Program:	T.Y.B.Sc CS	**Semester:**	VI	**Program Code:**	1S00196
Course:	Cloud Computing and Web Services			**Course Code:**	USCS602

Duration: 2 ½ Hours **Examination Pattern:** REV23 - Autonomous - External **Max. Marks:** 75

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Draw neat diagrams wherever necessary.

Examination:

REGULAR

Q. 1 Attempt ANY FOUR from the following: **(20M)**

(a) What are the technologies on which cloud computing relies?

(b) Briefly discuss the web service description language architecture.

(c) Provide a brief explanation of simple object access protocol web services.

(d) Summarize the constraints of representational state transfer architecture.

(e) List and discuss different types of virtualization.

(f) What are the benefits of virtualization in the context of cloud computing?

Q. 2 Attempt ANY FOUR from the following: **(20M)**

(a) What are software solutions and what are the stages to deploy software in cloud infrastructure?

(b) Explain different types of cloud platforms.

(c) What are the fundamental cloud security services, and how do they support the protection of data and applications in the cloud?

(d) Compare and contrast the security aspects of cloud computing with traditional IT infrastructure.

(e) Define what a cloud security policy is and list the steps to implement it.

(f) Describe some secure development practices and approaches to cloud software requirement engineering to ensure security in cloud-based applications.

Q. 3 Attempt ANY FOUR from the following: **(20M)**

(a) What is CloudSim, and how does it simulate cloud computing environments for development purposes?

(b) What is the function of the GridSim framework within CloudSim, and how does it contribute to cloud resource modeling and simulation?

(c) Explain the benefits of using OpenStack Cloud.

(d) Explain the tenant model in cloud operations and provide a suitable example.

(e) Explain the key steps for creating a custom amazon virtual private cloud.

(f) Explain the role of OpenStack heat in application orchestration, including its workflow, templates, and key features.

Q. 4 Attempt <u>ANY FIVE</u> from the following: **(15M)**

(a) Provide a brief characterization of a distributed system.

(b) Define restful web services and its methods.

(c) Provide a detailed explanation of the public cloud model.

(d) What are the key differences in terms of confidentiality, integrity, and availability in cloud computing?

(e) Explain the architecture of CloudSim and describe the roles of User Code, CloudSim, GridSim, and SimJava in its operation.

(f) List and explain the basic OpenStack operations tasks.