

**ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)**

ORGANISATION OF ISLAMIC COOPERATION (OIC)

Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION

SUMMER SEMESTER, 2022-2023

DURATION: 1 HOUR 30 MINUTES

FULL MARKS: 75

**CSE 6493: Cloud Computing****Programmable calculators are not allowed. Do not write anything on the question paper.**

Answer all 3 (three) questions. Figures in the right margin indicate full marks of questions.

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1. a) An IT company decides to provide free access to a public cloud dedicated to higher education. 3 × 5
- Which one of the three cloud computing delivery models, SaaS, PaaS, or IaaS, should it embrace, and why?
  - What cloud-based applications would be most beneficial for the students?
  - Will this solution have an impact on distance learning? Explain your answer
- b) What technology does the cloud employ to pool and share resources? 5
- c) A small e-commerce company is experiencing rapid growth and is considering moving their website to the cloud to handle the increased traffic. The website currently runs on a single dedicated server, and the company's IT team is not experienced in cloud computing. 10
- What are the steps that the company should take to migrate their website to the cloud, and what deployment model should they choose?
  - Which cloud computing deployment model (public, private, hybrid, or community) would be most appropriate for hosting the online shopping platform, and why? Justify your answer with an example.
2. a) What are the desirable properties of a distributed system? Explain with example. 7
- b) Determine whether the following assertion is correct or incorrect, and provide reasons for your response. 2 × 4
- The main reason of rapid development in virtualization is because VM outperform the physical machine and has wider applications.
  - In virtualization, only the hypervisor (VMM) can access the hardware resources.
  - Grid computing overlaps with distributed system such as clusters, supercomputers, and cloud computing platforms.
  - VMware and Xen VMMs are based on paravirtualization.
- c) If one VM infected by virus or get fault, the other VMs will not be affected, which virtualization feature reflect this situation? 5
- d) Give at least one reason that an application running in the cloud might experience more operations whose latencies have a longer tail distribution than running in the customers data center. 5
3. a) Compare Grid and cloud computing from various perspectives, such as architecture, business model, and resource management. 10
- b) Differentiate between process and system virtual machines. 5
- c) What is a virtual machine monitor (VMM)? Describe the essential functions of a VMM. 5