

17431

21314

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answer with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any SIX of the following:** **12**
- i) List maskable and non maskable hardware interrupts of 8085.
 - ii) State the functions of following pins of 8085 microprocessor:
 - 1) SOD
 - 2) HOLD
 - iii) State the maximum size of memory that can be interfaced with microprocessor 8086. Why?
 - iv) State any four examples of immediate addressing mode.
 - v) State the function of “Assembler”.
 - vi) State the concept of pipeling of 8086.
 - vii) State the steps involved in ALP using procedure.
 - viii) Explain any one logical instruction of 8086 with example.

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Marks**b) Attempt any TWO of the following:****8**

- i) What is an algorithm? What is a flow chart? Sketch any four symbols used in a flow chart.
- ii) List any four assembler directives and explain any two of them.
- iii) Differentiate between Near and Far Calls (four points)

2. Attempt any FOUR of the following:**16**

- a) List salient features of microprocessor 8085 (any eight)
- b) Draw the pin diagram of 8086.
- c) Draw the neat labeled functional block diagram of 8085.
- d) Draw the flag register format of microprocessor 8086 and explain any two flags.
- e) If AL, BL and CL contain 10 H, 10 H and 20 H respectively. State the effects of following instructions.
 - i) `CMP BL, CL`
 - ii) `XCHG AL, CL`
- f) Calculate the physical address in the following cases:
 - i) `CS: 1200 H, IP: DE00H`
 - ii) `DS: 1FOO, BX: 1A00` for `MOV AX, [BX]`

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Marks**3. Attempt any FOUR of the following:****16**

- a) Compare the following instructions (2 points)
 - i) AND and TEST
 - ii) AAA and DAA
- b) State the functions for the following pins of 8086.
 - i) $\overline{\text{TEST}}$
 - ii) $\overline{\text{BHE}}$
 - iii) $\overline{\text{INTA}}$
 - iv) $\text{DT} / \overline{\text{R}}$
- c) Explain demultiplexing of address and data bus using a neat labeled diagram.
- d) Compare maximum mode and minimum mode configurations of 8086 (any four points)
- e) Write an ALP for comparing two strings of 10 bytes each.
- f) Compare microprocessors 8085 and 8086 (any four points)

4. Attempt any FOUR of the following:**16**

- a) Explain following string instructions and respective prefix:
 - i) REP MOV SW
 - ii) REPE CMP SB
- b) Identify the addressing modes used in the following instructions:
 - i) MOV DS, AX
 - ii) MOV AX, [4172 H]
 - iii) ADD AX, [SI]
 - iv) ADD AX, [SI] [BX] [04 H]
- c) Write an ALP to divide a 16-bit number by a 8-bit number.
- d) Write an ALP to find sum of first 10 integers.
- e) What is a MACRO? Define a MACRO with an example.
- f) Write an ALP to count number of O's in AL register.

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Marks**5. Attempt any FOUR of the following:****16**

- a) Differentiate between re-entrant and recursive procedures. (two points)
- b) Write appropriate 8086 instructions to perform following operations:
 - i) Initialize stack at 42000 H
 - ii) Rotate register BX right 4 times.
- c) Write an ALP to transfer block of 10 numbers from one location to another location.
- d) Find the errors in the following program and correct them.

```
MOV AX, 1000 H
```

```
MOV DS, AX
```

```
MOV BX, 2000 H
```

```
MOV ES, BX
```

```
MOV SI, 3000 H
```

```
MOV DI, 4000 H
```

```
REPE MOV SB
```

- e) Write an ALP to check a number to be odd or even.
- f) List instruction formats of 8086 and explain any one.

6. Attempt any TWO of the following:**16**

- a) Draw and describe the maximum mode diagram of 8086.
 - b) Write an ALP to arrange any array of 10 bytes in an ascending order. Also draw the flow chart for the same.
 - c) Explain various ways of parameter passing in 8086 assembly language procedure.
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