

**2019**

*Time : 3 hours*

*Full Marks : 70*

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

*Answer from **all** the Sections as directed.*

**Section – A**

1. Fill in the blanks of the following :  $1 \times 10 = 10$

- (a) Ubiquitous computing uses \_\_\_\_\_ environment.
- (b) Dynamic network of network, is a dynamic connection that grows is called \_\_\_\_\_.
- (c) In which application system distributed system can run well \_\_\_\_\_ ?
- (d) What is the process Id for Kernel process \_\_\_\_\_ ?

- (e) Uniprocessor computing device is called \_\_\_\_\_.
- (f) Centralized computing covers many data centers and \_\_\_\_\_.
- (g) Processors are either loosely coupled with distributed memory or tightly coupled with centralized shared memory in paradigm is referred as \_\_\_\_\_.
- (h) Most of web applications are of \_\_\_\_\_ architecture.
- (i) In which architecture single address space is visible to all execution threads \_\_\_\_\_ ?
- (j) NUMA stands for \_\_\_\_\_.

**Section – B**

**(Short-answer Types Questions)**

Answer any **four** questions of the following :

$5 \times 4 = 20$

- 2. What is data-parallel computation ?
- 3. What is Task-throughput ?

4. How are threads allocated to processors when there are more threads than the number of processors ?
5. What is false sharing ?
6. What is parallel processing and what are different types of parallel computers ?
7. Give pictorial presentation of Cache Only Memory Architecture (COMA).
8. What is Parallel Random-Access Machines (PRAM) ? <http://www.ppuonline.com>
9. What is vector processor and what are the different types of caches ?

### Section – C

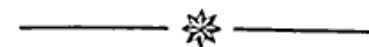
#### (Long-answer Type Questions)

Answer any **four** questions of the following :

10×4 = 40

10. Give a definition of middleware and show in diagram where it is positioned.

11. Explain the advantages of public key mechanism in distributed systems.
12. Explain Fork() system call.
13. Tell Me set-user-id is related to (in Unix).
14. Write the program on Full-duplex communication on bidirectional (using two pipes).
15. Explain the performance metrics of parallel systems.
16. What is pipelining ? Describe the speed up gain due to pipelining.
17. Explain the mapping techniques for load balancing.



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