OR

(P) Explain simplex, half and full duplex transmission. 6

(Q) Explain the interfacing of RS 232 with 8051 microcontroller with suitable diagram. 6

EITHER

7. (A) Explain the status register of AVR AT mega 32 A microcontroller. 6

(B) Explain various power saving modes of AVR AT mega 32 A microcontroller. 6

OR

(P) Explain X-register, Y-register and Z- register used in AT mega 32A. 6

(Q) Explain SRAM data memory map. 6

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 appropriated word :

(i) 8086 microprocessor is _____ pin IC.

(ii) PSW stands for _____.

(iii) 8086 has _____ bit flag register.

(iv) AT mega 32A consists of _____ type of general purpose register. 2

(B) Choose correct alternative :

(i) 8086 microprocessor have _____ operating modes.

(a) 5

(b) 2

(c) 4

(d) 16

(ii) IC 8255 is used for _____.

(a) Connector

(b) Interfacing

(c) I/O devices

(d) Interrupt

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

(a) One

(b) Two

(c) Three

(d) None

(iv) Memory of 8086 microprocessor is divided in _____ segments.

(a) Two

(b) Eight

(c) Four

(d) Sixteen 2

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

(a) State memory capacity of 8086 microprocessor.

(b) List the general purpose register in AVR at mega 32 A.

(c) State the addressing mode of instruction MOV AL, [0401]

(d) What is the use of source Index register ? 4

EITHER

5. (A) Explain arithmetic and logical group of instructions with suitable example. 8

(B) State addressing mode of the following instructions :

(i) MOV RO, 14H

(ii) MOV DPTR, #1234 H

(iii) DAA

(iv) MOV@ RO, 85 4

OR

(P) Draw a flow chart and write a program to find 2's complement of the number. Assume that the number is stored in register R3 of the register bank O. 6

(Q) Explain AJUMP, LJUMP and SJUMP instructions of 8051 microcontroller. 6

EITHER

6. (A) What is meant by serial and parallel communication ? State the advantages and disadvantages of serial communication. 6

(B) Explain the working of PCON register with suitable format. 6

EITHER

2. (A) Draw and explain block diagram of 8086 microprocessor. 8

(B) Explain general purpose register of 8086 μp. 4

OR

(P) Explain the functions of :

(i) Instruction pointer

(ii) Stack pointer

(iii) ALU. 6

(Q) Explain the concept of memory segmentation in 8086 microprocessor with its advantages. 6

EITHER

3. (A) Explain the classification of 8086 instructions with one example of each. 8

(B) Explain the following instructions in detail :

(i) MOV AX, [BX]

(ii) PUSH CX. 4

OR

(P) Draw flow chart and write a program to multiply 16 bit data at AX = 4561 H

CX = 1205 H 6

(Q) State the addressing mode of the following instructions :

(i) MOV CX, SI

(ii) MOV [0231], 4356

(iii) ADD CX, DX

(iv) ADD AX, [SI + 05]. 4

(R) Write the instruction for 8086 microprocessor which will perform the indicated operation :

(i) Multiply AL times BL

(ii) Increment the content of CX by 1. 2

EITHER

4. (A) What is microcontroller ? Differentiable between microprocessor and microcontroller. 6

(B) Explain flag register of 8051 microcontroller. 6

OR

(P) Explain special function register (SFR) of 8051 microcontroller. 6

(Q) What is meant by bit addressable and byte addressable register ? 3

(R) State the important features of 8051 microcontroller. 3