United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Mid Term Exam Total Marks: **20** Summer 2023

Course Code: CSE 4587 Course Title: Cloud Computing

Time: 1 hour 45 minutes.

[Any examinee found adopting unfair means will be expelled from the trimester/program as per UIU disciplinary rules.]

Answer all questions.

Figures in the right-hand margin indicate full marks.

Q1 [1 x 10] = 10 marks

(a) How do you describe the term "Elastic Computing"? Show an example.

(b) How do you choose between SaaS, PaaS and IaaS? Justify your answer.

(c) How do you differentiate between public and hybrid cloud models?

(d) How do you compare between Single and Multi-Tenancy?

(e) What is Hypervisor?

(f) How do you describe virtualization?

(g) In AWS, how do you differential between S3 and EBS?

(h) In AWS, how do you differentiate between EL and REC?

(i) How do you define bucket? How many buckets can you create in AWS by default? Which portion is the bucket: **https://uiu.ac.bd/cse**?

(j) How do you describe Route 53 in AWS?

Q2 [1 x 4] = 4 marks

(a) Draw the NIST reference model and describe the components briefly.

(b) By showing figures, differentiate various cloud deployment models.

(c) In your own words describe, why does a company may start using a cloud service as their backend for storing objects? Justify your answer.

(d) How do you describe task scheduling algorithms? Why task scheduling algorithms are so important in cloud computing? Classify the algorithms.

Q3 Suppose there are Four Virtual Machines (VM) with different properties based on tasks size: [2 x 3] = 6 marks

VMlist = {VM1, VM2, VM3, VM4 }.
MIPS of VMlist = {500, 400, 300, 200}.

Given a set of tasks {t1, t2, t3, t4, t5, t6, t7, t8, t9} with different task length orders {10000, 20000, 30000, 40000, 50000, 60000, 70000, 80000, 90000} depends on the arrival time.

a) Apply **FCFS** scheduling algorithm to show how FCFS scheduling algorithm increases waiting time for all tasks.

b) Apply **SJF** scheduling algorithm to show the sorted tasks based on the algorithm. Moreover, show that the large tasks must be waiting in the task list until the smallest tasks finish execution.

c) Apply **MAX-MIN** scheduling algorithm to find the TWT and TFT values on the algorithm.

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