

**B.TECH. SEM -IV E & TC 2014 COURSE (CBCS) : SUMMER -
2018**

SUBJECT: ANALOG COMMUNICATION SYSTEM

Day: **Saturday**
Date: **09/06/2018**

S-2018-2318

Time: **10.00 AM TO 01.00 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) Assume suitable data if necessary.

Q1. a) What is Communication channel? Explain in detail co-axial cable & waveguide. (07)

b) Classify Signals. (03)

OR

a) What is modulation? What is the need of modulation in communication system? (06)

b) What is optical Fiber? Give advantages of optical fiber. (04)

Q2. a) What is noise figure? Derive an expression for noise figure from equivalent noise resistance. (07)

b) What is Thermal Noise? (03)

OR

a) What is external Noise? Explain in detail. (06)

b) Determine receiver's noise figure in decibels and its equivalent noise temperature. A receiver is connected to an antenna whose resistance is 50Ω . The equivalent noise resistance of the receiver is 30Ω . (04)

Q3. a) What is SSB-SC? Explain generation of SSB-SC with phase shift method. (07)

b) Draw spectrum of DSB-SC & SSB-SC? (03)

OR

a) Derive Power relation of AM wave. (05)

b) What is the effect of Phase & frequency errors in synchronous detection? (05)

Q4. a) With the help of diagram explain direct method of FM generation. (06)

b) In an FM system the audio frequency is 1KHZ & audio Voltage is 2volts. The deviation is 4 KHZ. If the AF Voltage is now increased to 8 volts & its frequency dropped to 500 HZ, Find the modulation index in each case and the corresponding bandwidth using Carson's rule. (04)

OR

P.T.O.

a) With the help of diagram explain ratio detector. (06)

b) Compare FM and AM. (04)

Q.5 a) Define the terms sensitivity, selectivity and image frequency. (06)

b) What is blocking in a radio receiver? How is good blocking achieved? (04)

Q.6 a) With the help of diagram explain generation & detection of Pulse position modulated (PPM) wave. (07)

b) State sampling theorem. (03)

OR

a) Determine Nyquist rate for continuous time signal
 $x(t) = 6 \cos 50 \pi t + 20 \sin 300 \pi t - 10 \cos 100 \pi t$ (04)

b) What are the different Sampling techniques? (06)

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