



BOARD OF INTERMEDIATE & SECONDARY EDUCATION, HYDERABAD

Excellence – Equity – Empathy

Time: 2 Hrs

PHYSICS MODEL PAPER (XII)

Total Marks: 85

SECTION-A

Marks /43

MULTIPLE CHOICE QUESTIONS (MCQ's)

Q.No. 1 Choose the correct answer for each from the given options:-

1. The energy that flows from a high temperature object to a low temperature object is called.  
(a) Heat (b) Sound Electricity (c) Solar Energy (d) N.O.T
2. The SI unit of heat is \_\_\_\_\_.  
(a) Calorie (b) Joule (c) Electron Volt (d) N.O.T
3. "At constant pressure the volume of a gas is proportional to the absolute temperature". It is called \_\_\_\_\_.  
(a) General Gas Law (b) Boyle's Law (c) Charle's Law (d) Avogadro's law
4. When one or more than one electrons are removed from an atom it becomes  
(a) Neutral particle (b) Negatively charged particle  
(c) Positively charged particle (d) N.O.T
5. Those material objects which do not allow the charge or electric current to pass through them are called \_\_\_\_\_.  
(a) Insulator (b) Conductors (c) Semi-conductors (d) N.O.T
6. Like charges \_\_\_\_\_  
(a) Attract each other (b) Repel Each other  
(c) Neither attract nor repel each other (d) N.O.T
7. The net charge flowing across the sectional area per unit time is known as \_\_\_\_\_.  
(a) Electric Current (b) Ampere (c) Electric flow (d) N.O.T
8. The S I unit of current is \_\_\_\_\_.  
(a) Ampere (b) Coulomb (c) Volt (d) N.O.T
9. Batteries or cells convert \_\_\_\_\_.  
(a) Heat energy into electrical energy (b) Nuclear energy into electrical energy  
(c) Kinetic energy into electrical energy (d) Chemical energy into electrical energy
10. Unlike poles of two magnets \_\_\_\_\_.  
(a) Attract (b) Repel (c) Neither attract nor repel (d) N.O.T
11. \_\_\_\_\_ was the first to note the presence of magnetic force in a wire in which current are flowing.  
(a) Newton (b) Ampere (c) Oersted (d) N.O.T
12. The SI unit of magnetic induction B is \_\_\_\_\_.  
(a) Volt (b) Watt (c) Farad (d) Tesla
13. If p-type material of the pn-junction is connection with negative terminal of the battery and n-type material with positive terminal of the battery, it is said to be \_\_\_\_\_.  
(a) Forward biased (b) reversed biased (c) Zero biased (d) N.O.T
14. A device, which converts an alternating current to a direct current, is called \_\_\_\_\_.  
(a) Oscillator (b) rectifier (c) amplifier (d) P type material
15. A thin layer of one type of semiconductor material sandwiched between two relatively thick pieces of other type is termed as \_\_\_\_\_.  
(a) Diode (b) rectifier (c) transistor (d) Oscillator
16. Velocity of light is \_\_\_\_\_.  
(a)  $3 \times 10^8$  m/s (b)  $3 \times 10^6$  m/s (c)  $3 \times 10^8$  cm/s (d) N.O.T
17. The electrons, which can wander in the solid, are known as \_\_\_\_\_.  
(a) Valence electron (b) Free electron (c) loosely bound electrons (d) N.O.T
18. When an electron jumps from higher to lower orbit, then \_\_\_\_\_.  
(a) Energy is absorbed (b) Energy is emitted  
(c) Neither absorbed nor emitted (d) N.O.T
19. When electron in hydrogen atom jumps from higher orbit into first orbit. The set of lines emitted is called \_\_\_\_\_.  
(a) Balmer Series (b) Lyman Series (c) Bracket Series (d) Paschen Series
20. According to Bohr's Theory of the hydrogen atom, the total energy of the hydrogen atom with its electron revolving in the stationary orbit is \_\_\_\_\_.

