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COMPUTER ORGANIZATION AND ARCHITECTURE - (BCA-102)

Duration: 2 Hours

Total Marks: 50

- Instructions:** 1) All Questions are **Compulsory**.
 2) Figures to the right indicate Full Marks.
 3) Write your **Seat number** in the space provided on the top of this page.
 4) Start each new question on a fresh page

Q.1 Answer the following

A) Define the following:

Marks (5)

- i) MAR register
- ii) Micro-programme
- iii) Immediate addressing mode
- iv) Flag Register
- y) Universal Gates

B) State or False for the following statements

Marks (5)

- 1) Every instruction has corresponding micro-programme
- 2) 2's complement performs subtraction as a addition .
- 3) External devices can generate interrupt signal.
- 4) BIOS is a firmware that contains micro-programmes
- 5) Every programme is converted into assembly language programme .

Q.2 Answer the following

a) Write in one or two lines on any two functions of device controller .

(2)

b) Explain in brief about internal storage concept of hard disk drive .

(3)

c) Solve the following:

(5)

Convert (i—iv) as instructed

- i) $(267)_{10}$ to Binary number ii) $(389)_{10}$ to Octal number
- iii) $(704)_h$ to binary number iv) $(5061)_8$ to Hexadecimal number
- v) Subtract decimal number 16 from 52 .Use Binary 2's complement for subtraction.

Q.3 Answer the following

Q.3 Answer the following

- a) Give four points of difference between magnetic storage and optical storage (2)
- b) Draw a neat diagram of Von Neuman Architecture and explain its working (3)
- c) Explain Memory hierarchy in descending order of their speed . (5)

Q.4 Answer the following

- a) What would be the output of an instruction ' RCL AX , 05 ' . Assume that AX = 5028h and CF = 1 (2)
- b) Give suitable examples to illustrate direct addressing mode , register to register addressing mode and Indirect addressing mode . (3)
- c) Explain programmed driven I/O technique (5)

Q.5 Answer the following

- a) Give four points of differences between hardwired control unit and micro-programmed control unit (2)
- b) Write an assembly language programme to obtain an average of three numbers . (3)
- c) Draw a neat diagram of Micro-programmed control unit and explain its working . (5)