
Instruction :

1. All Questions are Compulsory.
 2. Each Sub-question carry 5 marks.
 3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
 4. Question paper of 80 Marks, it will be converted in to your programme structure marks.
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1. Solve any **four** sub-questions.
 - a) Explain total internal reflection with an appropriate diagram. 5
 - b) Derive the relation between angle of incidence and angle of deviation for refraction through a prism. 5
 - c) State the conditions for constructive and destructive interference at a point. 5
 - d) Explain the refraction of light using Huygen's principle. 5
 - e) The path difference between two waves starting from a source in the same phase and arriving at a point is 80λ . Is the point dark or bright? If the path difference is 44 microns, find the wavelength of the light. 5
2. Solve any **four** sub-questions.
 - a) What is the atomic spectrum of an element? Give the expressions for all the wavelengths of spectral series of the hydrogen atom. 5
 - b) Explain the dual nature of matter using De-Broglie's relation. 5
 - c) What is the De-Broglie wavelength of an object. 5
 - d) What are the inferences of Rutherford's Alpha particle scattering experiment. 5
 - e) Derive expression for radius of Bohr's orbit. 5
3. Solve any **four** sub-questions.
 - a) Explain with a block diagram a generalised communication system. 5
 - b) Explain modulation and its necessity. 5
 - c) Explain construction and working of Zener diode. 5
 - d) Discuss the solar cells. 5
 - e) What are logic gates? Explain NOT and NAND gate with truth tables. 5

4. Solve any **four** sub-questions.
- a) What is environmental pollution? State its causes. 5
 - b) What is global warming? 5
 - c) Explain Green House Effect with the help of a diagram. 5
 - d) What is acid rain? 5
 - e) What are Particulate Pollutants? Name and explain the sources of pollutants. 5

