B.E./B.TECH. Degree Examination, September 2020

Semester - VIII

EC16017 – Ad hoc and Sensor Networks

(Regulation 2016)

Time: Three hours   Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. Differentiate an ad hoc network and a cellular network with respect to bandwidth usage and cost effectiveness.
2. Sensor networks are typically deployed in in an ad-hoc manner
   a) True b)False
3. Classify routing protocol.
4. In IEEE 802.11, a ___ is made of stationary or mobile wireless stations and an optional central base station, known as the access point (AP).
   a) ESS b) BSS c) CSS d) none of the above
5. Differentiate routing and transport layer protocol.
6. Which of the following ad hoc protocol updates the topology dynamically (on-demand)?
   a) Distance Vector protocol b) Fisheye State Routing protocol c) Destination Sequenced Distance Vector protocol d) Dynamic Source Routing protocol
7. Formulate the challenges involved in designing MAC Protocol for wireless sensor networks.
8. Media access control is the sub layer of
   a) LLC b) IEEE c) ANSI d) both a and c

PART B - (4 X16 = 64 marks)

09. (a) Demonstrate the architecture of MANET   **(16)**

(OR)

   (b) Summarize the challenges in the design of ad-hoc sensor networks and security threats in an ad-hoc wireless networks.   **(16)**

10. (a) (i) Interpret a suitable routing technique more suitable for WSN. Narrate the reasons for it.   **(13)**
       (ii) Illustrate the difference between contention based protocols and schedule based protocols.   **(3)**

(OR)

   (b) (i) Sketch the transmission in BTMA protocol and explain it.   **(10)**
       (ii) Compare the handoff procedures of the HIPERLAN/2 and the IEEE 802.11 standards.   **(6)**

11. (a) Analyze the destination sequenced distance-vector routing protocol with an example.   **(16)**

(OR)

   (b) Illustrate the issues and design goals in designing a transport layer protocol for adhoc wireless networks?   **(16)**

12. (a) (i) Categorize the sensor network scenario and illustrate with diagram also explain how mobility can appear in WSN?   **(12)**
       (ii) Analyze how Energy Scavenging is realized in wireless sensor network.   **(4)**

(OR)

   (b) (i) Devise the possible sensors and actuators that can be used to design a wireless sensor network.   **(5)**
       (ii) Determine the impact of S-MAC protocol in a network.   **(6)**
       (iii) Exhibit the features of the IEEE 802.15.4 MAC protocol.   **(5)**