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F.Y.B.C.A SEM I, End Semester Examination, May 2016 (Supplementary)

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

Q1. A)Answer the following in one or two lines **(5 marks)**

1. State the functions of MAR and MBR
2. Differentiate between computer architecture and computer organization.
3. Draw the DMA block diagram and explain .
4. Draw a neat diagram and explain the working of Von Neumann Architecture.
5. State the functions of I/O AR and I/O BR.

Q1.B)Solve the following **(5 marks)**

1. Using 2's compliment arithmetic perform 13-7 operation using 8 bits.
2. 2's compliment of a certain number is 110010110. What is the number in binary and decimal?
3. Convert $(4A7C)_{16}$ to $()_8$
4. Explain with diagram the 32 bit floating point notation. Specify the sign ,exponent, fraction bit length.
5. Give the 32 bit floating point representation for 16 5/4. Specify e and e'.

Q2.Answer the following

1. What is an addressing mode? Explain the indirect addressing mode. **(2marks)**
2. Explain with a diagram the memory hierarchy according to its speed ,capacity, performance. **(3marks)**
3. Draw a diagram to explain the functioning of micro programmed control unit. **(5marks)**

Q3.Answer the following

1. With a neat diagram explain the basic instruction cycle. **(2marks)**
2. Explain the block diagram of control unit. **(3marks)**
3. Write a short note on programmed I/O and interrupt driven I/O **(5marks)**

Q4.Answer the following

1. Write a short note on bus interconnection. **(2marks)**
2. Define an interrupt. List the different classes of interrupts. Draw a neat sketch Of the instruction cycle with interrupts. **(3marks)**
3. Explain the Set Associative mapping function with a diagram. How does it differ from Direct and Associative mapping. **(5marks).**

Q5. Answer the following.

1. What is the purpose of replacement algorithm and write policy. **(2marks)**
2. Explain with a diagram the I/O module structure . **(3marks)**
3. Explain the 5 elements of bus design . **(5marks).**