

Seat No. : _____

N24-109

December-2014

BCA., (Sem-III)

CC-201 : Computer Organization & Advanced Microprocessor

Time : 3 Hours]

[Max. Marks : 70

1. (A) What is an interrupt ? What is ISR ? Explain maskable and non-maskable interrupts. 7

OR

Answer the following :

- (i) Explain Von Neumann architecture. 4

- (ii) What is instruction cycle ? Explain its phases. 3

- (B) List and explain CPU registers. 7

OR

Draw bus structure of a microprocessor and explain all the system buses and bus control signals.

2. (A) Explain 1's and 2's complement methods of representing fixed-point numbers with example. 7

OR

Draw the truth table and block diagram for X-NOR gate, D flip flop, full adder and de-multiplexer.

- (B) Explain how floating point number is represented ? Also explain normalization with example. 7

OR

Draw the truth table and block diagram for NAND gate, NOT gate, RS flip flop and encoder.

3. (A) What is cache memory ? Explain direct mapping in detail. 7

OR

Answer the following :

(i) Explain Cache coherence 4

(ii) What is the use of Virtual memory ? Also define : page swapping and page fault. 3

(B) What is cache replacement ? List cache replacement algorithms & explain any three. 7

OR

Write short note on :

(i) Memory parameters. 4

(ii) Cache write through policy. 3

4. (A) Draw the pin-in and pin-out diagram for 8086 microprocessor and explain function of maximum mode pins. 7

OR

How is the software interrupt generated ? Explain any three type of software interrupts.

(B) Answer the following :

(i) Discuss immediate and register indirect addressing modes of 80806 microprocessor. 4

(ii) Write a short note on Mobile processors. 3

OR

(i) Explain in brief BIU and EU.

(ii) Write a short note on Atom processor.

5. Answer the following :

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- (i) An 8-bit register contains the binary value 11011001. What is the register value after logical shift right ?
- (ii) If n bits are used to represent the magnitude, the range of numbers that can be represented by the signed magnitude form numbers that can be represented by the signed magnitude form is (-2^n) to $(+2^n - 1)$. [True/False].
- (iii) _____ is the fastest in speed. [Register/Cache memory/Main memory/Secondary memory]
- (iv) Define : Super scalar processor.
- (v) A clock signal has a frequency of 10 MHz with a duty cycle of 50%. Calculate its time period and the pulse width.
- (vi) _____ is used to produce one output from many inputs. [D flip flop/Multiplexer/Demultiplexer]
- (vii) If a CPU searches for an item in the Cache memory and if it finds the required item, it is called cache _____ situation.
- (viii) A digital computer built on a single chip is called _____ microcontroller.
- (ix) To support a device with the system, we required which of the following :
 - (a) A device controller which issues command to the device.
 - (b) A device interface cable which physically connects the device to the device controller.
 - (c) A device driver.
 - (d) All of the above.
- (x) _____ gate gives the output as 1 when at least one input is 1. [OR/AND/XOR].
- (xi) _____ and _____ are the two limitations of main memory.
- (xii) In vector processor to perform vector computation, an instruction used to perform the same operation over an array of operand is called a vector instruction. [True/False]
- (xiii) During _____ state, the CPU doesn't perform any instruction cycle. [Running/Halt]
- (xiv) Draw the memory classification diagram.