

Seat No. : \_\_\_\_\_

**NQ-114**

November-2017

**B.C.A., Sem.-III**

**CC-201 : Computer Organization and Advanced Microprocessors**

**Time : 3 Hours]**

**[Max. Marks : 70**

- Instructions :** (1) Begin new answer on a new page.  
(2) Draw diagrams wherever necessary.  
(3) Figures to the right indicate full marks.

1. (A) Answer the following :

- (1) Explain Von Neumann Architecture with block diagram. 4  
(2) Write a note on interrupts and its types. 3

**OR**

Answer the following :

- (1) Write a note on device controller. 4  
(2) Discuss macro and micro-operations. 3

(B) Answer the following :

Explain instruction format with example. 7

**OR**

Answer the following :

- (1) Write a note on bus with its usage. 4  
(2) Discuss CPU registers. 3

2. (A) Answer the following :

Define Multiplexer. Explain 4 X 1 MUX with appropriate diagrams. 7

**OR**

Answer the following :

Define Encoder. Write a note on Decimal-to-BCD Encoder.

(B) Answer the following :

- (1) Draw logic circuit and truth table of JK flip-flop. 4
- (2) Discuss normalization of floating point numbers with a suitable example. 3

**OR**

Answer the following :

- (1) Draw schematic diagram and truth table of full adder. 4
- (2) Describe IEEE representation of single precision floating point numbers. 3

3. (A) Answer the following :

- (1) Write a note on associative memory. 4
- (2) Discuss any two memory parameters. 3

**OR**

Answer the following :

- (1) Write a note on instruction prefetch. 4
- (2) Describe memory classification based on access methods. 3

(B) Answer the following :

What is mapping ? Write a note on direct mapping in cache memory. 7

**OR**

Answer the following :

Write a note on cache coherence with its solution.

4. (A) Answer the following :

Compare CISC and RISC processors. 7

**OR**

Answer the following :

Classify and explain various addressing modes of 8086.

(B) Answer the following :

- (1) Write a note on functional unit of 8086. 4
- (2) Discuss the features of Intel i7 processors. 3

**OR**

Answer the following :

- (1) Describe scalar and super scalar processors. 4
- (2) Write a note on Micro controllers. 3

5. Choose the correct option :

- (1) \_\_\_\_\_ register stores the result of the last processing step of the ALU.  
 (a) Accumulator (AC)  
 (b) Instruction Register (IR)  
 (c) Memory Buffer Register (MBR)  
 (d) Memory Address Register (MAR)
- (2) The ratio of pulse width to time period is called \_\_\_\_\_.  
 (a) Clock frequency  
 (b) Clock cycle  
 (c) Duty cycle  
 (d) Clock pulse
- (3) A program that determines how a computer will communicate with a peripheral device is known as \_\_\_\_\_.  
 (a) System Manager  
 (b) Communication Manager  
 (c) Memory Controller  
 (d) I/O Controller
- (4) In IEEE representation of single precision floating point number, mantissa is of \_\_\_\_\_ bits.  
 (a) 32  
 (b) 23  
 (c) 52  
 (d) 64
- (5) When subtraction is performed in 2's complement system, if carry is generated, then it is \_\_\_\_\_.  
 (a) Added to minuend  
 (b) Dropped  
 (c) Subtracted from minuend  
 (d) None of the above
- (6) \_\_\_\_\_ bit is used to represent negative sign in signed magnitude form.  
 (a) -1  
 (b) -0  
 (c) 0  
 (d) 1
- (7) \_\_\_\_\_ is the access time taken by the first access in a series of accesses.  
 (a) Cycle time  
 (b) Frequency  
 (c) Latency  
 (d) Bandwidth
- (8) The performance of the cache is measured in terms of \_\_\_\_\_ ratio.  
 (a) Hit  
 (b) Miss  
 (c) Read  
 (d) Write
- (9) Cycle time ( $T_c$ ) = \_\_\_\_\_ + Recovery Time ( $T_r$ )  
 (a) Access time ( $T_a$ )  
 (b) Turn around time (TA)  
 (c) Frequency (F)  
 (d) Latency time (Lt)
- (10) A \_\_\_\_\_ processor allows instruction level parallelism within a single processor.  
 (a) Vector  
 (b) Scalar  
 (c) Superscalar  
 (d) Array

- (11) In \_\_\_\_\_ addressing mode, operand is a part of the instruction.  
(a) register (b) indexed  
(c) direct (d) immediate
- (12) \_\_\_\_\_ address determines how far is the memory location from the starting address of the segment register.  
(a) Status (b) Offset/Effective  
(c) Instruction Pointer (d) Program Counter
- (13) \_\_\_\_\_ is two-state device which offers basic memory cell for sequential logic operations.  
(a) Half adder (b) Multiplexer  
(c) Encoder (d) Flip-flop
- (14)  $1101.11 \times 1.11 =$  \_\_\_\_\_  
(a) 111111.100 (b) 11000.0001  
(c) 1101.1100 (d) 101010.111
-