- (a) Proportional to  $n$  (b) Proportional to  $n^2$   
(c) Inversely proportional to  $n$  (d) inversely proportional to  $n^2$
21. X-rays are \_\_\_\_\_.  
(a) Positively charged particles (b) Negatively charged particles  
(c) Neutral particles (d) N.O.T
22. The device that produces an intense, monochromatic and coherent beam of light based on stimulated emission of photons from atoms, is called \_\_\_\_\_.  
(a) Laser (b) X-ray tube (c) Discharge tube (d) Cyclotron
23. Nuclei of the same element having the same  $Z$  but different values of  $N$  are called  
(a) Isotopes (b) Isobars (c) Isomers (d) Allotropes
24. The emission of rays from the nucleus is called \_\_\_\_\_.  
(a) Annihilation of matter (b) Disintegration of atoms  
(c) Radioactivity (d) Fission
25. \_\_\_\_\_ rays or particles are not deflected by electric and magnetic field.  
(a)  $\alpha$ -particle (b)  $\beta$ -particle (c)  $\gamma$ -particles (d) All of these
26. Neutron was discovered by \_\_\_\_\_.  
(a) Crooks (b) J.J. Thomson (c) Chadwick (d) N.O.T
27. Linear and volume expansion is related as \_\_\_\_\_.  
(a)  $B = \alpha$  (b)  $B = 2\alpha$  (c)  $B = 3\alpha$  (d)  $B = 4\alpha$
28. The process carried out under constant temperature.  
(a) Isobaric (b) Isochoric (c) Isothermal (d) Adiabatic
29. After completion of Carnot cycle \_\_\_\_\_ is constant.  
(a) Work (b) Heat (c) Internal energy (d) A.O.T
30. If the distance between charges is doubled then e.s force will become \_\_\_\_\_.  
(a)  $2F$  (b)  $\frac{1}{4}F$  (c)  $4F$  (d)  $\frac{1}{2}F$
31. If we want to increase the capacitance of a parallel plate capacitor then \_\_\_\_\_.  
(a) We should increase the size of plate (b) We can use dielectric  
(c) We keep plates closer (d) All of them
32. Rate of flow of charges is called \_\_\_\_\_.  
(a) Electric Current (b) Conductance  
(c) Resistance (d) Potential difference
33. There are \_\_\_\_\_ electron in 1 C charges.  
(a)  $6.25 \times 10^{16}$  (b)  $6.25 \times 10^{17}$  (c)  $6.25 \times 10^{18}$  (d)  $6.25 \times 10^{19}$
34. Which law is similar to Gauss's Law.  
(a) Faraday's law (b) Ampere's law (c) Coulomb's law (d) Ohm's law
35. Unit of self inductance is on the name of scientist.  
(a) Maxwell (b) Gauss (c) Henry (d) Ampere
36. Shunt resistance has \_\_\_\_\_ value  
(a) Small (b) Large (c) infinite (d) N.O.T
37. The major function of transistor is \_\_\_\_\_.  
(a) Modulation (b) Oscillation (c) rectification (d) Amplification
38. According to Einstein time for an event in a moving frame a reference \_\_\_\_\_.  
(a) Increases (b) Decreases (c) Remain constant (d) Becomes Zero
39. The minimum energy of photon able to generate electron positron pair \_\_\_\_\_.  
(a) 0.8 MeV (b) 1 MeV (c) 1.02 MeV (d) 1.2 MeV
40. Alpha particle is similar to \_\_\_\_\_ nucleus.  
(a) Hydrogen (b) Helium (c) Lithium (d) Sodium
41. The energy released during fission of uranium - 235 atoms  
(a) 100 MeV (b) 150 MeV (c) 200 MeV (d) 1000 MeV
42. Which substance is preferred as a coolant in LMFBR (Liquid lithium fast breeder reactor)  
(a) Water (b) Liquid lithium (c) Liquid Sodium (d) Liquid Bismuth
43. The apparatus used to identify the radiation by the track of ionized particle  
(a) Geiger-Muller counter (b) Semi Conductor diode  
(c) Scintillation chamber (d) Wilson Cloud chamber

(THE END)



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**SECTION –B**

**Marks /24**

**Short Quest**

**Note:-Attempt any SIX of the following question. Each question carries equal marks.**

- Q2** How you relate coefficients of linear and volume expansion i-e  $\alpha$  and  $\beta$ ?
- Q3** Explain the significance of size of plates and their separation in the parallel plate capacitor?
- Q4** Three resistors of  $40 \Omega$ ,  $80 \Omega$ , and  $160 \Omega$  are connected with 140 volt supply in parallel combination, find current in each resistor?
- Q5** How moving Coil Galvanometer can be converted into Ammeter and voltmeter?
- Q6** Find the Compton's scattering if photon is deviated at  $45^\circ$  (i.e  $h = 6.63 \times 10^{-34}$  J.S,  $C = 3 \times 10^8$  m/s;  $m = 9.1 \times 10^{-31}$  Kg)
- Q7** If Bohr's radius is  $r_0$  find radii of first three energy level of Hydrogen?
- Q8** Give three properties of each  $\alpha$ ,  $\beta$ ,  $\gamma$  radiation
- Q9** What is self-induction in a coil?
- Q10** What will be speed of an electron if its mass double its rest mass?

**SECTION-C**

**Marks /18**

**Descriptive Part**

**Note: Attempt any TWO of the following questions. Each question carries equal marks.**

- Q11** State & explain First law of thermodynamic and apply it on Isobaric & Iso thermal process.
- Q12** What is photo electric effect? Explain the Einstein's views about photo electric effect?
- Q13** Write notes on any one of following
- (i) Combination of resistor
  - (ii) Transformer
  - (iii) X – Rays spectra

**(THE END)**