

B.Sc. Part—III (Semester—VI) Examination
ELECTRONICS
(Advanced Microprocessor and Microcontroller)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) Question No. 1 is compulsory.

(2) Draw neat diagram wherever necessary.

1. (A) Fill in the blanks with appropriate words :—

2

(1) BIU stands for _____.

(2) PSW stands for _____.

(3) Intel 8086 is _____ pin IC.

(4) SCON stand for _____ .

(B) Choose the correct alternative :—

2

(i) 8086 μ p have _____ operating modes.

(a) 5

(b) 4

(c) 2

(d) 8

(ii) IC 8086 μ p has _____ byte queue register.

(a) 4

(b) 8

(c) 6

(d) 12

(iii) Full duplex system consists of _____ way Communication.

(a) One

(b) Two

(c) Three

(d) None

(iv) Memory Capacity of 8086 μ p is _____.

(a) 2 MB

(b) 4 MB

(c) 1 MB

(d) 8 MB

(C) Answer in **one** sentence only :—

4

(i) What is the addressing mode of MOV AX, BX ?

(ii) State segment register of 8086 μ p.

(iii) What is PC in 8086 microprocessor ?

(iv) State the addressing modes of MOV DPTR# 1234H.

EITHER2. (A) Explain operating modes of 8086 μ p.

6

(B) What is use of memory segmentation in 8086 μ p ? Explain the various segment registers.

6

OR(P) Explain general purpose registers of 8086 μ p.

6

- (Q) Explain the function of following signal :
- | | | |
|-----------------------|-------------------------|---|
| (i) \overline{MIO} | (ii) $\overline{MN/MX}$ | |
| (iii) \overline{RD} | (iv) \overline{WR} | 4 |
- (R) What is the function of instruction queue in 8086 μ p ? 2

EITHER

3. (A) Write ALP to add the contents of the location 2000 : 0500 H to the contents of 3000 : 0600 H and Store result in 5000 H : 0700 H. 6
- (B) Explain Based, Index and Based-Index addressing modes with suitable example. 6

OR

- (P) Identify the addressing modes of following 8086 μ p instructions :—
- | | |
|----------------------|---|
| (i) MOV AL, [0401 H] | |
| (ii) ADD AX, [SI] | |
| (iii) XCHG AX, BX | |
| (iv) MOV AL, 58H. | 4 |
- (Q) Explain MUL & IMUL instruction of 8086 μ p. 4
- (R) Write an ALP to transfer 16-bit numbers 1000 H, 2000 H, 3000 H in register AX, BX & DX respectively.
The data segment is starting from 4000 H. 4

EITHER

4. (A) State the salient features of 8051 microcontroller. 4
- (B) Explain the function of status bits RS_1 & RS_0 of 8051 microcontroller. 3
- (C) Explain the function of SP, PC and DPTR of 8051 microcontroller. 5

OR

- (P) Draw the block diagram of 8051 microcontroller and explain the function of ALU, ACC and Reg B. 7
- (Q) What is Register Bank ? Explain Register Bank of 8051 Microcontroller. 5

EITHER

5. (A) Explain Immediate and Direct addressing modes of 8051 MCS. 4
- (B) Explain data transfer and Arithmetic instruction of 8051 MCS. 4
- (C) Draw the flow chart and write a program to multiply 09H to 08H and store the result in register R_7 . 4

OR

- (P) Write ALP to subtract E1H from F1H and store result in register R0. 4
- (Q) Explain Register and Register indirect addressing mode of 8051 MCS with suitable example. 4
- (R) Explain logical instruction with suitable example. 4

EITHER

6. (A) Explain Idle and Power down mode of 8051 MCS. 6
- (B) Explain Simplex, half & full duplex transmission. 6

OR

- (P) Explain interfacing of RS 232 with 8051 MCS. Draw suitable diagram. 6
- (Q) What is power mode control register (PCON) of 8051 MCS ? Explain. 6

EITHER

7. (A) Draw block diagram of AVR AT Mega 32 A MCS and explain each block. 8
- (B) Explain EEPROM data memory of AT Mega 32A MCS. 4

OR

- (P) What are the different power saving options in AVR AT Mega 32A MCS ? Explain. 6
- (Q) Explain Status Register of AVR AT Mega 32A MCS. 6

