

Code No: R10103

R10**SET - 1****I B. Tech I Semester Supplementary Examinations, May - 2018****ENGINEERING PHYSICS-I**

(Com. to All Branches)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks

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1. a) Describe and explain the formation of Newton's rings in reflected monochromatic light. Explain why Newton's rings are circular. (8M)
b) What are the coherent sources? How are they obtained in practice? (7M)
 2. a) What do you understand by the resolving power of grating? Derive the necessary expression. (8M)
b) A grating has 6000 lines per cm drawn on it. If its width is 10 cm, calculate (7M)
(i) The resolving power in the second order.
(ii) The smallest wavelength that can be resolved in the third order in 6000 Å wavelength region.
 3. a) What is polarized light? Discuss various methods to produce it. (8M)
b) Write a short note on Quarter Wave Plate. (7M)
 4. a) Obtain the relations between the edge of the unit cell and atomic radius for the BCC and FCC lattices. (8M)
b) Explain the terms 'primitive cell' and 'unit cell'. (7M)
 5. a) Describe Laue's method of determination of crystal structure. (8M)
b) Deduce Bragg's law of diffraction in crystals. (7M)
 6. a) What is a laser? Explain the construction and working of ruby laser with neat diagram. (8M)
b) Discuss the industrial and medical applications of laser. (7M)
 7. a) Derive the expression for the numerical aperture of an optical fibre. (8M)
b) List the differences between step index and graded index optical fiber. (7M)
 8. a) What are the objectives of NDT? Discuss the ultrasonic inspection method. (8M)
b) Write a short note on different types of scans. (7M)