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C16–EC–**504**

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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)?

PART—B

10×5=50

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

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BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING
OPTICAL & MOBILE COMMUNICATIONS
FIFTH SEMESTER EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Classify optical fibers based on core diameter and give their approximate values of core diameters
2. List the extrinsic losses of Optical Fibers
3. Distinguish between a coupler and splitter in Fiber Optic Communication
4. List the various fiber optic active components
5. Define space division switching and time division switching
6. Classify various telephone switching systems
7. Define channel capacity in mobile communication
8. State the need for frequency reuse in mobile communication
9. List the features of digital cellular system.
10. List the salient features of 4G

PART - B (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. a) Explain the structure of Optical Fiber with neat sketch

    b) List advantages of Light wave communication system over EM wave system

12. a) Classify fibers based on refractive index profile and explain with sketches

    b) Classify fibers based on core diameter and explain

13. Explain the Block Diagram of fiber optic communication system

14. (a) State the functions of Mobile Switching Centre with basic block diagram

    (b) List and define various Channels in Mobile communication

15A. List the two types of optical sources and give the differences between them

B. Explain how electronic telephony is superior over manual telephony

16. (a) Give the features of TDMA

    (b) Give the features of CDMA

17. Explain the process of call progress in cellular telephone system

18. Explain the Global system for Moblie communication with block diagram.

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BOARD DIPLOMA EXAMINATION
JUNE - 2019
DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING
OPTICAL & MOBILE COMMUNICATIONS
FIFTH SEMESTER EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Distinguish between intrinsic losses and extrinsic losses in fibers
2. Define numerical aperture.
3. List the various fiber optic components
4. Define the term quantum efficiency of a light source
5. List the advantages of DTMF dialling over Pulsed dialling
6. Define the terms mobile station and base station
7. Distinguish between co-channel interference and adjacent channel interference
8. Write the differences between TDMA and CDMA
9. List the supplementary services of GSM system
10. State the features of GPRS.

PART - B (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. (a) Explain the structure of optical fibre with neat diagram 5M
    (b) Explain the principle on which optical fiber works 5M
12. Draw and explain block diagram of WDM system.
13. Explain the Block Diagram of fiber optic communication system
14. (a) (a)State the functions of Mobile Switching Centre
    (b) Define voice and control Channels in Mobile communication

15A. Define the salient features of Optical Sources

B. Compare In–band and out–band telephone signals.

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

17. Define TDMA and give its features

18. Explain the security aspects of GSM system

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BOARD DIPLOMA EXAMINATIONS

OCT/NOV-2019

DECE–FIFTH SEMESTER

OPTICAL & MOBILE COMMUNICATIONS

Time:3 hours Max. Marks: 80

PART – A 3 X 10 = 30

Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed five simple sentences.

1. State the advantages of light wave communication system.
2. Classify different types of dispersions that occur in optical fibre.
3. List the sources used in Optical Fibre Communication.
4. What is the need for optical coupler?
5. What are the advantages of DTMF?
6. List the limitations of Conventional mobile phone system.
7. State the need for hexagonal cells.
8. Define hand – off in mobile communication.
9. What are the features of digital cellular system?
10. What are the advantages of GSM?

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PART – B **10 X 5 = 50**

Instructions: *1. Answer any **Five** questions*
*2. Each question carries **TEN** Marks.*
3. Answer should be comprehensive and Criteria forValuation is the content but not the length of the answer.

11. (a)List Intrinsic and Extrinsic losses in optical fibre. 3M

    (b)Explain DWDM with neat Block diagram. 7M

12. (a) What is the need of WDM system. 2M

    (b) Draw the block diagram of WDM system and explain. 8M

13. Explain the principle, construction and working of LASER source.

14. (a) What are features of an optical detector. 5M

    (b) Explain the evolution of cellular mobile communication system. 5M

15. Draw the block diagram of electronic telephone exchange and explain each block.

16. (a) Draw the block diagram of a basic cellular system and explain each block 6M

    (b) What are the features of TDMA? 4M

17. a) Explain the concept of frequency reuse. 6M

    b) What are the advantages of CDMA? 4M

18. a) Explain IP Multimedia Subsystem (IMS). 5M

    b) Explain about GPRS. 5M

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BOARD DIPLOMA EXAMINATION, (C–16)

NOVEMBER—2020

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. Classify optical fibres based on refractive index profile.

2. Define Snell's law.

3. List any three fibre optic components.

4. State the need for Optical Coupler/Splitter.

5. Mention any three advantages of electronic telephony over manual telephony.

6. Define mobile station and base station.

7. State the need for hexagonal cell site.

8. List any three drawbacks of analog cellular system.

9. List any three features of digital cellular system.

10. Write any three applications of IMS.

PART—B

10×5=50

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

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

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

11. Explain Intrinsic and Extrinsic losses in optical fibre. 10

12. Draw the block diagram of WDM system and explain. 10

13. State the principle of laser. Explain the construction and working of a laser source. 10

14. *(a)* List any five salient features of an optical detector. 5

(b) Draw the block diagram of an electronic telephone exchange. 5

15. Explain the evolution of cellular mobile communication system. 10

16. Explain the process of call progress in a cellular system with a neat diagram. 10

17. Draw and explain TDMA. 10

18. *(a)* List various interfaces in GSM. 4

(b) List the service and security aspects of GSM. 6

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BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2021

DECE - FIFTH SEMESTER EXAMINATION

OPTICAL AND MOBILE COMMUNICATION

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

PART—A

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. List the advantages of optical fiber communication over microwave systems. 3

2. Define the terms acceptance angle and numerical aperture. 1½+1½=3

3. Write the need for splice in optical fiber communication. 3

4. List the salient features of an optical source. 3

5. Write the advantages of electronic telephony over manual telephony. 3

6. List various channels in mobile communication. 3

7. Define the terms cell and cluster. 1½+1½=3

8. Write the need for multiple accessing. 3

9. List various interfaces in GSM architecture. 3

10. Write the advantages of 3G cellular system. 3

PART—B

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

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

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

11. Define Snell's law of optics and explain the principle of light propagation through optical fiber. 3+7=10

12. Write the need for WDM and explain the block diagram of DWDM. 4+6=10

13. Explain the construction and working of LASER diode with neat sketch. 6+4=10

14. *(a)* Define salient features of optical detectors. 4

(b) Write short notes on pulsed and DTMF dialling. 3+3=6

15. Explain the process of call progress in cellular system. 10

16. Explain the concept of spread spectrum technique with block diagram. 10

17. Draw and explain the block diagram of GSM architecture. 10

18. *(a)* Compare the features of GPRS and EDGE systems. 6

(b) List different applications of IP multimedia system. 4

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