I Mid Term Examination
***Even*-Semester, 2018-19**

Programme: B. Tech I Year **Branch:** All **Year:** First

Subject with Code: Engineering Physics (BPHS0001)

Time: 1 Hour **Max. Marks:** 15

Section A

Note: Attempt all questions. **2X3= 6**

1. What do you understand by sustainable interference? Explain.
2. Two identical coherent waves produced interference pattern. Find the ratio of intensity at the center of a bright fringe to the intensity at a point where these two waves interfere with the path difference of $\lambda/4$.
3. Distinguish between Fresnel and Fraunhofer classes of diffraction. Illustrate each by giving two examples.

Section B

Note: Attempt all questions. **3X3= 9**

1. Define the fringe width. Derive the expression of fringe width using the theory of Young's double slit experiment.
2. Describe the newton's rings method for measuring the wave length of monochromatic light and derive the formula for the wave length in terms of the diameters of Newton's rings.
3. Define the phenomenon of rotational polarization. 100 gm of impure sugar is dissolved in a litre of water. The solution gives an optical rotation of 9.9^0 when placed in a tube of length 20 cm. If the specific rotation of pure sugar solution is $66^0\ dm^{-1}\ (gm/cc)^{-1}$, find the purity of the sugar sample.

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