Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : X 67545

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Sixth Semester

Computer Science and Engineering

CS 1353 – DISTRIBUTED SYSTEMS

(Regulations 2008)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   **(10×2=20 Marks)**

1. What is the purpose of the middleware layer ?

2. Give a suitable example protocol for each of the following OSI layers : Application, Presentation, Transport and Data Link.

3. Mention the functions of GET, POST and HEAD methods.

4. How are callbacks implemented in RMI ?

5. What do you mean by digital signature ?

6. State the main difference between monolithic and micro kernels.

7. What is meant by DNS ?

8. What is clock skew ?

9. What is the necessary and sufficient condition for two transactions to be serially equivalent ?

10. List the main tasks of a group membership service.

PART – B   **(5×16=80 Marks)**

11. a) i) Discuss about hardware and software service layers in distributed systems. **(8)**

     ii) Explain any two fundamental models of distributed systems. **(8)**

(OR)

   b) i) Write the several variations on the client-server model. **(8)**

     ii) Write the advantages and limitations of internet protocols when used in distributed systems. **(8)**

12. a) i) Explain the principles of HTTP as a request-reply protocol. **(8)**

     ii) Illustrate the process of multicast peer joining a group using Java API. **(8)**

(OR)

   b) i) What is the objective of distributed garbage collector ? Explain how they are supported in Java and Jini. **(8)**

     ii) Write brief notes on Java (RMI registry) and reflection. **(8)**

13. a) i) Write detailed notes on 'worker pool' architecture and bring out its salient features. **(8)**

     ii) Explain the implementation of digital signatures in distributed systems. **(8)**

(OR)

   b) i) Describe the requirements for distributed file systems. **(8)**

     ii) Narrate the important server operations of NFS. **(8)**

14. a) Explain with diagrammatic illustration X.500 service architecture. **(16)**

(OR)

   b) i) Explain Christian's method for synchronizing clocks. **(8)**

     ii) Explain about distributed mutual exclusion with an example. **(8)**

15. a) i) Explain lost update problem and inconsistent retrieval problem with an example. **(6)**

     ii) Explain optimistic concurrency control algorithm. **(10)**

(OR)

   b) Discuss in detail the two phase commit protocol for running distributed flat and nested transactions. **(16)**

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