Cloud Computing

Assignment- Week 5

TYPE OF QUESTION: MSQ

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

QUESTION 1:

S1: SLO is a formal contract between a service provider and a service consumer.

S2: SLA contains Service Level Objectives (SLO).

a) S1 is True and S2 is False
b) S1 is False and S2 is True
c) Both S1 and S2 are True
d) Both S1 and S2 are False

Correct Answer: b

Detailed Solution: SLA is a formal contract between a service provider and a service consumer. SLA contains Service Level Objectives (SLO).

QUESTION 2:

S1: Multiple SLAs are aggregated to KPI

S2: KPIs are aggregated to SLO

a) S1 is True and S2 is False
b) S1 is False and S2 is True
c) Both S1 and S2 are True
d) Both S1 and S2 are False

Correct Answer: b

Detailed Solution: KPIs are aggregated to SLO.

QUESTION 3:

Which of the following is/are not a possible parameter of service level agreement (SLA) in cloud?

a) Response Time or Latency
b) Availability of the Services
c) Electricity Cost
d) Warranty of the Services

Correct Answer: c, d

Detailed Solution: Electricity Cost and Warranty of the Services are not a possible parameter of service level agreement (SLA) in cloud. So, the correct options are (c) and (d).

QUESTION 4:

U < P/A indicates that cloud is cheaper than owning computer infrastructures.
Where U is Utility Premium, P is Peak Demand, and A is Average Demand

a) True
b) False

Correct Answer: a

Detailed Solution: When U < P/A, the cloud is cheaper than owning computer infrastructures. So, the correct option is (a).

QUESTION 5:

Consider the peak computing demand for an organization is 110 units. The demand as a function of time can be expressed as: $D(t) = 3t$, $0 \le t < 100$
The resource provisioned by the cloud to satisfy current demand at time t is given as: $R(t) = D(t) + \delta \cdot (dD(t)/dt)$
where, δ is the delay in provisioning the extra computing recourse on demand
The cost to provision unit cloud resource for unit time is 0.8 units.
[Assume the delay in provisioning is 4 time units and minimum demand is 0.
(Penalty: Either pay for unused resource or missing service delivery]
Penalty is

a) 1100 units
b) 1200 units
c) 1300 units
d) None of these

Correct Answer: b

Detailed Solution: $R[0,100] = \int_0^{100} D(t)\,dt + \delta \int_0^{100} d/dt\,(D(t))\,dt = ((3/2)*t\text{^}2)_0^{100} + \delta *3* \int_0^{100} dt = 15000 + (\delta *300)$
$= (15000 + 300*4)$ [As $\delta = 4$]
$= 16200$
$D[0,100] = \int_0^{100} 3t\,dt = 15000$

|R-D|=1200

So, the correct option is (b).

QUESTION 6:

Which scenario demands highest bandwidth for data transfer between nodes in Hadoop?

a) Different nodes on the same rack
b) Nodes on different racks in the same data center.
c) Nodes in different data centers
d) Data on the same node

Correct Answer: c

Detailed Solution: Nodes in different data centers demands highest bandwidth for data transfer between nodes in Hadoop.

QUESTION 7:

When load decreases, VM management can be done by

a) Shutdown unused nodes
b) Live migrate VMs to more utilized nodes
c) None of these

Correct Answer: a, b

Detailed Solution: When load decreases, VM management can be done by shutting down unused nodes as well as live migrating VMs to more utilized nodes.

QUESTION 8:

In a SLA negotiation, provider agreed with the service availability X%.
Consumer runs the application for 15hours/day. At the end of one month [31 days], it was found that total service outage is 10 hrs. However, SLA negotiation (in terms of service availability) is honored.

a) X is atleast 97.8
b) X is atmost 97.8
c) X is exactly 99
d) Insufficient information

Correct Answer: b

Detailed Solution: Total time for which the application will run (in a month)=(15*31) hours=465 hours

Outage time=10 hours

Therefore, service duration=(465-10) hours=455 hours

% Availability=(1- outage time/service duration)*100 %=(1-10/455)*100 %=97.8%

Initial service guarantee=X%

As, final service availability>= initial service guarantee
X<=97.8

QUESTION 9:

A third party application runs in the cloud for 15 hours/day. At the end of one month [30 days], it was found that the cloud service suffered 7 outages of durations: 1 hour 30 minutes, 30 minutes, 1 hour 15 minutes, 45 minutes, 2 hours, 1 hour, and H hours, each on different days over the service period. Suppose a cloud guarantees service availability for 97% of time.
What will be the possible value(s) of H that SLA negotiation gets honored in terms of service availability?

a) 8 hours
b) 6 hours
c) 3 hours
d) 9 hours

Correct Answer: b, c
Detailed Solution: Total Outage: (7+H) hours., Application runs in a month: 450 hours. Availability: [1- {(7+H)/(443-H)}] >= 0.97, H <=6.10

So, the correct options are (b) and (c).

QUESTION 10:

If demand is exponential (D(t)=e^t), any fixed provisioning interval (tp) according to the current demands will fall ---------- behind.

a) linearly
b) exponentially
c) none of these

Correct Answer: b
Detailed Solution: If demand is exponential (D(t)=e^t), any fixed provisioning interval (tp) according to the current demands will fall exponentially behind.

**************END*************