

- (d) Explain the interfacing of microcontroller with RS - 232 standard devices. 6

7. EITHER

- (a) What is AVR ? Explain ALU section of Atmega 32A AVR. 6

- (b) Explain EEPROM data memory of AVR. 6

OR

- (p) Explain various power saving modes of Atmega 32A. 6

- (q) Explain general purpose register of Atmega 32A. 6

AP-528

B.Sc. Part-III (Semester – VI) Examination

6S - ELECTRONICS

(Advanced Microprocessor & Microcontroller)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) Question No. 1 is compulsory .
(2) Draw neat diagram whenever necessary.

1. (A) Fill in the blanks :-

- (i) The 8086 microprocessor uses ____ address lines.
- (ii) MOV AX,CX is an example of ____ addressing mode.
- (iii) The microcontroller 8051 has ____ ports.
- (iv) The 8051 microcontroller has ____ byte internal RAM. 2

(B) Choose the correct alternative -

- (i) The maximum capacity of a segment in 8086 microprocessor may be up to ____.
- (a) 128 bytes (b) 64 kbytes
- (c) 1m bytes (d) 64 bytes

(ii) This flag is used in string operation of 8086 micro-processor :

- (a) Direction flag (b) Trap flag
(c) Overflow flag (d) Interrupt enable flag.

(iii) The microcontroller 8051 has ____ 16 bit timer counter registers.

- (a) ONE (b) TWO
(c) THREE (d) FOUR

(iv) The ____ is not a port of the SFR in 8051 microcontroller.

- (a) TCON (b) PC
(c) PSW (d) IE

2

(c) Answer the following questions :

- (i) Which pin decides the operating mode of 8086 microprocessor ?
(ii) What is AAA instruction of 8086 microprocessor ?
(iii) Write an instruction using 8051 microcontroller which loads immediate data 10H to the memory location 10H ?

(iv) What is DPTR in 8051 microcontroller ?

4

(c) Write Assembly Language Program using 8051 microcontroller to add two 16 bit data. Let the two numbers be 1234H and 5678H. Store the result of addition in the DPTR Register.

4

OR

(p) Explain the operation of the following instructions of 8051 microcontroller.

(i) SWAP A (ii) CLR P2.3

4

(q) Write Assembly Language program using 8051 microcontroller to find one's complement of the number. Assume that the number is stored in register R3 of the register bank 0.

4

(r) Explain arithmetic instruction of 8051 microcontroller.

4

6. EITHER

(a) Explain the basics of serial communication interfacing with 8051 microcontroller.

6

(b) Explain power reduction modes used in 8051 microcontroller.

6

OR

(c) Explain the interfacing of DAC with 8051 microcontroller.

6

2. EITHER

- (a) Draw block diagram of 8086 microprocessor and explain the function of BIU and EU section. 7
- (b) How many operating modes do 8086 have ? Explain them in brief. 5

OR

- (c) Explain conditional and control flags in 8086 microprocessor. 7
- (d) Explain general purpose registers used in 8086 microprocessor. 5

EITHER

3. (a) Explain different addressing modes of 8086 microprocessor . Give one example of each. 6
- (b) Explain MUL, IMUL, instructions of 8086 microprocessor. 6

OR

- (c) Write an Assembly Language Program to add two 16- bit data. Let the data be 1234H, 2345H. Draw flow chat. 6

(d) Explain the operation of following instructions in 8086 microprocessors :

(i) ADC [Bx], 1234H (ii) MOVAX, BX

(iii) SBB-AX, DX

6

EITHER

4. (a) What is microcontroller ? How it is different from microprocessor ? 4
- (b) List the important features of 8051 microcontroller. 4
- (c) Explain the register bank of 8051 microcontroller. 4

OR

- (p) Draw block diagram of 8051 microcontroller. 4
- (q) Explain different flags used in 8051 microcontroller. 4
- (r) Explain internal RAM structure of 8051 micro controller. 4

EITHER

5. (a) Explain different addressing modes of 8051 microcontroller. 5
- (b) Explain ,MULAB, DIV AB instructions of 8051 microcontroller. 3