| Reg. No. | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**B.Tech. DEGREE EXAMINATION, MAY 2024**

Third Semester

18CSC262J – COMPUTER ORGANIZATION AND ARCHITECTURE

*(For the candidates admitted during the academic year 2018-2019 to 2021-2022)*

**Note:**

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours | Max. Marks: 100

**PART – A (20 × 1 = 20 Marks)**

Answer **ALL** Questions

| | Marks | BL | CO | PO |
|---|---|---|---|---|
| 1. The _____ format is usually used to store data.<br>(A) BCD (B) Decimal<br>(C) Hexadecimal (D) Octal | 1 | 1 | 1 | 1 |
| 2. Which circuits are used to implement logic operations?<br>(A) Combinatorial (B) Bridge<br>(C) logical (D) Gate | 1 | 1 | 1 | 1 |
| 3. To reduce the memory access time we generally make use of _____.<br>(A) Heap (B) Higher capacity RAM<br>(C) SDRAM (D) Cache | 1 | 1 | 1 | 1 |
| 4. Considering when the value of a number exceeds the range specified by the size of bit field, Which bit in status flag is<br>(A) Negative (B) Carry<br>(C) Zero (D) Overflow | 1 | 1 | 1 | 1 |
| 5. The final addition sum of the numbers, 0110 & 0110 is _____.<br>(A) 1100 (B) 1111<br>(C) 1001 (D) 1010 | 1 | 2 | 2 | 2 |
| 6. Where does the multiplier stored?<br>(A) PC register (B) Shift register<br>(C) program counter (D) cache | 1 | 1 | 2 | 2 |
| 7. _____ is used to implement the sum circuit using full adders.<br>(A) And & or gates (B) NAND gate<br>(C) XOR (D) XNOR | 1 | 1 | 2 | 2 |
| 8. _____ is a name called for a decimal number when it is placed to the right of the first significant digit.<br>(A) Orthogonal (B) De-Normalized<br>(C) Determinate (D) Normalized | 1 | 2 | 2 | 2 |

9. The process that periodically checks the status of an devices, is known as 1 1 3 3
   (A) Cold swapping (B) I/O instructions
   (C) Polling (D) Dealing

10. A floating-point number that has a 0's in the MSB of mantissa is said to have 1 1 3 3
   (A) Overflow (B) Underflow
   (C) Important number (D) Undefined

11. The _____representation of numbers occupies a large amount of memory. 1 2 3 3
   (A) 1's complement (B) 2's complement
   (C) signed numbers (D) Signed magnitude

12. When adding two signed n-bit numbers, the _____ signal is ignored from MSB position. 1 1 3 3
   (A) carry out (B) carry in
   (C) positive (D) Negative

13. Identify the way in which the performance is increased with pipelining 1 1 4 4
   (A) By decreasing instruction latency (B) By eliminating data hazards
   (C) By exploiting instruction level parallelism (D) By decreasing the cache miss rate

14. What is the Basic difference between vector and array processor 1 1 4 4
   (A) Register (B) Pipelining
   (C) Both A & B (D) Tunneling

15. In multiple Bus organisation, the registers are collectively placed and referred as _____. 1 1 4 4
   (A) Set registers (B) Register file
   (C) Register Block (D) Map registers

16. _____ is an implementation technique whereby multiple instructions are overlapped during an execution. 1 1 4 4
   (A) Hazard (B) Interrupt
   (C) Pipelining (D) Tunneling

17. Operating System maintains the page table for _____. 1 1 5 5
   (A) Each data element (B) Each instruction
   (C) Each address (D) Each process

18. A plug and play storage device that simply plugs in the port of a computer is _____. 1 1 5 5
   (A) Flash drive (B) Compact disk
   (C) Hard disk (D) CD

19. A process is busy swapping pages in and out is called as _____. 1 1 5 5
   (A) Thrashing (B) Compaction
   (C) External Fragmentation (D) Division

| | | Marks | BL | CO | PO |
|---|---|---|---|---|---|
| 20. | The main job of the interrupt system is to identify the _____ of the interrupt.<br>(A) signal (B) device<br>(C) source (D) peripherals | 1 | 1 | 5 | 5 |

**PART – B (5 × 4 = 20 Marks)**
Answer **ANY FIVE** Questions

| | | Marks | BL | CO | PO |
|---|---|---|---|---|---|
| 21. | Explain about Floating point representation with example. | 4 | 2 | 1 | 1 |
| 22. | Describe various addressing modes with example. | 4 | 2 | 1 | 1 |
| 23. | Differentiate Microprocessor and Micro controller. | 4 | 2 | 2 | 2 |
| 24. | Elaborate about Fixed Point representation with examples. | 4 | 2 | 3 | 3 |
| 25. | Explain memory hierarchy with neat diagram. | 4 | 2 | 5 | 5 |
| 26. | List the applications of parallelism. | 4 | 2 | 4 | 4 |
| 27. | Illustrate virtual memory along with neat diagram. | 4 | 2 | 5 | 5 |

**PART – C (5 × 12 = 60 Marks)**
Answer **ALL** Questions

| | | Marks | BL | CO | PO |
|---|---|---|---|---|---|
| 28. a. | Explain in detail about functional units of a computer with neat diagram. | 12 | 2 | 1 | 1 |
| | **(OR)** | | | | |
| b. | Discuss about various types of flip-flops and its operation. | 12 | 3 | 1 | 1 |
| 29. a. | Elaborate Ripple carry adder with an example. | 12 | 3 | 2 | 2 |
| | **(OR)** | | | | |
| b. | Explain Carry Save Addition of Summands with an example. | 12 | 3 | 2 | 2 |
| 30. a. | Summarize in detail about 8086 instruction Set and its types. | 12 | 3 | 3 | 3 |
| | **(OR)** | | | | |
| b. | Describe about assembly language and assembly Directives with program statements. | 12 | 3 | 3 | 3 |
| 31. a. | Discuss the operations of following buses.<br>(i) PCI Bus<br>(ii) SCSI Bus | 12 | 3 | 4 | 4 |
| | **(OR)** | | | | |
| b. | Define pipeline. And analyse the various hazards along with the solution. | 12 | 3 | 4 | 4 |
| 32. a. | Elaborate the concept of address translation to provide an effective memory management scheme. | 12 | 3 | 5 | 5 |
| | **(OR)** | | | | |
| b. | List out and explain any three secondary storage devices. | 12 | 3 | 5 | 5 |

* * * * *