Programme name: Information Technology
Programme code: IF
Semester: Sixth
Course Title: Wireless and Mobile Network
Course code: 22622
Max. Marks: 70

22622

Time: 3 Hrs.

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.

Q.1) A) Attempt any FIVE of the following. (10 Marks)

 a. Enlist two application of personal communication services. (1-R)
 b. Write the IEEE standard for WiFi and Wi-Max. (2-A)
 c. State any two features of UMTS. (3-R)
 d. List any four applications of IoT. (4-R)
 e. List any four names of Line coding techniques. (4-R)
 f. List any two applications of MANET. (5-R)
 g. Enlist the features of 4G. (3R)

Q.2) Attempt any THREE of the following. 12 Marks

 a. Enlist any four GSM Services. (1-R0)
 b. Explain any four GPRS Services. (2-U)
 c. Describe the Wireless Application Protocol (WAP) (3-U)
 d. Explain WLL architecture. (4-U)

Q.3) Attempt any THREE of the following. (12 Marks)

 a. Differentiate between 4G and 4GLTE (any four point). (3-A)
 b. How does GPRS architecture differ from GSM. (2-A)
 c. Differentiate between PCM and DPCM on the basis of Bitrate, quantization Error & Distortion, Application and Feedback. (4-A)
 d. Draw and explain ISO equivalent protocol layer Architecture for WSN. (5- U)

Q.4) Attempt any THREE of the following. (12 Marks)

 a. Describe quality of services in 3G networks. (3- U)
 b. Differentiate between Bluetooth and WiFi on the basis of Range, Bandwidth, Modulation technique and number of devices connected. (2-A)
 c. Differentiate between WSN and IoT network. (any four points) 5-A
 d. Explain operational principle of mobile IP in detail. (2-U)
 e. Explain design challenges in MANET. 5- U

Q.5) Attempt any TWO of the following.   **(12 Marks)**

   a. Draw the architecture of GSM and explain function of each block. (1-U)
   b. Draw given waveforms for 101001110 (4-A)
        i.   Unipolar RZ and NRZ
       ii.   Bipolar RZ and NRZ
   c. Differentiate between W-CDMA and CDMA-2000. (any four points) 3-A

Q.6) Attempt any TWO of the following.   **(12 Marks)**

   a. Explain authentication process in GSM. (1-U)
   b. How clustering solves the issue of scalability on WSN.(any Six Points) (5-A)
   c. Explain the architecture of UMTS technology in terms of features, data rates and spectrum.(3-U)

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Time: 1 hour

| **22622** |

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3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q.1 Attempt any FOUR.   **(08 Marks)**

a) List any two GPRS Services.

b) Write the function for temporary identity subscriber.

c) Draw GSM architecture.

d) List the supplementary services offered in GSM.

e) Write IEEE standard for Bluetooth and WiFi.

f) List any two functions of HLR and VLR.

Q.2 Attempt any THREE.   **(12 Marks)**

a) Describe call processing in GSM.

b) What is Wireless application protocol.

c) Describe Wireless Markup Language.

d) Draw GPRS architecture and list the logical channels in GPRS.

e) Describe the terms home agent and foreign agent.

Programme name: Computer Engineering / Information Technology
Programme code: CO / IF
Semester: Sixth
Course Title: Wireless and Mobile Network
Course code: 22622
Max. Marks: 20   **Time: 1 hour**

$$\boxed{\textbf{22622}}$$

Instructions:
1. All questions are compulsory
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3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q.1 Attempt any FOUR.   **(08 Marks)**

a) Define sensor node.

b) List application of 4G

c) Enlist two features of UMTS

d) Enlist line coding technique.

e) List applications of MANET

f) Enlist the types of WSN architecute.

Q.2 Attempt any THREE.   **(12 Marks)**

a) State design challenges in MANET

b) Describe quality of services in 3G networks.

c) Differentiate between DSSS and FHSS (any four point).

d) Differentiate between PCM and DPCM (any four point).

e) Draw the WLL architecture and write any four applications of WLL.