

KATHMANDU UNIVERSITY  
End Semester Examination  
February/March, 2019

Marks Scored:

Level : B. E./B. Sc.  
Year : IV

Course : COMP 478  
Semester: I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date

FEB 27 2019

SECTION "A"

[20Q × 0.5 = 10 marks]

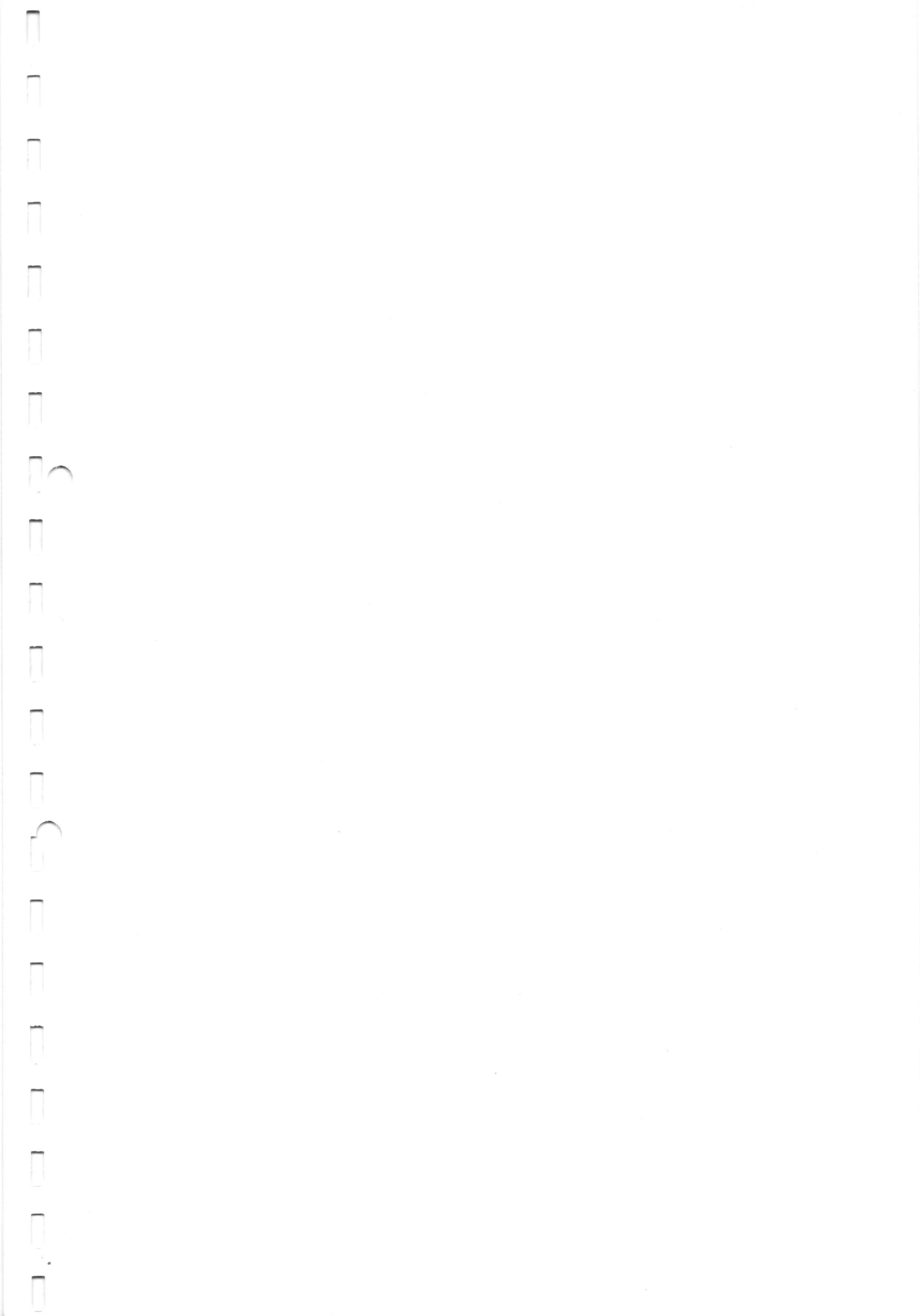
Choose and encircle the most appropriate answer.

- Possible issue to consider while using multiple cloud providers is \_\_\_\_\_.  
(A) Data dependency in cloud (B) QoS of providers  
(C) Network Security (D) User Authentication
- Which of the following attack is less probable in cloud environment?  
(A) Cross VM information leakage once co-resident.  
(B) Determine if two instances resides on same physical machine.  
(C) Determine physical machine of any instance.  
(D) DDoS in every instance hosting a same job.
- What is the major goal of outside attackers in cloud?  
(A) Gain information about client data  
(B) Sell the information or use for other purpose  
(C) Gain knowledge on client data  
(D) Network analysis
- Keystone component in Openstack Architecture mainly handles \_\_\_\_\_.  
(A) Storage issues (B) Identity issues (C) Image Issues (D) Network Issues
- What is probable opportunity regarding availability of services in growth of cloud computing?  
(A) Invent Scalable store. (B) FedExing Disks.  
(C) Use multiple cloud providers. (D) Deploy encryption.
- Which of the following can be considered as less obstacle to growth of cloud computing?  
(A) Scaling quickly. (B) Software licensing.  
(C) Data transfer bottleneck. (D) Bulk storage.
- A firmware or a low level program that acts on virtual machine manager is \_\_\_\_\_.  
(A) Virtual machine (B) Hypervisor (C) Cloud server (D) Virtualization
- Which of the following cloud model has advantage of security concerns over others?  
(A) Private Cloud. (B) Public Cloud  
(C) Community Cloud. (D) Both a and b

