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P 1275

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fourth Semester

Information Technology

IF 252 — TELECOMMUNICATION SYSTEMS

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. For stereophonic broadcasting among AM and FM which modulation is preferred and why?
2. For the radar used in aircraft where does the interrogator and the transponder are placed respectively?
3. In an AMPS control system what is the function of an MTSO?
4. When the channel between mobile phones is wireless, is it possible to provide security to message transmission and reception?
5. Modern communication satellites are arranged in such a way that they face the earth in the desired direction. What arrangement makes this possible?
6. For Television and broadcast what band transponders are used. What is the effect of Doppler shift on them?
7. Write the main advantage of using optical frequencies as the carrier.
8. Draw a single mode optical fiber and mark the layers. Also give the relation b/w the refractive index of core and cladding.
9. When a subscriber dials a number, what audio tones are used to indicate different condition?
10. Explain briefly the principle of operation of a paging system.

PART B — (5 × 16 = 80 marks)

11. (a) When the mobile antenna height is very close to the ground level discuss the environment under which the mobile communication is established.

Or

- (b) What is multiplexing? Give its importance. Write notes on the salient features of any two multiplexing techniques used in communication.
12. (a) What are the objectives of digital cellular system? Discuss the functional architecture of GSM and its principal interfaces.

Or

- (b) Give a note on the features of AMPS for land mobile telephone service.
13. (a) Outline the development and use of satellites for broadcasting of TV programmes and Internet services. Why different frequencies are used for uplink and down link?

Or

- (b) Mention the advantages of synchronous satellite communication. Also explain the part of (i) Earth station and (ii) Satellite subsystems in Satellite communication.
14. (a) With a neat block diagram of an optical communication system outline how the system functions and how is it capable of accommodating the increase in the number of subscribers.

Or

- (b) (i) How are optical transmitters different from radio transmitters? Compare their functional architecture.
- (ii) Write notes on Attenuation and Dispersion in optical communication.

15. (a) When the various existing forms of communication are integrated into a single network what is it termed as? What types of interfaces it provides to its customers. Explain the structure and working of the integrated network.

Or

- (b) Give brief notes on the following with respect to telephony :
- (i) Grade of service
 - (ii) Cause of side tone in subscriber's telephone
 - (iii) Electronic telephone exchange
 - (iv) Strowger exchange.
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