

B.Tech. DEGREE EXAMINATION, MAY 2023

Sixth Semester

18ECE351T – HIGH PERFORMANCE COMPUTING FOR CYBER PHYSICAL SYSTEM

(For the candidates admitted from 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. _____ allow the _____ of computational and other IT resources to make it universally accessible to all. | 1 | 1 | 1 | 1 |
| (A) Grid, Coupling | | | | |
| (B) SC, Branching | | | | |
| (C) HPC, SC | | | | |
| (D) HPC, Coupling | | | | |
| 2. _____ is responsible for the operation of systems, security and accounting of system usage. | 1 | 1 | 1 | 1 |
| (A) HOW | | | | |
| (B) HLOW | | | | |
| (C) WHO | | | | |
| (D) HWO | | | | |
| 3. The GIIS the 2 nd 'T' Indicates | 1 | 1 | 1 | 1 |
| (A) Index | | | | |
| (B) Index face | | | | |
| (C) Information | | | | |
| (D) Interchange | | | | |
| 4. Which package is responsible for unified remote procedure calls? | 1 | 2 | 1 | 1 |
| (A) Stream | | | | |
| (B) File | | | | |
| (C) RPC | | | | |
| (D) Replica | | | | |
| 5. Expand API | 1 | 2 | 2 | 1 |
| (A) Application Pbase Index | | | | |
| (B) Application Program Index | | | | |
| (C) Application Pass Information | | | | |
| (D) Application Program Interface | | | | |
| 6. Which one of the following is not an attributes of simple job desorption? | 1 | 1 | 2 | 1 |
| (A) Type | | | | |
| (B) Name | | | | |
| (C) Access – ratio | | | | |
| (D) Database | | | | |
| 7. The speed of a typical CPU in the cluster is measured in _____. | 1 | 1 | 2 | 1 |
| (A) mips | | | | |
| (B) Kbps | | | | |
| (C) Mbps | | | | |
| (D) mkps | | | | |
| 8. $\sum_{e=1}^n (d,i)=?$ | 1 | 1 | 2 | 1 |
| (A) 1 | | | | |
| (B) 0 | | | | |
| (C) 0.5 | | | | |
| (D) 1.5 | | | | |

9. $F(x) = \frac{n_x}{n}$ is called _____.
 (A) Failure (B) Work offline
 (C) Least failure (D) MLE
10. $T^{EPT} + \text{current Time} =$ _____.
 (A) Estimated Failure Time (B) Estimated Finish Time
 (C) Easy Failure Time (D) Easy Finish Time
11. _____ window help us to find the total number of dispatched tasks
 (A) Monitor (B) Tasks
 (C) Dispatch (D) Job
12. Expand FIM
 (A) Field Ideal Management (B) Federated Idea Management
 (C) Field Identity Management (D) Federated Identity Management
13. Applications perform nearest neighbor computations is called _____.
 (A) Stencils (B) VLIN
 (C) Hardward Architecture (D) DSP
14. _____ help us to generate automatic custom instruction processes.
 (A) VLIN (B) FISH
 (C) ASIC (D) ASP
15. _____ Transformation a dimension to a new size in order to reduce cache-set conflicts.
 (A) FISH (B) SIMD
 (C) Array Packing (D) Loop Fitting
16. _____ allows the hardware modulus to access system memory independently of the CPU
 (A) SMID (B) DAM
 (C) SIMD (D) DMA
17. Expand KBMF
 (A) Kernelized Bayesian Matrix factorization (B) Kernel based matrix function
 (C) Kernelized Bay matrix function (D) Kernel Bay multiples factor
18. Support vector mechanism and regularized classification methods used for _____ prediction.
 (A) SVM (B) DTI
 (C) RLS (D) QPCRs
19. DINIES is a
 (A) Algorithm (B) Application
 (C) Web Server (D) OS
20. Which among the following is not a member of NRLM?
 (A) Drug – target interaction data (B) Drug - Similarities
 (C) Target Similarities (D) Drug Number

PART – B (5 × 4 = 20 Marks)

Answer ANY FIVE Questions

- | Q. No. | Marks | BL | CO | PO |
|---|-------|----|----|----|
| 21. Explain in detail about application and resource information services. | 4 | 2 | 1 | 1 |
| 22. Draw the flow chart of a moldable job allocation procedure in heterogeneous Grid. | 4 | 2 | 2 | 1 |
| 23. Define: Life Cycle of a Volunteer Peer. | 4 | 2 | 3 | 2 |
| 24. Discuss about customizable design and processors. | 4 | 2 | 4 | 2 |
| 25. Explain in detail about neighborhood smoothing. | 4 | 2 | 5 | 2 |
| 26. What are all the key components of Public – Private Grid Partnership? | 4 | 2 | 1 | 1 |
| 27. Define: Execution site and Turnaround time. | 4 | 2 | 2 | 1 |

PART – C (5 × 12 = 60 Marks)

Answer ALL Questions

- | Q. No. | Marks | BL | CO | PO |
|---|-------|----|----|----|
| 28. a. Explain in detail about the role of super computers in Grids. | 12 | 2 | 1 | 1 |
| (OR) | | | | |
| b. Discuss the following: | | 2 | 1 | 1 |
| i. Leverage of Market Power | 4 | | | |
| ii. Sharing of Operational Cost | 4 | | | |
| iii. Optimize system usage | 4 | | | |
| 29. a. Elaborate the steps in generating simple job description. | 12 | 2 | 2 | 1 |
| (OR) | | | | |
| b. Explain in detail about moldable job allocation in heterogeneous grid. | 12 | 2 | 2 | 1 |
| 30. a. Draw and explain the block diagram of managing data access at the home site with respect to security. | 12 | 2 | 3 | 2 |
| (OR) | | | | |
| b. Explain the following: | | 2 | 3 | 2 |
| i. Availability Prediction | 6 | | | |
| ii. Failure Probability Estimation | 6 | | | |
| 31. a. Discuss about the following: | | 2 | 4 | 2 |
| i. Customizable Design and Processors | 2 | | | |
| ii. Application specific Micro architecture | 2 | | | |
| iii. Stencil computation | 8 | | | |
| (OR) | | | | |
| b. How array padding, Loop tilling and bandwidth optimizations plays an important role in customizing a design. | 12 | 2 | 4 | 2 |
| 32. a. Explain in detail about NRLMF. | 12 | 2 | 5 | 2 |
| (OR) | | | | |
| b. Explain in detail about Logistic Matrix Factorization. | 12 | 2 | 5 | 2 |

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