C16–EC–**504**

6632

BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2018

DECE—FIFTH SEMESTER EXAMINATION

OPTICAL AND MOBILE COMMUNICATIONS

Time : 3 hours]   [*Total Marks* : 80

PART—A   3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define Snell's law in optics.

2. List various losses in optical fibre.

3. State the principle of LASER.

4. List the detectors used in optical fibre communication.

5. List the limitations of conventional mobile phone system.

6. List the types of dialling.

7. What is frequency reuse?

8. Define the terms cell and cluster.

9. What are the advantages of 3G over earlier versions?

10. What are the applications of IP multimedia subsystem (IMS)?

<div align="center">

PART—B 10×5=50
</div>

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* Explain the structure of optical fibre. 5

(b) Explain light wave propagation in OFC. 5

12. *(a)* Classify different optical fibres. 3

(b) What is wavelength division multiplexing (WDM)? Explain its need in fibre optic communication and explain the types of WDM. 7

13. Explain the construction and working of Laser source.

14. *(a)* What are the features of optical source and optical detector? 5

(b) Explain about in-band and out-band telephone signals. 5

15. *(a)* What are the functions of mobile switching centre (MSC)? 4

(b) Define the following terms : 6

(i) Mobile station

(ii) Base station

(iii) Voice channels

(iv) Control channels

16. Explain the process of call progress in a cellular telephone system.

17. *(a)* Explain the concept of spread spectrum technique. 6

(b) What are the features and advantages of CDMA? 4

18. *(a)* Explain the GSM architecture with block diagram. 6

(b) List the basic concepts of 4G aspects. 4

★ ★ ★