

Code No: 841AB

**R17****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****MCA I Semester Examinations, January - 2020****COMPUTER ORGANIZATION****Time: 3hrs****Max.Marks:75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A****5 × 5 Marks = 25**

- 1.a) Convert the decimal number 5647 to i) BCD ii) Excess-3 code. [5]
- b) What is locality of reference? [5]
- c) Discuss the function of instruction queue in 8086. [5]
- d) What is the need for DMA transfer? [5]
- e) What are instruction hazards? [5]

**PART - B****5 × 10 Marks = 50**

2. Simplify the Boolean expression using K-MAP  
 $F(A,B,C,D) = \sum m(1,2,3,8,9,10,11,14) + d(7,15)$ . [10]  
**OR**
3. Design the combinational circuit of Binary to Excess-3 code convertor. [10]
4. Discuss about direct and set-associative mapping with examples. [10]  
**OR**
5. A two way set associative cache memory uses blocks of four words. The cache can accommodate a total of 2048 words from the main memory. The main memory size is 128 K\*32.  
a) Formulate all pertinent information required to construct the cache memory.  
b) What is the size of the cache memory? [10]
6. Explain in detail the register organization of 8086. [10]  
**OR**
7. Write an assembly language program to concatenate two strings. [10]
8. Describe in detail about IOP Organization. [10]  
**OR**
- 9.a) Discuss the differences between subroutine and interrupt service routines.  
b) Discuss the design of a typical input or output interface. [10]
- 10.a) Describe in detail about pipeline processing.  
b) Explain in detail about data hazards. [10]  
**OR**
11. Describe the architecture of a shared memory multiprocessor. [10]