

# CBCS SCHEME

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15MT551

## Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Wireless Networks and Communication

Time: 3 hrs.

Max. Marks: 80

**Note: Answer any FIVE full questions, choosing one full question from each module.**

### Module-1

- 1 a. With a neat block diagram, explain wireless communication system. (10 Marks)  
b. Explain the concept of Shannon's channel capacity, with the help of mathematical expression, calculate channel capacity for a given channel bandwidth of 3.4KHz and output S/N power ratio of 20dB. (06 Marks)

OR

- 2 a. What are wireless networks? With a diagram, explain wireless network architecture. (10 Marks)  
b. Explain the following wireless network issues : (06 Marks)  
i) Error control ii) Mobility iii) Routing.

### Module-2

- 3 a. What are the properties and components of wireless body area network? (12 Marks)  
b. Explain design issues of wireless body area network. (04 Marks)

OR

- 4 a. Explain the piconet and scatternet architecture defined in wireless personal area network. (10 Marks)  
b. Explain Bluetooth protocol stack. (06 Marks)

### Module-3

- 5 a. Explain the following wireless modulation techniques. (10 Marks)  
i) BPSK ii) QPSK iii) GMSK.  
Draw the modulated signal for a message  $m(n) = 1011001$  to be transmitted using QPSK scheme with a carrier  $A_c(t) = A_c \cos w_c t$ . (06 Marks)  
b. Explain OFDM.

OR

- 6 a. With the help of diagram, explain different diversity techniques. (10 Marks)  
b. Explain with a diagram, GSM network architecture. (06 Marks)

### Module-4

- 7 a. Explain following WLAN components. i) WLAN adapters ii) Access points. (06 Marks)  
b. Explain design requirements of WLAN. Determine the transfer of 40kB file with an 802.11 WLAN operating at 2 Mbps. (10 Marks)

OR

- 8 a. With a diagram, explain WMAN architecture. (06 Marks)  
b. Explain in detail IEEE802.16 protocol stack. (10 Marks)

### Module-5

- 9 a. Explain MANET single hop and multi hop architecture. (10 Marks)  
b. List out the Quantitative and Qualitative features of wireless Adhoc networks. (06 Marks)

OR

- 10 a. Explain wireless mesh network architecture. (08 Marks)  
b. Write the various characteristics of VANETs. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.