Total No of Questions: [8] *SEAT NO. :*

[Total No. of Pages : 2]

S.E. 2012 Course (Electronics/E & TC)

Analog Communication (204189)

(Semester - II)

Time: 2 Hours ***Max. Marks : 50***

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume Suitable data if necessary***

Q1) a) Explain the phase shift method for generating SSB-SC. State its advantages and disadvantages. [6]

b) Differentiate between NBFM and WBFM. [6]

Q2) a) Compare between DSB-FC, DSB-SC, and SSB-SC. [6]

b) An angle modulated wave with a carrier frequency $\omega_c = 2\pi X10^{-5}$ is defined by the equation , $\varphi_{EM}(t) = 10 \cos(\omega_c t + 5 \sin 2000 \pi t)$. Find [6]

i) power of the modulated signal
ii) frequency deviation
iii) bandwidth

Q3) a) Explain FM detection using PLL. [6]

b) Three resistors of 10 KΩ, 22KΩ and 33kΩ are at room temperature (27^0C). For a bandwidth of 100kHz. Calculate the thermal noise voltage generated by: [6]

i) Each resistor
ii) Three Resistors in series
iii) Three Resistors in parallel

Q4) a) Explain how a diode can be used to detect an AM signal. What are the different types of distortions that occur in a typical diode detector circuit? [6]

b) Derive the Friss's formula for Noise Factor of amplifiers in cascade. [6]

Q5) a) Explain the performance of Baseband system in presence of noise. [7]

b) Explain threshold in angle modulation. [6]

Q6) a) Explain the performance of AM in presence of noise. [8]

b) With the help of mathematical expression explain which is superior PM/FM? [5]

Q7) a) Explain band Limited and time limited signal. [6]

b) What is Nyquist criterion? State sampling theorem in time domain. Draw the spectrum showing aliasing and guard band. [7]

Q8) a) Compare between PAM, PWM and PPM. [6]

b) With the help of block diagram, explain transmitter and receiver of pulse code modulation. [7]