Registration no: | | | | | | | | | | |

Total Number of Pages: 01 **B.Tech.**
PCCS4301

5th Semester Back Examination 2017-18
Computer Organization
BRANCH: CIVIL, CSE, EEE, FASHION, FAT, IT, ITE
Time: 3 Hours
Max Marks: 70
Q.CODE: B222

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions:** **(2 x 10)**

a) Distinguish between computer organization and computer architecture?
b) What are the different functional units of computer?
c) Define instruction format with example?
d) What is the difference between arithmetic shift and logical shift?
e) A CPU has 12bit address for memory address. What is the memory addressability of CPU? If the memory has total capacity of 16kB, what is the word length of memory?
f) Define locality of reference?
g) List two major functions of I/O module?
h) What is the overflow rule in arithmetic addition and subtraction?
i) What is the advantage of autoindexing?
j) Specify the types of DMA transfer techniques?

Q2 **a)** Explain the steps of Fetch, Decode and Execution of a program in a computer using appropriate block diagram? **(5)**
b) State the basic organization of a computer using a block level diagram? **(5)**

Q3 **a)** Compare RISC and CISC architectures? **(5)**
b) Write the Booth Multiplication algorithm with flowchart? **(5)**

Q4 **a)** List relative merits and demerits of different addressing modes? **(5)**
b) Represent the number 0.5 in IEEE 64-bit floating-point format? **(5)**

Q5 **a)** Explain the set-associative cache mapping technique? **(5)**
b) Explain the Hardware implementation of multiplication in signed-magnitude data? Using this multiply two numbers (Multiplicand is 23 and Multiplier is 19)? **(5)**

Q6 **a)** What is Input/output interface? Draw and explain the block diagram of Input/output interface? **(5)**
b) Why does increasing the capacity of cache tend to increase the hit rate? **(5)**

Q7 How do you measure performance of a computer? What is the difference between Relative Performance and CPU Performance? Suppose we have two implementations of the same instruction set architecture. Computer A has a clock cycle time of 250 ps and a CPI of 2.0 for some program and computer B has a clock cycle time of 500 ps and a CPI of 1.2 for the same program. Which computer is faster for this program and by how much? **(10)**

Q8 **Write short answer on any TWO:** **(5 x 2)**

a) Virtual Memory
b) DMA
c) Design of ALU
d) Interrupt