

# 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.

P.T.O.

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]`

**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.

**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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