

CBCS SCHEME

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21CS61

Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Software Engineering and Project Management

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What are seven broad categories of computer software? (10 Marks)
b. What are the elements of a software process, generic process framework? (10 Marks)

OR

- 2 a. List the types of prescriptive process models and explain waterfall model and incremental process models. (10 Marks)
b. Explain spiral model and concurrent models. (10 Marks)

Module-2

- 3 a. Define requirements engineering and explain seven different tasks of requirements engineering. (10 Marks)
b. Draw and explain UMC use case diagram for SafeHome home security function. (10 Marks)

OR

- 4 a. Identify different ways of requirements model. Explain scenario based. (10 Marks)
b. Draw and explain activity diagram for access camera surveillance via the internet display camera views function. (10 Marks)

Module-3

- 5 a. Explain 12 agility principles to achieve agility. (10 Marks)
b. Explain SCRUM and FDD. (10 Marks)

OR

- 6 a. Explain Core Principles. (10 Marks)
b. Explain Construction principles. (10 Marks)

Module-4

- 7 a. Explain activities covered in software project management. (10 Marks)
b. Explain ways of categorizing software projects. (10 Marks)

OR

- 8 a. Explain Project charter. (10 Marks)
b. Explain setting objectives. (10 Marks)

Module-5

- 9 a. Explain place of software quality in project planning. (10 Marks)
b. Explain Boehm's model. (10 Marks)

OR

- 10 a. Explain V – Process Model. (10 Marks)
b. Explain software Reliability. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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21CS62

Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Full Stack Development

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the processing of Django request and response with a flow diagram. (10 Marks)
- b. Write a python function in Django framework that displays date and time which is an offset of n hours from current date and time. (10 Marks)

OR

- 2 a. Illustrate the process of URL mapping with views. (10 Marks)
- b. Describe MVC design pattern with a neat diagram. (10 Marks)

Module-2

- 3 a. Define the following: (i) Tags (ii) Filters (10 Marks)
- b. Describe the process of template system usage in Django. (10 Marks)

OR

- 4 a. Explain the following:
(i) Selecting objects
(ii) Deleting objects (10 Marks)
- b. Summarize the concept of template loading in Django. (10 Marks)

Module-3

- 5 a. Illustrate the usage of admin interface in Django. (10 Marks)
- b. Develop a Model form for student that contains his topic chosen for project, languages used and duration with a model called project. (10 Marks)

OR

- 6 a. Describe the following:
(i) Creating a feedback form
(ii) Processing the submission (10 Marks)
- b. Create a Django app that performs student registration course. Register admin interfaces, perform migrations and illustrate data entry through admin forms. (10 Marks)

Module-4

- 7 a. Develop a Django app that performs CSV and pdf generation for any models created. (10 Marks)
- b. Illustrate the generic views of objects. (10 Marks)

OR

- 8 a. Create a generic class view which displays list of students and detail view that displays student details for any selected student in the list. (10 Marks)
- b. Explain the syndication feed framework in generating Non-HTML content. (10 Marks)

Module-5

- 9 a. Define the following: (i) HTML (ii) XML (iii) JSON (iv) CSS (10 Marks)
b. Mention the jQuery Ajax facilities and explain any four. (10 Marks)

OR

- 10 a. Illustrate the using of jQuery UI Autocomplete in Django templates. (10 Marks)
b. Explain XML HTTP Request by mentioning the properties. (10 Marks)

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BCS601

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025

Cloud Computing

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain critical cluster design issues and feasible implementation.	8	L2	CO2
	b.	Describe VM primitive operations.	6	L2	CO2
	c.	Explain virtual machine with architectures of compared with traditional physical machine.	6	L2	CO1
OR					
Q.2	a.	Explain the following: i) Internet of thing ii) Cyber physical systems iii) Memory storage and wide area networking	2 2 6	L1	CO1
	b.	Explain computing paradigm distinctions.	5	L2	CO2
	c.	Describe the classification of parallel and distributed computing systems.	5	L2	CO2
Module – 2					
Q.3	a.	Explain implementation levels of virtualization.	5	L2	CO2
	b.	Draw architecture of computer before and after virtualization.	5	L3	CO2
	c.	Explain how virtualization support at OS level.	10	L3	CO2
OR					
Q.4	a.	Explain virtualization of CPU/memory and I/O devices.	10	L2	CO3
	b.	Describe virtualization for data center automation.	10	L2	CO2
Module – 3					
Q.5	a.	Explain cloud service models with the diagram.	5	L2	CO2
	b.	Explain cloud deployment models.	5	L2	CO2
	c.	Write a note on public cloud platforms, GAE, AWS and Azure.	10	L2	CO3

