

B. E. COMPUTER SCIENCE AND ENGINEERING EXAMINATION 2018
FINAL YEAR FIRST SEMESTER

MOBILE COMPUTING

Time: 3 hours

Full Marks: 100

Answer Question no 1 and any THREE (3) questions from the following

1.

- a) What are the characteristics of Infrastructureless or Adhoc networks?
- b) Is wireless networking mandatory for designing mobile computing systems? Justify.
- c) What is piconet?
- d) What issues are to be considered for designing routing protocols for mobile systems? What are the desirable characteristics of such routing protocols? What are the possible classifications of routing protocols?
- e) What is *hidden terminal* problem?
- f) What is *minimal encapsulation*?

$3+2+3+(4+3+4)+2+4=25$

2.

- a) What are the problems of having wireless communications? Mention possible solutions for the problems.
- b) How does portability help in mobile computing systems? What are the corresponding issues? How can these be dealt with?

$(7+7)+(3+4+4)=25$

3.

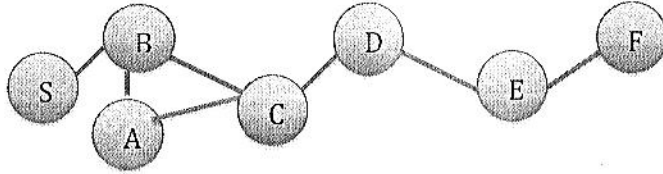
- a) What issues are raised by *mobility* of devices? How is Address Migration taken care of in mobile computing systems?
- b) What protocols are present in the Data Link layer and Physical layer? What is the scope of IEEE 802.11?
- c) What is *Frequency Hopping Spread Spectrum*? Why is it used?
- d) Explain the *paging procedure* of Bluetooth.

$(4+6)+(4+2)+(3+2)+4=25$

[Turn over

4.

a) Consider the following figure.



Explain the working of Adhoc On-demand Distance Vector (AODV) routing protocol and establish a route between S and D using AODV. Mention the information maintained at each node in the above network.

b) With respect to the figure, determine the information maintained at each node in the network, had Destination Sequence Distance Vector (DSDV) been used as routing protocol.

c) How is route information maintained in Dynamic Source Routing (DSR) protocol?

$$15+6+4=25$$

5.

a) What may be the characteristics of a network service? How can quality of a service be determined?

b) What is resource reservation? What are the different ways of achieving it and how?

c) What are the different types of QoS metrics used for routing protocols? Provide suitable examples.

d) Compare and contrast QoS AODV with AODV routing protocol.

$$6+8+6+5=25$$

6.

a) What are triangular routing and reverse tunneling?

b) What are the aspects of security?

c) What is threat? What are the threat categories? Give examples of threat in each category.

d) What is Denial of Service (DoS) and how does it occur?

e) How is packet filtering done?