END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] MAY-JUNE 2018

Paper Code: IT 302

Subject: Microprocessor

Time : 3 Hours

Maximum Marks :75

Note: Attempt five questions in all including Q. No. 1 which is compulsory. Select one question from each unit.

Q1. Answer the following questions:

a) While 8086is executing a divide instruction which causes a divide-by-zero-error and a rising edge of NMI signal is received at the same time. Explain whether a type-0 or type-2 interrupt service procedure will be executed. **(3)**

b) What are different addressing modes in 8086? **(3)**

c) Explain the assembler directives EXTRN, EQU, EVEN. **(3)**

d) Use 8086 string instructions to write an assembly language program to match a password string. **(3)**

e) Explain mode, command and status words of 8251 and their use in serial communication. **(3)**

f) Explain the conditional jump instructions JAE, JPO, JLE and JGE of 8086 microprocessor. **(4)**

g) Explain 8-bit and 16-bit signed division instructions in 8086. **(6)**

Unit-I

Q2. Discuss evolution of 8086 to Pentium Processors in terms of register size, clock speeds, bus widths, memory access and instruction set capabilities and salient architectural features. **(12.5)**

Q3. Draw the pin-out of 8085 microprocessor and explain the internal architecture and instructions of 8-bit microprocessor 8085. **(12.5)**

Unit-II

Q4. a) What is the purpose of Direction and Trap flag in 8086? **(2)**

b) Explain the advantage of segment: Offset approach for accessing memory in 8086 microprocessor. **(2)**

c) Explain the function of following 8086 pins. **(5)**
i) HOLD/HLDA
ii) BHE
iii) ALE
iv) INTR/INTA
v) Ready

d) With suitable diagram explain how 8086 address and data buses are demultiplex or derived. **(3.5)**

Q5. a) Draw memory read and memory write cycle timing diagram for maximum mode operation of 8086. **(8)**

b) Compare 8086 and 8088 microprocessors. **(4.5)**

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Unit-III

Q6. a) Write an 8086 Assembly Language Program to find number of positive and negative integers from a list of signed integers. **(3)**

b) If register AX=1001H and register DX=20FFH, what will be the contents of flag register bits Carry (C), Auxiliary Carry(C), sign(S), Zero(Z) and overflow (O) after ADD AX, DX executes. What will be contents of AX and DX register? **(3)**

c) Write a sequence of 8086 assembly language instructions that clear that the leftmost three bits of DH register without changing the remainder of DH and store the result in BH register. **(2)**

d) Write an 8086 Assembly Language Program to compare whether two strings stored in memory are equal or not. **(4.5)**

Q7. a) What is the difference between AND and TEST instruction in 8086? **(2)**

b) What condition(s) will terminate the repeated string instruction REPNE SCASB? **(2)**

c) With suitable examples illustrate the difference register relative and base plus index addressing modes. **(6)**

d) What is an emulator and debugger? **(2.5)**

Unit-IV

Q8. a) What is the purpose of tag register in numeric processor 8087? **(2.5)**

b) Explain the various status bits of status register of numeric processor 8087. **(5)**

c) Explain following instructions of 8087 numeric processor. **(5)**
i) FLD
ii) FST
iii) FSQRT
iv) FCOM
v) FABS

Q9. Explain signal definitions for 8255 Mode 1 strobed input and Mode1 strobed output operations and how these signals can be used to interface a keyboard and printer. **(12.5)**

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