

**S.Y. B. SC. (COMPUTER SCIENCE) SEM –III (CBCS - 2016
COURSE) : SUMMER - 2018
SUBJECT : PRINCIPLES OF COMMUNICATION**

Day : **Friday**
Date : **27/04/2018**

S-2018-0815

Time : **03.00 PM TO 06.00 PM**
Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non programmable **CALCULATOR** is allowed.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.

Q.1 Answer **ANY TWO** of the following: **[12]**

- a) With the help of block diagram and phasor diagram explain the working of QPSK modulator.
- b) Draw block diagram of communication system. Explain the function of each block.
- c) Explain AM with respect to definition, AM waveforms, frequency spectrum, modulation index and disadvantages.

Q.2 Answer **ANY TWO** of the following: **[12]**

- a) Explain any six parameters of antenna.
- b) Explain with neat diagram pulse code modulation.
- c) Explain general architecture of GPRS with neat block diagram.

Q.3 Answer **ANY TWO** of the following: **[12]**

- a) What is FDM? Explain the formation of 12 channel group.
- b) Explain synchronous transmission with diagram. Also state its disadvantages.
- c) Explain AM modulator and demodulator using diode circuits.

Q.4 Answer **ANY THREE** of the following: **[12]**

- a) Define: Nyquist's theorem and Shannon's theorem.
- b) Draw and explain block diagram of a cellular phone system
- c) State four points of difference between FDM and TDM.
- d) i) What are the phase states of the carrier when the bit stream 1001101100 is applied to a QPSK modulator.
ii) Define FSK. Draw a diagram showing output of FSK modem sending following data 10101100.

Q.5 Answer **ANY FOUR** of the following: **[12]**

- a) State features, advantages and disadvantages of FDMA.
- b) Explain handover in GSM.
- c) i) If $V_m = 4 \sin 2 \pi (3\text{KHz})t$ and $V_c = 8 \sin 2 \pi (1200\text{KHz})t$. Calculate modulation index for AM.
ii) What is baseband communication?
- d) Define the following:
 - i) Modulation
 - ii) Demodulation
 - iii) Baud rate
- e) Explain how the data is transmitted using Bluetooth.
- f) State any three applications of RFID.

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