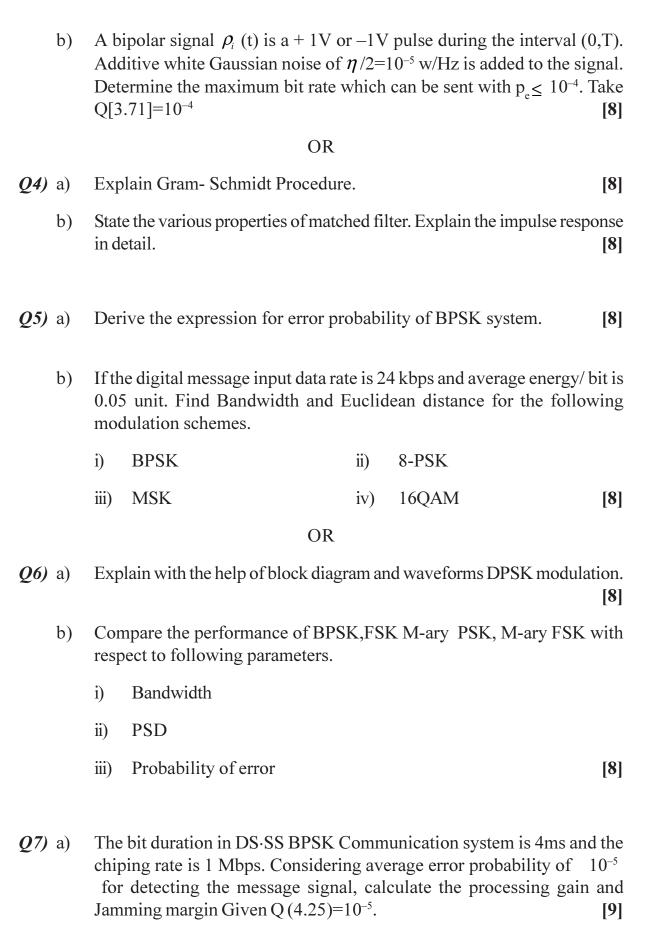
Total No. of Questions : 8]		SEAT No. :	]
P2856	[4058] 1042	[Total No. of Pages : 3	,

## [4958]-1042 T.E.(E&Tc)

		I.E.(E&IC)	
		DIGITAL COMMUNICATION	
		(2012Pattern) (End Semester)(Semester-I)	
Time: 2 ½ Hours] [Max. Mark		arks : 70	
	ructi 1) 2) 3) 4)	ions to the candidates:  Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.  Neat diagrams must be drawn wherever necessary.  Figures to the right indicate full marks.  Assume suitable data, if necessary.	
Q1)	a)	What are the limitations of Delta modulation? How are they over in Delta sigma modulation and Adaptive Delta modulation? Expla necessary diagrams.	
	b)	What is Equalizer? Explain Adaptive equalizers.	[7]
	c)	Write short note on	
		i) Thermal Noise or Johnson Noise	
		ii) White Gaussian Noise	[6]
		OR	
Q2)	a)	Consider a sinusoidal signal $X(t) = A \cos(\omega_m t)$ applied to modulator with a step size $\delta$ . Show that the slope overload dis	
		will occur if $A > \frac{\delta}{\omega_m T_s}$ where $T_s$ is the sampling period.	[7]
	b)	Draw and explain CCIT hierarchy of multiplexing.	[7]
	c)	Explain in detail about stationary, wide sense stationary and process with suitable mathematical expressions.	ergodic [6]
Q3)	a)	Derive the expression for signal to noise ratio of integrates and receives	d dump

*P.T.O.* 



- b) Write short note on.
  - i) Wireless standards
  - ii) Personal communication system.

[9]

OR

**Q8)** a) Generate the PN sequence for transmitting message through FHSS system. The period of PN sequence is 2<sup>4</sup>–1=15. The initial content of shift register are assummed to be 1 1 0 0

Draw PN sequence generator with waveform.

[9]

[9]

- b) i) Compare DSSS with FHSS
  - ii) What is need of spread spectrum modulation technique.

