GOA UNIVERSITY

T.Y.B.C.A. (NEP) (Semester - V)
Subject Name: Cloud Computing (Major)

Paper Title: Cloud Computing **Paper Code: CSA-302**

Duration: 2:00 Hour **Total Marks: 60**

Instructions: i) All questions are compulsory.
ii) Figures to the right indicate full marks.
iii) Answer each 2-mark question in approximately 40 words.
iv) Answer each 3-mark question in approximately 60 words.
v) Answer each 4-mark question in approximately 80 words.
vi) Answer each 5-mark question in approximately 100 words.

Q.1) Answer the following: **(6 × 2 = 12 Marks)**

a) List any four cloud-computing characteristics.
b) State the meaning of grid computing and utility computing.
c) Name the three cloud service models and state the principal resource offered by each.
d) What is a hypervisor? Name its two broad types.
e) Define capacity planning and state any two objectives of it.
f) What are Web 2.0 and a Web operating system?

Q.2A) i) Explain the front-end and back-end components of cloud architecture. (3) marks
ii) Explain any two differences between hybrid cloud and community cloud. (2) marks

OR

Q.2A) iii) Explain how measured service and rapid elasticity can control cloud cost. (3) marks
iv) Explain any two limitations of cloud computing. (2) marks

Q.2B) i) Explain how public, private, hybrid and community deployment models differ in ownership, access and suitable use. (5) marks
ii) Explain any two functions of cloud management. (2) marks

Q.3A) i) A software team needs identical, isolated test environments that can be recreated quickly. Apply virtualisation by explaining the use of VM templates, cloning, isolation and snapshots. (4) marks
ii) Name the suitable scaling method for a database that cannot easily distribute its workload. (1) mark

OR

Q.3A) iii) A shopping website expects heavy traffic during a festival sale. Explain four (4) marks

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ways in which capacity planning can help it maintain satisfactory performance.

iv) Name any one workload measurement required before selecting a cloud server instance. (1) mark

Q.3B) i) Before launching a cloud-based video-streaming service, explain five capacity-planning steps that should be carried out. (5) marks

ii) Suggest two tests to verify the selected capacity before production use. (2) marks

Q.4A) i) Analyse the suitability of SaaS for a small business requiring standard collaboration tools. (3) marks

ii) Evaluate two security responsibilities that remain with a SaaS customer. (2) marks

OR

Q.4A) iii) Analyse the benefits and risks of exposing a PaaS application through public APIs. (3) marks

iv) Evaluate whether Web 2.0 features improve a cloud application's usefulness. (2) marks

Q.4B) i) An online training provider needs virtual servers, a platform for developing its learning portal and a ready-made video-meeting application. Identify the suitable cloud service model for each requirement and justify your answers. (5) marks

ii) Analyse any two challenges that may arise while integrating different cloud service models in an online learning environment. (2) marks

Q.5A) i) A bank requires maximum control over sensitive workloads but wants cloud properties such as pooling and self-service. Evaluate an appropriate deployment and service model. (3) marks

ii) Evaluate how multi-tenancy benefits a SaaS provider and state one security concern associated with it. (3) marks

OR

Q.5A) iii) A start-up expects unpredictable growth and must release a web application quickly. Evaluate a suitable platform and scaling approach. (3) marks

iv) A data centre wants to run several isolated virtual machines on each physical server. Recommend a Type 1 or Type 2 hypervisor and justify your recommendation with two reasons. (3) marks

Q.5B) i) A retailer records CPU 70%, memory 88% and network 45% at peak. Apply the metrics to identify the likely bottleneck and recommend two actions. (3) marks

ii) A university uses a SaaS learning-management system. Explain three ways in which it can support teaching and learning. (3) marks

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