Government Degree College, Baramulla (Autonomous)

Term End External Examination 4th Semester (Session- July 2024)

Subject: Social Work

Course No and Title: CAPC2422M/Computer Organisation and Architecture

Time: 2.15 hours Max Marks:100 Min. Marks:40

Section A: Objective Type Questions

Q1. Choose the appropriate Answer: (8x1.5=12)

i. What can be used to store one or more bits of data, which can accept and/or transfer information serially?

A Parallel registers **B** Shift registers

C Counters **D** None of the above

ii. 8 An address in main memory is called

A Physical address **B** Logical address

C Memory address **D** Word address

iii. How many address lines and input-output data lines are needed for 64k x 8 memory unit?

A 16 address lines, 3 data lines **B** 6 address lines, 3 data lines

C 10 address lines, 8 data lines **D** 16 address lines, 8 data lines

iv. Micro program is a

A Name of the source program in micro computers **B** Set of micro instructions that that defines the individual operation in response to a machine language instructions

C A primitive form of macros used in assembly language programing **D** A very small segment of machine code

v. Sign magnitude is a very simple representation of ?

A Positive number **B** Negative numbers

C Infinity **D** Zero

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vi. Sign bit 1 represents

A Positive number **B** FALSE

C TRUE **D** Negative Number

vii. The method which offers higher speeds of I/O transfers is _____

A Interrupts **B** Memory mapping

C Program-controlled I/O **D** DMA

viii. Each stage in pipelining should be completed within _____ cycle.

A 1 **B** 2

C 3 **D** 4

Section-B: Descriptive Type Questions (Short Type)

Q2: Answer all the Questions (8 x 4 =32)

i. How computer organisation is different from computer architecture

ii. Write a short note on bus arbitration

iii. List out the Register transfer notations for Arithmetic Micro Operations.

iv. What is Micro-program Sequencing?

v. What is the significance of the mantissa and exponent in a floating point number representation?

vi. How does floating point representation handle negative numbers?

vii. Explain the following

a. Register Addressing Mode
b. Memory Indirect Addressing Mode
c. Indexed Addressing Mode

viii. Draw a space-time diagram for a six-segment pipeline showing the time it takes to process eight tasks

Section – C: Descriptive Type Questions (Medium Type)

Answer all the questions: (4 x 7=28)

Q 3. Explain in detail about various arithmetic, logic and shift micro operations.

OR

What is Instruction code in Computer Architecture? Define the different instruction code formats of a basic computer

Q 4. Demonstrate the general configuration of Micro programmed Control unit with a neat block diagram.

OR

Explain about address sequencing in control memory with neat diagrams?

Q 5. Explain the IEEE 754 standard for floating point computation?

OR

Explain the difference between single precision and double precision floating point numbers?

Q6. Explain the mechanism of Asynchronous data transfer

OR

With the help of flow chart explain how the instruction cycle in the CPU can be processed with a four segment Pipeline.

Section – D: Descriptive Type Questions (Long Type)

Answer any two of the following: (2 x 14=28)

Q 7. Explain the phases involved in Instruction cycle with the help of necessary timing diagrams.

Q 8. Explain the different addressing modes.

Q 9. Describe Booth Multiplication Algorithm and draw Flowchart.

Q 10. With the help of a block diagram. Explain DMA transfer in detail.