9. Which of the following is not a cloud infrastructure service component?  
(A) Integration software. (B) Physical infrastructure.  
(C) System Software. (D) Management software.
10. Suppose that a certain software product has a mean time between failures of 10,000 hours and has a mean time to repair of 20 hours. If the product is used by 100 customers, what is its availability?  
(A) 98.8% (B) 99.8% (C) 99% (D) 100%
11. The model in which applications are hosted by a service provider and made available to users is \_\_\_\_\_.  
(A) Infrastructure-as-a-Service (B) Platform-as-a-Service  
(C) Software-as-a-Service (D) Everything-as-a-Service
12. Communication between services is done widely using \_\_\_\_\_s protocols.  
(A) SOAP (B) REST (C) RESTful (D) JSON
13. A company currently experiences 7 to 10 percent utilization of its development and test computing resources. The company would like to consolidate to reduce the number of total resources in their data center and decrease energy costs. Which feature of cloud computing allows resource consolidation?  
(A) Automation (B) Elasticity (C) Virtualization (D) Provisioning
14. What is true about the tasks running on grid computing?  
(A) The tasks are divided among the computers.  
(B) The tasks run on a computer using a peer-to-peer system.  
(C) The tasks run on a single computer.  
(D) The tasks are small and independent.
15. Which refers to the practice of a primary cloud provider offering services that are distributed through another cloud provider?  
(A) Hybrid cloud (B) Grid computing  
(C) Community cloud (D) Composite cloud
16. What is the way a public cloud helps customers reduce their IT costs?  
(A) It reduces the operating expenses by isolating the end users from the complexity of IT operations.  
(B) Flexible billing models enable customers to pay only for what they use.  
(C) Customers have access to the cloud services and infrastructure at anytime.  
(D) It is easier to obtain a software instance in a cloud computing environment.

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17. Which business scenario is best suited to maximize the benefits gained from using a private cloud?
- (A) An enterprise that manages sensitive data and the load on their systems is fairly consistent.
  - (B) An enterprise that is focused primarily on short term projects, and the load on their systems is highly unpredictable.
  - (C) An enterprise that is not too concerned about control over their data, and the load on their systems is almost a constant at all times.
  - (D) An enterprise that manages sensitive data requiring maximum control and does not have enough infrastructure capacity to handle variable load.
18. Which is the most popular NoSQL database for scalable big data store with Hadoop?
- (A) MongoDB      (B) Casandra      (C) Hbase      (D) Postgres
19. Which of the following feature of cloud has less importance in supporting IoT?
- (A) Flexibility of resource allocation
  - (B) Data compliance
  - (C) Scalability and agility
  - (D) Energy saving
20. Which statement is true about the reliability of a cloud computing solution?
- (A) A cloud computing services can schedule a maintenance outage that affects the availability of the resources.
  - (B) Cloud computing improves the reliability through the use of multiple sites.
  - (C) A public cloud is less reliable than a private cloud.
  - (D) A hybrid cloud strategy represents the best approach for a reliable cloud computing environment.



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F. M. : 40

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SECTION "B"

[6 Q. × 4 =24 marks]

Attempt *ANY SIX* questions.

1. Discuss in brief about the fundamental features of cloud computing.
2. Write in brief about the scenarios where hybrid and community cloud services can be implemented.
3. "Cloud computing helps to support the green computing." Justify the statement.
4. Differentiate in brief between cluster computing, grid computing and cloud computing.
5. What are the fundamental issues in implementing SOA in cloud services?
6. A company is considering a cloud environment to improve the operating efficiency for their data and applications. The company is part of an industry where strict security and data privacy issues are of the highest importance. Which type of cloud deployment model would be a good choice? Explain in brief.
7. Write short notes on: (*ANY TWO*) [2+2]
  - a. REST vs. SOAP
  - b. IoT in Cloud
  - c. HDFS

SECTION "C"

[2 Q. × 8 =16 marks]

Attempt *ANY TWO* questions.

8. Briefly describe the concept of reliability and availability of cloud services. A service has less than 1 hour of downtime over its lifetime of 40 years. Calculate the service availability. What are hypervisors, write in brief about its types. [3+2+3]
9. Discuss in brief about issues and probable solutions that can improve the security and privacy in cloud services.
10. A university aims to use cloud service for administrative tasks and to implement proprietary software for academic purpose on numbers of nodes in its laboratories and research activities. Describe in brief about the possible challenges and opportunities of cloud service in the university.

