



DF-1518
M. Sc. (Sem. III) Examination
March / April - 2016
Physics : Paper : PH (E) - 534
(Microprocessor & Its Applications)

Time : 3 Hours]

[Total Marks : 70

Instructions :

(1)

<p>नीचे दर्शायेव निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : M. SC. (SEM. III)</p> <p>Name of the Subject : PHYSICS : PAPER : PH (E) - 534</p> <p>Subject Code No. : 1 5 1 8 Section No. (1, 2,...): Nil</p>	<p>Seat No. : □ □ □ □ □ □</p> <p style="text-align: center;">Student's Signature</p>
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2. This question paper includes *five* main questions with three sub-question (a), (b) and (c) in each.
 3. Answer any two sub-questions from each main question.
 4. Assume data if require.
 5. Symbols used have their usual meaning.
- 1 (a) With example, explain Binary, Octal, Decimal and Hexadecimal number systems. [7]
- (b) Using logic gates, design a combinational logic circuit that converts a 4-bit Gray code into a 4-bit Binary code 9s complement of its 4-bit BCD input. [7]
- (c) Perform following arithmetic operation, [7]
- (i) $2FH + 16H$
 - (ii) $1100_2 - 0111_2$
 - (iii) $00_8 - 02_8$
- 2 (a) Draw block diagram of 8085 microprocessor and explain role of *stack pointer* register. [7]
- (b) Draw and explain the timing diagram of instruction fetch cycle of 8085 microprocessor. [7]

- (c) What is address space partitioning? Design 4k X 8 memory block using 2k X 4 memory chips. [7]
- 3 (a) What is flag? Explain different flags of 8085 Microprocessor. Describe flag based Conditional JUMP, instructions with example. [7]
- (b) With example, explain the role of 'Stack' and 'Stack pointer' in the microprocessor system during *CALL* and *RET* operation. [7]
- (c) What is the function of the following instruction of 8085 microprocessor? [7]
- (i) SHLD
 - (ii) XCHG
 - (iii) POP PSW
 - (iv) RRC
- 4(a) Why ports are required? Sketch internal block diagram of 8255 port and explain function of its each block. [7]
- (b) What is control word? Draw the format of the control word of 8255 PPI and explain the function associated with its each bit. [7]
- Design a control word to set Port A for input, Port B for output and Port C for input in Mod-0.
- (c) Design a logic circuit to assign the following address to the ports of the 8255 PPI. [7]
- Port A = 60h Port B = 61h Port C = 62h and Control Register = 63h
- 5 (a) Sketch block diagram of 8051 microcontroller and briefly explain function of its each block. [7]
- (b) Draw control word format of 8253 timer PPI and explain function associated with its each bit. [7]
- (c) Sketch the connection diagram and write an assembly program to display 0 to 9 on a common anode type seven segment LED display connected to the port B. [7]
- (Assume that the delay routine is available. Also assume suitable address of port B and CR).