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**[5459]-188**

**S.E. (Computer Engg.) (II Sem.) EXAMINATION, 2018**  
**MICROPROCESSOR AND INTERFACING TECHNIQUES**  
**(2012/2015 PATTERN)**

**Time : Two Hours**

**Maximum Marks : 50**

- N.B. :—** (i) Answer total 4 questions 1 or 2, 3 or 4, 5 or 6, 7 or 8.  
(ii) Neat diagram must be drawn wherever necessary.  
(iii) Figures to the right indicate full marks.

1. (a) Draw and explain architecture of i7 processor. [6]  
(b) Differentiate between .COM and .EXE programs. [3]  
(c) Explain the following addressing modes with example : [3]  
(i) Based scaled indexed addressing mode  
(ii) Direct addressing mode  
(iii) Register indirect addressing mode.

*Or*

2. (a) Write initialization instruction for 8259 interrupt controller to meet the following specification. Assume port addresses 40H and 41H. [4]  
(i) Interrupt type 64

P.T.O.

- (ii) Level triggered, single, ICW<sub>4</sub> needed
  - (iii) Mask interrupts IR<sub>2</sub> and IR<sub>5</sub>
- (b) Write a short note on TSR and PSP. [4]
- (c) Draw and explain write timing diagram of 8086 minimum mode. [4]
- 3.** (a) Draw and explain block diagram of 8255 PPI. [3]
- (b) Enlist difference between synchronous and asynchronous communication. [3]
- (c) With proper format explain the following control word of 8279 : [6]
- (i) Display write inhibit/blanking
  - (ii) Keyboard/Display mode set
  - (iii) Write display RAM.

*Or*

- 4.** (a) Draw and explain showing how a DMA controller is interfaced with microprocessor system. [4]
- (b) Calculate count value to generate square wave of 1 ms with input frequency of 750 kHz using 8253. Design appropriate control word for counter 1. [4]

- (c) Define the following terms : [4]
- (i) Resolution
  - (ii) Accuracy
  - (iii) Monotonicity
  - (iv) Conversion time.
5. (a) Draw and explain control and status word of 8087. [6]
- (b) Draw the schematic of 8086 microprocessor operating in maximum mode with all required support chips. Explain working in detail. [7]

*Or*

6. (a) Explain the following instructions of 8087 with example : [3]
- (i) FSQRT
  - (ii) FLDPI
  - (iii) FPTAN.
- (b) Explain any *four* data types of 8087 with proper format. [4]
- (c) Draw 8086 based minimum mode system interfaced with 4×4 matrix keyboard using 8255 PP1 using port A. Assume the following addresses : Port A—61H, Port B—63H, Port C = 65, CWR = 67H. [6]

7. (a) Write feature of i5 processor. [4]
- (b) Write a short note on serial ATA Controller and Quick Path Interconnect. [4]
- (c) Draw and explain block diagram of ICH10 configuration. [5]

*Or*

8. (a) Draw and explain block diagram of Intel i5 processor. [7]
- (b) Explain the features of 82801 ITR I/O controller hub. [4]
- (c) Draw basic blocks of X58 chipset. [2]