 minutes the students should write the apparatus, circuit diagram, table with formulas and at least three precautions.

Q.01: To determine the internal resistance of a cell using polantiomenter (10)

Q.02: To determine the resistance of a moving coil galvanometer by half deflection method (10)

Q.03: To Verify the truth table of or gate (10)

Q.04: To study the variation of photoelectric current with intensity of light bulb. (10)

Viva Voce: 03 marks

Note Book: 02 marks