



RE-3597-98

M. Sc. (Part - II) Examination

April / May – 2010

Electronics : Paper - IV

(Communication Electronics- II, Microprocessors)

Time : 3 Hours]

[Total Marks :

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Instructions :

(1)

नीचे दशांशके निशानीवाणी विगतो उत्तरवही पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="M. Sc. (PART - 2)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="ELECTRONICS - 4"/>	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="5"/> <input type="text" value="9"/> <input type="text" value="7"/>	Section No. (1, 2,.....) : <input type="text" value="1"/>
Student's Signature	

- (2) Answers to the two sections must be written in separate answer books.
- (3) Figures to the right hand side of each question indicate full marks.
- (4) Assume the data if required.

- 1 (a) Explain M-ary encoding. 2
- (b) Define Fade Margin. 3
Describe multipath losses, terrain sensitivity and reliability objectives and how they affect fade margin.
- (c) Determine the minimum number of bits required in a PCM code for a dynamic range of 80 dB. What is the coding efficiency? 4

- 2 (a) Briefly describe the functional characteristics of an uplink, a transponder and a down-link model for a satellite system. 5
- (b) For a 16-QAM modulator with an input data rate equal to 10 Mbps and a carrier frequency of 70 MHz, determine the minimum double-sided Nyquist frequency and the baud. 4

OR

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[Contd...

- 2 (a) Explain delta modulation scheme using the block diagram. What are the drawbacks of it? How can they overcome using adaptive delta modulation? 5
- (b) Define noise density. For an equivalent noise bandwidth of 10 MHz and a total noise power of 0.0276 PW, determine the noise density and equivalent noise temperature. 4
- 3 (a) What is frame synchronization? How is it achieved in a PCM-TDM system? 5
- (b) Determine the optical power in dBm and watts for a 20-km optical fiber link with the following parameters: 4
- LED output power of 30 mW
 Four, 5-km sections of optical cable each with a loss of 0.5 dB/km.
 Three cable-to-cable connectors with a loss of 2dB each.
 No cable splices
 Light source-to-fiber interface loss of 1.9 dB
 Fiber-to-light detector loss of 2.1 dB
 No losses due to cable bands.

OR

- 3 (a) Discuss the advantages of multistage switching system. Draw the diagram of a 3-stage switching structure and derive the expression for minimum number of cross point. 5
- (b) (i) For an optical fiber 10 km long with a pulse spreading constant of 5 ns/km, determine the maximum digital transmission rates for RZ and NRZ transmissions. 5
- (ii) For a tribit input of $Q=0$, $I=0$, and $C=0$ (000), determine the output phase for the 8-PSK modulator. 3
- Note that for $I = 0$, $C = 0$, output = -0.541V
 $Q = 0$, $\bar{C} = 1$, output = -1.307 V

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(1)

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<input type="text" value="ELECTRONICS - 4"/>	
Subject Code No. : <input type="text" value="3"/> <input type="text" value="5"/> <input type="text" value="9"/> <input type="text" value="8"/>	Section No. (1, 2,.....) : <input type="text" value="2"/>

- (2) Answers to the two sections must be written in separate answer books.
- (3) Figures to the right hand side of each question indicate full marks.
- (4) Assume the data if required.

- 4 (a) What is the function of the following 8085 instructions ? 2
- (i) RRC
- (ii) RAR
- (iii) Push PSW
- (iv) JNC
- (b) Describe the basic difference between a microprocessor and a microcontroller. 2
- (c) For 8051 microcontroller which ports are used to provide to external memory. 2
- (d) List all predefine interrupts of 8086 and briefly explain their function. 3
- 5 (a) Explain working of execution unit and bus Interface unit of 8086 microprocessor. 5
- (b) (i) Calculate the physical address 8086 microprocessor if [DS] = 5100 H and EA = 9000H. 4
- (ii) Calculate the EA, if [DS] = 5500 H and physical address is 6F60H.

OR

- 5 (a) With the help of a diagram and examples, explain access of external memories (addressing) using MOVX and MOVC types of instructions. 5
- (b) What does the following instruction of 8051 microcontroller do? 4
- (i) MOV A, 80 h
 - (ii) MOV DPTR, 123 Bh
 - (iii) MOVC A, @ A + PC
 - (iv) ANLC,/7Fh.
- 6 (a) Draw the block diagram of 8085 processor and explain function of its SP and PC registers. 5
- (b) Write an assembly language program for 8085 to arrange 24_{10} data in ascending order. Also draw flowchart. 4

OR

- 6 (a) Giving diagram, explain memory organization of the internal RAM of 8051 microcontroller and describe its each blocks. 5
- (b) Using mnemonics of 8051 microcontroller, write an assembly language program that increments the content of the internal RAM location 3Ch until the number in this location becomes 10h. 4