

S.Y. B. SC. (Computer Science) SEM –III (CBCS - 2016 COURSE) :
WINTER - 2018

SUBJECT: PRINCIPLES OF COMMUNICATION

Day: Wednesday
Date: 24/10/2018

W-2018-0917

Time: 11.00 AM TO 02.00 PM
Max. Marks: 60

N.B:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
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Q.1 Answer **ANY TWO** of the following: **(12)**

- a) With neat diagram explain the working of diode modulator and demodulator.
- b) Explain synchronous transmission.
- c) Explain the concept of frequency reuse and handover in mobile communication.

Q.2 Answer **ANY TWO** of the following: **(12)**

- a) With the help of suitable block diagram and waveforms explain pulse amplitude modulation.
- b) Draw and explain block diagram of GPRS system.
- c) State important features of FDMA.

Q.3 Answer **ANY TWO** of the following: **(12)**

- a) Explain with block diagram elements of communication system.
- b) State Shannon's theorem. Explain the significance of signal to noise ratio. In a communication system, if the channel bandwidth is 3KHz and S/N ratio is 1000. Calculate the channel capacity.
- c) Explain pulse code modulation with necessary diagram.

Q.4 Answer **ANY THREE** of the following: **(12)**

- a) Explain the concept of RFID.
- b) Explain the concept of QPSK with constellation diagram.
- c) State four points of difference between FDM and TDM.
- d) Define modulation and demodulation. Also state the need of modulation.

Q.5 Answer **ANY FOUR** of the following: **(12)**

- a) State any three applications of Bluetooth.
- b) Explain the following parameters for antenna:
 - i) Gain
 - ii) Bandwidth
 - iii) Radiation pattern
- c) Explain the concept of Frequency Shift Keying.
- d) State three points of difference between AM and FM.
- e) Give one example for each: Simplex, Half duplex and Full duplex.
- f) Define modulation index. Calculate modulation index if

$$V_m = 6 \sin 2 \Pi (3\text{KHz}) t \text{ and } V_c = 8 \sin 2 \Pi (1200 \text{ KHz}) t$$

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