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S.Y. B.Sc. (Computer Science) (Sem. II) EXAMINATION, 2018

ELECTRONIC SCIENCE

Paper II

(ELC-222 : Communication Principles)

(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.

(*iv*) Use of calculator is allowed.

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

(*a*) Draw the wave form of ASK for data 101010.

(*b*) State any *two* features of FDMA.

(*c*) What do you mean by broadband communication ?

(*d*) If the modulating signal amplitude is 3 volt and carrier signal amplitude is 4 volt, calculate the modulation index for AM.

(*e*) What is advantage of spread spectrum technique ?

(*f*) State the expression for Shannon's Theorem for Channel Capacity.

(*g*) Write the full form of GSM.

(*h*) What is "Hand Off" with respect to mobile communication ?

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(*i*) Define baud rate with respect to communication system.

(*j*) A receiver has an input signal power of 1.0 mW. The noise power is 0.35 mW. Calculate the signal to noise ratio.

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

(*a*) Explain FDM transmitter with neat block diagram.

(*b*) How can communication systems be classified according to mode of transmission ? Explain in detail with diagrams and example.

(*c*) Explain working of diode demodulator with neat circuit diagram and waveform.

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

(*a*) Write any *five* features of CDMA.

(*b*) Explain the working principle of an antenna with neat suitable diagrams.

(*c*) Draw block diagram of delta modulator and explain its working.

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

(A) (*i*) Construct Hamming code for data information 0110 with even parity.

(*ii*) Explain the working principle of FHSS.

Or

(B) (*i*) Differentiate between AM and FM with respect to any *five* points.

(*ii*) Explain the components of RFID system.

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