



SB-3524

M. Sc. (Part - II) Examination
March / April - 2011
Electronics : Paper - IV
(Communication Electronics - II & Microprocessor)

Time : 3 Hours]

[Total Marks : 54

Instructions :

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
M. Sc. (Part - 2)

Name of the Subject :
Electronics : Paper - 4

Subject Code No. : 3 5 2 4 Section No. (1, 2,.....) : 1&2

Seat No. :

Student's Signature

- (2) Use separate answer book for each section.
- (3) Symbols used have their usual meaning.
- (4) Figures to the right indicate full marks.
- (5) Assume data if require.

SECTION - I

- 1 (a) What are the drawbacks of the Delta modulation ? 5
How they eliminate in Adaptive delta modulation ?
- (b) A message signal $m(t)$ is transmitted by binary PCM 4
without compression. If the signal-to-quantization noise
ratio is required to be atleast 50 dB, determine the
minimum value of L required assuming that $m(t)$ is
sinusoidal. Determine the SNR obtained with this
minimum L.
- 2 (a) (i) Describe the super frame format. Why is it used ? 3
(ii) What is the purpose of the signaling bit ? 2
- (b) For a tribit input of Q=0, I=0 and C=0 (000), 4
determine the output amplitude and phase for the
8-QAM transmitter.

<i>I/Q</i>	<i>C</i>	<i>Output</i>
0	0	-0.541V
0	1	-1.307V
1	0	+0.541V
1	1	+1.307V

OR

- 2** (a) Define diversity. Describe the three most commonly used diversity schemes. **5**
- (b) Explain how the DS spread spectrum is used for the range of the target. **4**
- 3** (a) Contrast the advantages and disadvantages of geosynchronous satellites. **2**
- (b) Describe what a satellite link budget and how is it used ? **3**
- (c) For a system gain of 114 dB, a total noise figure of 6.5 dB and an input noise power of -111 dBm, determine the minimum receive carrier power and the minimum transmit power. **4**

OR

- 3** (a) Define back-off loss and its relationship to saturated and transmit power. **2**
- (b) A three stage switching structure is to accommodate N=128 input and 128 output terminals. There are to be 16 first stage and third stage matrices. **4**
- (i) If the structure is to be non blocking how many cross points are required ?
- (ii) It is known that at peak traffic periods the utilization probability $p=10\%$. Suppose that the number of cross points is reduced by a factor of 3 below the number required to avoid blocking. What is the probability that a call will be blocked ?
- (c) Describe briefly the four major sections of a microwave terminal station. **3**

SECTION - II

- 4** (a) Explain with example the "CALL" and "RET" instruction of 8085 processor. **2**
- (b) What will be the value in IP and CS upon power on reset of 8086 processor ? **3**
- (c) Draw the block diagram of 8255 PPI. **2**
- (d) List all hardware interrupts of 8085 microprocessor. **2**

- 5 (a) Explain working of Execution Unit and Bus Interface Unit of 8086 microprocessor. 5
- (b) (i) Calculate 20 bit physical address 8086 microprocessor if [DS] = 6100 H and EA = 0200 H. 2
- (ii) Calculate 20 bit physical address 8086 microprocessor if [CS] = 4100H and EA=0400 H. 2

OR

- 5 (a) Draw the block diagram of 8255 PPI and explain its different modes of operation. 5
- (b) For 8255 PPI, calculate the value of control word to set all the ports for the input operation in Mode-0. 4
- 6 (a) With suitable example, explain function of a “program counter” and “stack pointer” of 8085 processor. 5
- (b) Write an assembly language program for 8085 to perform following addition : 4
- B649h
+26AFh.

OR

- 6 (a) Giving diagram, explain memory organization of the internal RAM of 8051 microcontroller and describe its each blocks. 5
- (b) Write an assembly language program for 8051 microcontroller to read the port-1 and send the same value to the port-2. 4
