Code No: 20600E Reg. No.....

Sub. Code: SMCS32

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021

THIRD SEMESTER

COMPUTER SCIENCE-CORE

COMPUTER ARCHITECTURE

(For those who joined in July 2017 onwards)

Time: Three hours Maximum:75 marks

Part – A (10 X 1 = 10 marks)

Answer all questions, choose the correct answer

1. Specific purpose storage location is termed as
   (a) register (b) executed register
   (c) timed register (d) sequenced register
2. _____ is the step during which a new instruction is read from the memory.
   (a) decode (b) fetch
   (c) execute (d) none of these
3. The stack is accessed using
   (a) SP register (b) SS register
   (c) SP and SS register (d) None of the these
4. The addressing mode(s), which uses the PC instead of a general purpose register is _____
   (a) Indexed with offset (b) Relative
   (c) Direct (d) Both indexed with offset and direct
5. Booth algorithm gives procedure for multiplyinh binary integers in
   (a) Signed magnitude representation (b) Unsigned representation
   (c) 2's complement representation (d) none of the above
6. A floating-point number in computer registers consists of
   (a) Mantissa (b) Exponent
   (c) Fixed (d) both a & b
7. Interrupts form an important part of _____ systems.
   (a) Batch processing (b) Multitasking
   (c) Real-time processing (d) Multi-user
8. The DMA transfers are performed by a control circuit called as _____
   (a) DMA controller (b) Device Interface
   (c) Data controller (d) Overlooker
9. Which of the following is not a type of computer memory?
   (a) DRAM (b) SRAM
   (c) ROM (d) FRAM
10. The virtual memory basically stores the next segment of data to be executed on the _____
    (a) Secondary storage (b) Disks
    (c) RAM (d) ROM

PART B – (5 X 5 = 25 Marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. a) Write short notes on Computer instructions.

Or

b) List and explain the phases of instruction cycle.

12. a) Discuss the reverse polish notation in stack organization.

Or

b) Write short notes on shift instructions.

13. a) Explain the hardware implementation of the addition algorithm.

Or

b) Discuss the hardware implementation of the division algorithm.

14. a) Explicate the asynchronous common interface.

Or

b) What is DMA Controller? Explain briefly.

15. a) Write short notes on an auxiliary memory.

Or

b) What is virtual memory? Explain briefly.

PART C – (5 X 8 = 40 Marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. a) Explain the computer registers in detail.

Or

b) Discuss the fetch and decode in instruction cycle.

17. a) Describe the stack organization.

Or

b) Explicate program control in detail.

18. a) Discuss the hardware implementation of the multiplication algorithm.

Or

b) Explain floating-point arithmetic.

19. a) Explicate the asynchronous serial transfer.

Or

b) Describe the software interrupts.

20. a) Discuss the associative memory.

Or

b) Interpret cache memory.

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