

Term test -2. PHY 205B

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| 1(a) | Distinguish between the electric force and the magnetic force.   | 2   |
| (b)  | Define Lorentz force.  | 1   |
| (c)  | How we are able to produce uniform magnetic field?   | 1   |
| (d)  | Define the following laws<br>(i) Bioat-Savart law, (ii) Faradays law law of induction and (ii) Lentz's law.  | 6   |
| 2(a) | What is light? How can you prove that light has wave property and this is wave is transverse wave.   | 1+2 |
| (b)  | What is a coherent source? How can you produce the coherent sources?   | 3   |
| (c)  | When two monochromatic waves are superimposed find an expression for the resultant intensity. Also express at what condition the intensity is maximum and when it is minimum.  | 4   |
| 3(a) | What do you mean by the diffraction of light? At which condition the diffraction occurred?   | 2   |
| (b)  | Write down fundamental difference between Fresnel and frunhofer diffraction.   | 2   |
| (c)  | What is diffraction grating? Find as expression for the maximum intensity due to a plane transmission grating.   | 4   |
| (d)  | A parallel beam of monochromatic light is allowed to be incident normally on a plan grating having 1250 lines per cm and a second order line is observed to be deviated trough $30^\circ$ . Calculate the wavelength of the spectral line. |     |