

(2 ½ Hours)

[Total Marks: 75]

- N.B.
- 1) All questions are compulsory.
 - 2) Figures to the right indicate marks.
 - 3) Illustrations, in-depth answers and diagrams will be appreciated.
 - 4) Mixing of sub-questions is not allowed.

Q. 1 Attempt All

(a) **Select the correct alternative from the options given:** (10M)

(i) Cloud Computing is a paradigm of _____ to provide the customers on-demand, utility-based computing service.

- | | |
|---------------------------|-----------------------------|
| (a) Distributed computing | (b) Undistributed Computing |
| (c) Centralized Computing | (d) Central Computing |

(ii) _____ serves as a PaaS vendor within Google App Engine system.

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|------------|---------------|
| (a) Amazon | (b) Microsoft |
| (c) Hadoop | (d) Google |

(iii) Which one of these is not a cloud computing pricing model?

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|------------------|-----------------|
| (a) Free | (b) Pay Per Use |
| (c) Subscription | (d) Ladder |

(iv) Hypervisor runs at the top of hardware.

- | | |
|----------------|---------------|
| (a) Type - I | (b) Type - II |
| (c) Type - III | (d) Type - IV |

(v) Creating more logical IT resources, within one physical system is called _____.

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|--------------------|----------------------|
| (a) Load balancing | (b) Hypervisor |
| (c) Virtualization | (d) Operating System |

(vi) What is most commonly used for managing the resources for every virtual system?

- | | |
|-------------------|----------------|
| (a) Load balancer | (b) Hypervisor |
| (c) Router | (d) Cloud |

(vii) In virtualization where an array of servers that are managed by a virtual storage system is _____

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|--------------------------------|----------------------------|
| (a) Application Virtualization | (b) Desktop Virtualization |
| (c) Network Virtualization | (d) Storage Virtualization |

- (viii) Which open stack's component is called as a swift?
(a) Image Service (b) Dashboard
(c) Object Storage (d) Identity
- (ix) Which component serves as a dashboard for users to manage OpenStack compute, storage and networking services?
(a) Designate (b) Horizon
(c) Glance (d) Searchlight
- (x) Which OpenStack component provides identity services?
(a) Trove (b) Dragon flow
(c) Ceilometer (d) Keystone
- (b) Fill in the blanks by selecting from the pool of options: (5M)
(Network, Abstraction, Stack, Heat, Client, Communication, Cloud Provider, Storage, Glance)
- (i) _____ is the core orchestration component with OpenStack
- (ii) _____ is an essential concept related to Cloud.
- (iii) _____ is not a cloud stakeholder.
- (iv) _____ virtualization has the ability to run multiple virtual networks with each has a separate control and data plan.
- (v) _____ component provides image services for creating VMs in Open Stack.

Q. 2 Attempt the following (Any THREE) (15M)

- (a) Explain cloud computing reference model with a neat diagram.
- (b) How is Grid Computing different from Cloud Computing? Elaborate.
- (c) What is utility oriented computing? Explain.
- (d) Explain the cloud deployment models, in detail.
- (e) Briefly explain the Client/Server architectural style.
- (f) List and explain the models for message-based communication.

Q. 3 Attempt the following (Any THREE) (15M)

- (a) Explain Storage, Network and Desktop virtualization techniques.
- (b) What is a hypervisor? Explain the different types of hypervisors with a neat diagram
- (c) Explain the pros and cons of virtualization.

- (d) Compare Full and para virtualization.
- (e) Define virtualization and describe its benefits.
- (f) List and define the security rings of virtualization.

Q. 4 Attempt the following (Any THREE) (15)

- (a) Explain the architecture of Nova.
- (b) Explain the types of storage provided by OpenStack.
- (c) Explain Orchestration Service in OpenStack.
- (d) Explain Open Stack Operation in detail.
- (e) What is Devstack? Write the steps to install Devstack.
- (f) Explain Tenant Model Operation in Open Stack.

Q. 5 Attempt the following (Any FIVE) (15)

- (a) List the types of Cloud. Write about anyone.
- (b) What is Desktop Virtualization, write in brief?
- (c) Write three differences between Cloud Computing and Virtualization.
- (d) What is oVirt?
- (e) Write any three advantages of Distributed System.
- (f) Write a short note on QoS.
- (g) What is Open Stack?
- (h) What is AWS?
