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 µp have _____ operating modes.
(a) 5 (b) 4
(c) 2 (d) 8
(ii) IC 8086 µp 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 µp 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 µp.
(iii) What is PC in 8086 microprocessor ?
(iv) State the addressing modes of MOV DPTR# 1234H.

EITHER

2. (A) Explain operating modes of 8086 µp. 6
(B) What is use of memory segmentation in 8086 µp ? Explain the various segment registers. 6

OR

(P) Explain general purpose registers of 8086 µp. 6

(Q) Explain the function of following signals :

(i) M/$\overline{IO}$ (ii) MN/$\overline{MX}$

(iii) $\overline{RD}$ (iv) $\overline{WR}$ 4

(R) What is the function of instruction queue in 8086 µp ? 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 µp 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 µp. 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