M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

First Semester

Communication Systems

CU 7103 – OPTICAL NETWORKS

(Common to M.E. Electronics and Communication Engineering)

(Regulations 2013)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A — (10 x 2 = 20 marks)

1. What are the different loss components in optical fibers?
2. What are the problems caused by self phase and cross phase modulations?
3. What are types of WDM? Mention their advantages.
4. Name any two routing techniques in optical communication networks?
5. Why is minimization of routing updates required in networking?
6. What are the various layers of the optical laser?
7. Mention the different types of fiber access networks.
8. What are merits of photonic switching over electronic switching?
9. What is dispersion?
10. What are three models for interconnection for IP over optical networks?

PART B — (5 x 13 = 65 marks)

11. (a) (i) Explain the features and applications of optical amplifiers and optical switches. (8)
     (ii) Give short notes on solitons. (5)

   Or

   (b) Write short notes on:
     (i) Couplers (4)
     (ii) Filters (4)
     (iii) Wavelength converters. (5)
12. (a) (i) Draw and explain the topologies and operation of broadcast and select networks. 
(ii) Distinguish MAN from WAN.

Or

(b) (i) Explain the concept of wavelength routing architecture with a neat sketch.
(ii) Differentiate FDM and WDM.

13. (a) Describe the offline and online RWA for ring networks. Discuss the effect of alternate mutes and wavelength conversion on RWA.

Or

(b) (i) Explain how node designs are carried out in WRN with an example.
(ii) Briefly discuss the issues in wavelength routed networks.

14. (a) Explain the operation of optical multiplexer and demultiplexer for packet interleaving with neat diagrams. Also mention its applications.

Or

www.recentquestionpaper.com

(b) (i) Explain the need for synchronization in optical access networks.
(ii) Mention the significance of future access networks.

15. (a) (i) Explain the need for optical amplifiers in optical network design.
(ii) Write short notes on wavelength stabilization.

Or

(b) Explain the network management functions and describe fault management with suitable diagrams.

PART C — (1 × 15 = 15 marks)

16. (a) Discuss in detail, SDM, TDM and WDM approaches in High capacity networks.

Or

(b) How label switching differs from IP forwarding? Also explain the advantages of switching. Explain the point to point network topology.