



Register Number:

DATE: 04-12-2020

**ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27**  
**B.Sc. ELECTRONICS – V SEMESTER**  
**SEMESTER EXAMINATION: NOV/DEC 2020**  
**EL: 5218 - MICROPROCESSORS**

Time- 2 1/2 hrs

Max Marks-70

This paper contains TWO printed pages and THREE parts

**PART A**

Answer any five

5X8=40

1. a. Write a note on Hyper Thread Technology.  
b. Write a note on Computer Buses. 5+3
2. Draw the internal architecture block diagram of Intel 8086 microprocessor and define Bus Interface Unit, Execution Unit and Flag Register.
3. a. Explain Interrupt Response Sequence of 8086 with a proper diagram.  
b. Write a note on Programmable Interrupt Controller Intel 8259. 4+4
4. Write any four hardware features each of
  - i. Intel 80286 processor
  - ii. Pentium Pro processors4+4
5. a. Write a note on Composing memory.  
b. Write any four differences between DRAM and SRAM. 4+4
6. a. Define parallel computing. What is MIMD classification of parallel computer architecture.  
b. Explain accessing of even and odd memory bank with a proper diagram. 4+4
7. a. Explain any four addressing modes of Intel 8086 ALP with proper example.  
b. Write a note on special Pentium registers. 4+4

**PART B**

Answer any five

5X4=20

8. Draw memory read timing diagram for maximum mode of Intel 8086 microprocessor.
9. If  $-2472D$  is added to  $+495D$  after converting into hexadecimal numbers and result is stored in AX register. The result will affect the flag register. Work out the operation and give status of all the condition flags after the operation is performed. What will be stored in the flag register considering all machine control and don't care bits as 0.

10. Work out the operation to generate the 20 bit physical address for the following:  
 i. DS = 1000H; SI = 2100H  
 ii. CS = 5000H; IP = 19A4H
11. Write an ALP to find the square and cube of a given 8 bit number.
12. Write an ALP for Intel 8086 to find the average of ten given 8 bit numbers.
13. Write an ALP for Intel 8086 to find the number of ones and zeros in a given 16 bit number.
14. a. What would be the logical address that contains address of ROM BIOS routine for INT16H? (Write the calculation).
- b. If initially the stack top points to a memory location 52050H and the next 16 bit stack operations are as given below. What will be the stack top value after the given operations are performed? Also, make a table indicating the memory location and stored value in the stack segment.

```
MOV AX, 7134h
PUSH AX
MOV BX, 5678h
PUSH BX
```

2+2

### PART C

Answer any five

5X2=10

15. As a processor buyer, would you go for processor which has more cores and slower clock speed or less cores and higher clock speed? Justify your choice.
16. Assume microprocessor 8086 is writing an 8-bit data on to a memory device in minimum mode and an interrupt request is sent during the second clock cycle. What will be the status of the following signals during the given condition?
- i. ALE ii.  $\overline{\text{BHE}}$  iii.  $\overline{\text{DT/R}}$  iv.  $\overline{\text{DEN}}$  v.  $\overline{\text{WR}}$  vi. HOLD vii. INTR viii.  $\overline{\text{INTA}}$  ix.  $\overline{\text{M/IO}}$  x.  $\overline{\text{MN/MX}}$
17. Differentiate between SUB and CMP commands.
18. What is super scalar architecture?
19. a. The direct memory access controller IC number is .....
- b. Give any four examples where Artificial intelligence technology is used.
20. Name the two versions of NVRAM and write one salient feature of each.
21. Which is the fastest level of cache memory? Define hit ratio in context to cache memory.