

# Question Paper

Exam Date & Time: 30-Apr-2024 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal  
Second Semester Master of Engineering - ME (Cloud Computing) Degree Examination - April / May 2024

### Cloud Operations (Elective - II) [CDC 5231]

Marks: 100

Duration: 180 mins.

Tuesday, April 30, 2024

Answer all the questions.

- 1) A. Describe the significance, roles and objectives of Cloud Operations with relevant example (10)  
B. Explain the following features of AWS Systems Manager Service.  
a. Patch Manager  
b. Parameter Store  
c. Insight Dashboard (BL:2, CO:1, PO:1) (4 + 6 = 10 MARKS)
- 2) Demonstrate Cloud Operations engineer steps and procedures to host a static website using S3 bucket Cloud Services. (BL:3, CO:1, PO:10) (10 MARKS) (10)
- 3) A. Explain the need of user data section in launching an EC2 instances (10)  
with relevant use-case. (5 Marks)  
B. Briefly explain the different types of storage options available for EC2 instances. ( 5 Marks). (BL:3, CO:2, PO:2) ( 10 MARKS)
- 4) Demonstrate a solution for the given business need as a Cloud Operations Engineer. Café business wishes to have a Serverless architecture for reporting daily sales report via an Email. Provide a suitable solution and also highlight the features of serverless solutions compared to unmanaged services. (BL:2 ,CO:3, PO:1) (6 + 4 = 10 MARKS) (10)
- 5) Explain with suitable use case scenario's for different types of VPC Connectivity: ( 2\* 5 = 10 Marks) (10)  
a. VPC Peering  
b. Site to Site VPN  
c. Direct Connect  
d. VPC Endpoint Gateway  
e. VPC Interface Gateway (BL:3, CO:2, PO:5) ( 5 X 2 = 10 Marks)
- 6) Describe the features of Cloud Watch Service with relevant use-case example. (BL:2, CO:4, PO:2) (10) (10MARKS)  
a. Cloud Watch Agent  
b. Cloud Watch Logs  
c. Metrics  
d. Alarms  
e. Events
- 7) Apply the skills of Cloud Operations engineer to provide solution to following business need. Cafe business application's web server is compromised by an unauthorized user within the account, who adds a new rule to the security group and updates images of the web application. The client expresses the need to audit actions performed on resources to identify vulnerabilities and details. How would you approach auditing these actions, and what steps would you propose to prevent similar unauthorized access in the future? (10)

(BL:2, CO:3, PO:1) (10 MARKS)

- 8) Interpret with an Architectural diagram to provide a solution for creating High availability, Fault-tolerant, scalable architecture for web application. Also highlight the need and configuration of different services used as part of architectural solution. (10)  
(BL:3, CO:2, PO:2) (10 MARKS)
- 9) Describe the need of object storages with relevant use-case example. Also highlight the features of S3 bucket like Versioning, Access Control List, Bucket Policies and Life Cycle. (10)  
(5 + 5 = 10 MARKS) (BL:3, CO:3, PO:5)
- 10) Demonstrate an action plan to deploy network layer and EC2 infrastructure layer of a business case using Cloud Formation Template. Highlight the components and advantages of deploying Infrastructure layers of application using Automation software like Cloud Formation. (10)  
(BL:3, CO:4, PO:1) (10 MARKS)

-----End-----