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S.Y. B.Sc. (Computer Science) (II Sem.) EXAMINATION, 2017

ELECTRONIC SCIENCE

Paper II

ELC-222 : Communication Principle

(2013 PATTERN)

Time : Two Hours   **Maximum Marks : 40**

N.B. :—   (*i*)   *All* questions are compulsory.

       (*ii*)   Figures to the right indicate full marks.

       (*iii*)   Neat diagrams must be drawn wherever necessary.

1.   Answer the following in *one* or *two* sentences :   [10×1=10]

   (*a*)   State Nyquist Sampling theorem.

   (*b*)   For an amplitude modulated system, maximum amplitude of the envelope is 5 V and minimum amplitude is 2 V, calculate the modulation index.

   (*c*)   Define hop time with reference to FHSS.

   (*d*)   Give any *two* examples of half duplex communication system.

   (*e*)   Define bandwidth of an antenna.

   (*f*)   Draw waveform of FSK for 10101100.

                         P.T.O.

(g) What do you mean by Multiple Access ?

(h) Give the full form of GPRS.

(i) What is base band signal ?

(j) Give any *two* advantages of frequency modulation (FM) over amplitude modulation (AM).

2. Attempt any *two* of the following : [2×5=10]

(a) Draw and explain the block diagram of electronic communication system.

(b) Draw the circuit diagram of transistorized amplitude modulator and explain its working.

(c) Write any *five* features of FDMA.

3. Attempt any *two* of the following : [2×5=10]

(a) Explain CDM (Code Division Multiplexing) system with suitable block diagram.

(b) Explain the need of wireless communication (any *five* points).

(c) Explain QPSK with respect to the following points :

    (i) Concept

    (ii) Truth Table

    (iii) Phasor diagram.

4. Attempt any *one* of the following : [1×10=10]

    (*a*)   (*i*)   Construct Hamming code for data information 1001 with odd parity. [5]

          (*ii*)   Explain the Piconet and Scatternet in bluetooth network. [5]

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Or

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    (*b*)   (*i*)   Explain the steps involved in PCM and give any *two* applications of it. [5]

          (*ii*)   Give any *three* features of spread spectrum technology. [3]

          (*iii*)   What is Hand off concept of mobile communication ? [2]