

Tsi12P

Tenkasi District Common Examination
Common Second Mid Term Test - November 2022



Standard - 12

PHYSICS

Time Allowed: 1.30 Hours

Maximum Marks: 35

PART - A

Answer all questions:

10×1=10

1. First diffraction minimum due to a single slit of width 1.0×10^{-5} cm is at 30° . Then the wavelength of light used is

a) 500 \AA	c) 700 \AA
d) 600 \AA	d) 400 \AA
2. The polarising angle for glass of refractive index 1.5 is

a) 53.1°	b) 56.3°
c) 30°	d) 60°
3. The threshold wavelength for a metal surface whose photoelectric work function is 3.313 eV is

a) 4125 \AA	b) 6000 \AA
c) 2062.5 \AA	d) 3750 \AA
4. Photo electric effect can be explained on the basis of

a) Corpuscular Theory	b) Wave Theory
c) Electro Magnetic Theory	d) Quantum Theory
5. The nucleus of ${}_{13}\text{Al}^{27}$ and ${}_{14}\text{Si}^{28}$ example for

a) Isotone	b) Isotope
c) Isobar	d) Isomer
6. The principle of atom bomb is

a) Nuclear Fusion
b) Controlled nuclear Fission
c) Uncontrolled nuclear Fission
d) Thermo nuclear reaction
7. The ratio between the first three orbits of hydrogen atom is

a) 1:2:3	b) 1:4:9
c) 1:3:5	d) 2:4:6
8. The transverse nature of light is shown in

a) scattering	b) interference
c) diffraction	d) polarisation
9. The stopping potential of metal surface independent of

a) Frequency of incident radiation
b) Intensity of incident radiation
c) Temperature of metal surface
d) Nature of the metal
10. The charge of cathode ray is

a) negative	b) neutral
c) positive	d) cannot identify

Tsi12P

2

PART B**Answer any three question. Question No.14 is compulsory:****3×2=6**

11. State Huygen's principle.
12. Give uses of polaroids.
13. Define Threshold frequency.
14. Calculate the cut-off wavelength and cut off frequency of X-ray from an X-ray tube of accelerating potential 20,000 V.
15. Define Curie.

PART C**Answer any three question. Question No.19 is compulsory:****3×3=9**

16. What are the difference between interference and diffraction.
17. Deduce an expression for De-Broglie wavelength of electron.
18. Discuss the spectral series of hydrogen atom.
19. Two light sources with amplitude 5 units and 3 units respectively - interfere with each other. Calculate the ratio of maximum and minimum intensities.
20. Write the properties of Cathode ray.

PART D**Answer all questions:****2×5=10**

21. a) Describe briefly Davisson - Germer experiment which demonstrated the wave nature of electrons.
- (OR)**
- b) Discuss about Nicol Prism. What are the drawbacks of Nicol Prism?
22. a) Explain the J.J. Thomson experiment to determine the specific charge (e/m) of an electron.

(OR)

- b) Obtain equation for path difference and band width in Young's double slit experiment.

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