NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

Cloud Computing

Assignment- Week 5

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

QUESTION 1:

____ is a formal contract between a Service Provider (SP) and a Service Consumer (SC).

A. SLO

B. SLA

C. KPI

D. Utility Premium

Correct Option: B

Detailed Answer: SLA (Service Level Agreement) is a formal contract between a Service Provider (SP) and a Service Consumer (SC) in slide 2 of SLA. So the correct option is B.

QUESTION 2:

Statement 1: SLA contains SLO.

Statement 2: Multiple KPIs are aggregated to SLA.

A. Statement 1 is TRUE and Statement 2 is FALSE

B. Statement 2 is TRUE and Statement 1 is FALSE

C. Both statements are TRUE

D. Both statements are FALSE

Correct Answer: A

Detailed Solution: SLA contains SLO. Multiple KPIs are aggregated to SLO. So statement 1 is correct and statement 2 is incorrect.

QUESTION 3:

If demand is flat, the penalty will be linear.

A. TRUE

B. FALSE

Correct Answer: B

Detailed Solution: If demand is flat, the penalty will be zero.

QUESTION 4:

What is/are the correct statement(s) regarding VM load management?

A. When load increases, new VMs should be scheduled to new nodes.

B. When load decreases, use WOL to start up waiting nodes.

C. When load increases, use WOL to start up waiting nodes.

D. When load decreases, live migrate VMs to more utilized nodes.

Correct Option: A, C, D

Detailed Answer: When load decreases, VMs should be live migrated to more utilized nodes. When load increases, WOL should be used to start up waiting nodes and new VMs should be scheduled to new nodes.

QUESTION 5:

A company XYZ needs to support a spike in demand when it becomes popular followed potentially by a reduction once some of the visitors turn away. The company has two options to satisfy the requirements which are given in the following table:

Expenditure	**In-house server (INR)**	**Cloud server (INR)**
Purchase cost	1,80,000	—
Cost/hour (over three-year span)	—	32
Efficiency	60%	80%
Power and cooling (cost/hour)	25	—
Management cost (cost/hour)	10	2

Select the correct statement(s) regarding the value(s) of (total-cost/effective-hour) for both the options.

A. Total-cost / Effective-hour for in-house server is 81.42 INR over three years.

B. Total-cost / Effective-hour for cloud server is 42 INR.

C. Total-cost / Effective-hour for in-house server is 46.42 INR over three years.

D. Total-cost / Effective-hour for cloud server is 40 INR.

Correct Answer: B, C

Detailed Solution: For in-house server:

Cost/hour = 1,80,000/(3*365*24) = 6.849 INR (Time is given as a three year span.)

Cost/Effective-hour = Cost/hour * (1/efficiency) = 6.489*(100/60) ~ 11.42 INR

Total cost/Effective-hour = 11.42 + 25 + 10 = **46.42 INR**

Power and cooling and management cost should not be multiplied with efficiency.

For cloud server:

Cost/hour = 32 INR

Cost/Effective-hour = Cost/hour * (1/efficiency) = 32*(100/80) = 40 INR

Total cost/Effective-hour = 40 + 2 = **42 INR**.

QUESTION 6:

A third-party application runs in the cloud for 12 hours/day. At the end of one month [30 days], it was found that the cloud service suffered 5 outages of durations: 1 hour 30 minutes, 30 minutes, 2 hours 15 minutes, 1 hour 45 minutes and T hours, each on different days over the service period. Suppose a cloud guarantees service availability for 97% of time. What are the possible value(s) of T that SLA negotiation gets honored in terms of service availability?

A. 3 hours
B. 6 hours
C. 12 hours
D. 8 hours

Correct Option: A

Explanation: Total Outage: (6+T) hours, application runs for 360 hours in a month. Availability = 1 - (downtime/uptime). For availability: [1- {(6+T)/(354-T)}] >= 0.97, T<=4.48. Option A is correct.

QUESTION 7:

Which of the following is/are objective(s) of Resource Management?

A. Increased latency
B. Scalability
C. Improved throughput
D. Improved security

Correct Option: B, C

Detailed Answer: From the objectives outlined in slide 9 of Resource Management - II.

QUESTION 8:

Which of the following is/are resource allocation approaches in resource management?

A. Energy-aware resource allocation
B. Reinforcement learning guided control policy
C. Network queueing model
D. Intelligent multi-agent model

Correct Answer: A, D

Detailed Solution: Energy-aware resource allocation and intelligent multi-agent model are resource allocation approaches. Network queueing model is a resource provisioning approach and reinforcement learning guided control policy is a resource adaptation approach..

QUESTION 9:

Statement 1: Each reducer groups the results of the map step using different keys and performs a function f on the list of values that correspond to these keys.

Statement 2: Files are sorted by a key and stored to the local file system.

A. Statement 1 is TRUE and Statement 2 is FALSE
B. Statement 2 is TRUE and Statement 1 is FALSE
C. Both statements are TRUE
D. Both statements are FALSE

Correct Answer: B
Detailed Solution: Each reducer groups the results of the map step using the same keys and performs a function f on the list of values corresponding to the keys. So statement 1 is false. Statement 2 is true.

QUESTION 10:

In computing, there is a nonlinear relationship between the number of processing cores used and power consumption

A. TRUE
B. FALSE

Correct Option: A

Detailed Answer: Refer to slide 10 of resource management-I.