

Code: 9A04702

B.Tech IV Year I Semester (R09) Supplementary Examinations June 2017

OPTICAL COMMUNICATIONS

(Electronics & Communication Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Define numerical aperture of an optical fibre and obtain an expression for it.
(b) Explain the electromagnetic mode theory for light propagation in a fibre.
- 2 (a) Explain with diagram the classification of fibres based on the index of refraction.
(b) Briefly explain the stages in the fabrication of optical fibres.
- 3 (a) Explain the dispersion types that occur in single mode fibres.
(b) Describe how scattering causes signal attenuation in optical fibres.
- 4 With diagrams, explain the principle of working of optical isolators and circulators.
- 5 (a) Distinguish between spontaneous and stimulation emission.
(b) Describe the structure of a semiconductor LASER diode.
- 6 (a) Define responsivity and quantum efficiency of photodetector.
(b) With diagram, explain the principle of working of APD.
- 7 Explain point to point links and describe the methods of error control employed in optical fibres.
- 8 (a) Describe the function of fibre grating filters in WDM.
(b) Give an account of phased array based devices.