BCS601					
OR					
Q.6	a.	Define cloud computing and list the characteristics.	5	L1	CO1
	b.	Write benefits and challenges of each service.	5	L1	CO1
	c.	Write a note on Inter cloud resource management.	10	L3	CO3
Module – 4					
Q.7	a.	Summarize cloud data encryption and challenges in data encryption.	8	L2	CO1
	b.	Write a note on cloud security define strategies.	6	L2	CO1
	c.	Explain anomaly detection techniques in cloud.	6	L3	CO3
OR					
Q.8	a.	Describe data and software protection techniques.	8	L2	CO2
	b.	Briefly explain reputation-guided protection of data centers.	6	L2	CO1
	c.	Explain access control and identity access management.	6	L1	CO2
Module – 5					
Q.9	a.	Write difference between cloud and grid computing.	6	L1	CO2
	b.	Explain the following : i) Server keys computing ii) Edge computing iii) AI/ML in cloud iv) Containerization with Docker and Kubernetes v) Quantum computing in cloud	10	L2	CO2
	c.	Explain AWS services.	4	L2	CO2
OR					
Q.10	a.	Explain the features of cloud and grid computing.	10	L1	CO2
	b.	Distinguish between AWS, Azure, GCP, IBM cloud.	6	L3	CO3
	c.	List out best practices for cloud software development.	4	L3	CO3

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- b.** Write Find-S algorithm. Apply the algorithm to obtain the hypothesis for the dataset given in the Table Q.4(b).

Table Q.4(b)

Sky	Air temp	Humidity	Wind	Water	Forecast	Enjoy sport
Sunny	Warm	Normal	Strong	Warm	Same	YES
Sunny	Warm	High	Strong	Warm	Same	YES
Rainy	Cold	High	Strong	Warm	Change	NO
Sunny	Warm	High	Strong	Cool	Change	YES

Module – 3

- Q.5 a.** Apply K-nearest neighbor algorithm, for the dataset given in Table Q.5(a). Given a test instance (6.1, 40, 5), use the training set to classify the test instance. Choose K = 3.

Table Q.5(a)

CGPA	Assessment	Project submitted	Result
9.2	85	8	PASS
8	80	7	PASS
8.5	81	8	PASS
6	45	5	FAIL
6.5	50	4	FAIL
5.8	38	5	FAIL

- b.** Explain types of regression methods and limitations of regression methods.

- c.** Explain the structure of a decision tree and write the procedure to construct a decision the using ID3 algorithm.

OR

- Q.6 a.** Write the nearest-centroid classifier algorithm. Apply the same to predict the class for the given test instance (6, 5) using the training dataset given in Table Q.6(a).

X	Y	Class
3	1	A
5	2	A
4	3	A
7	6	B
6	7	B
8	5	B

Table Q.6(a)

- b.** Distinguish between
 i) Regression and correlation
 ii) Regression and causation
 iii) Linearity and non-linearity relationships.

- c.** Explain the advantages and disadvantages of decision tree. Write the general algorithm for decision tree.

Module – 4

Q.7	a.	Using Naïve bayes classifier classify the new data (Red, SUV, Domestic) using the training dataset given in Table Q.7(a). Table Q.7(a) <table><tr><td>Color</td><td>Type</td><td>Origin</td><td>Stolen</td></tr><tr><td>Red</td><td>Sports</td><td>Domestic</td><td>YES</td></tr><tr><td>Red</td><td>Sports</td><td>Domestic</td><td>NO</td></tr><tr><td>Red</td><td>Sports</td><td>Domestic</td><td>YES</td></tr><tr><td>Yellow</td><td>Sports</td><td>Domestic</td><td>NO</td></tr><tr><td>Yellow</td><td>Sports</td><td>Imported</td><td>YES</td></tr><tr><td>Yellow</td><td>SUV</td><td>Imported</td><td>NO</td></tr><tr><td>Yellow</td><td>SUV</td><td>Imported</td><td>YES</td></tr><tr><td>Yellow</td><td>SUV</td><td>Domestic</td><td>NO</td></tr><tr><td>Red</td><td>SUV</td><td>Imported</td><td>NO</td></tr><tr><td>Red</td><td>Sports</td><td>Imported</td><td>YES</td></tr></table>	Color	Type	Origin	Stolen	Red	Sports	Domestic	YES	Red	Sports	Domestic	NO	Red	Sports	Domestic	YES	Yellow	Sports	Domestic	NO	Yellow	Sports	Imported	YES	Yellow	SUV	Imported	NO	Yellow	SUV	Imported	YES	Yellow	SUV	Domestic	NO	Red	SUV	Imported	NO	Red	Sports	Imported	YES	10	L3	CO4
Color	Type	Origin	Stolen																																														
Red	Sports	Domestic	YES																																														
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Yellow	SUV	Imported	NO																																														
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Red	SUV	Imported	NO																																														
Red	Sports	Imported	YES																																														
	b.	Explain the simple model of an artificial neuron along with the artificial neural network structure.	10	L2	CO4																																												

OR

Q.8	a.	Explain Bayes theorem, Maximum A Posteriori (MAP) hypothesis and Maximum Likelihood (ML) hypothesis in detail.	10	L2	CO4
	b.	Explain different activation functions used in artificial neural network.	10	L2	CO4

Module – 5

Q.9	a.	Consider the following set of data given in Table Q.9(a). Cluster it using K-means algorithm with initial value of objects 2 and 5 with the coordinate values (4, 6) and (12, 4) as initial seeds. Table Q.9(a) <table><tr><th>Objects</th><th>X-coordinate</th><th>Y-coordinate</th></tr><tr><td>1</td><td>2</td><td>4</td></tr><tr><td>2</td><td>4</td><td>6</td></tr><tr><td>3</td><td>6</td><td>8</td></tr><tr><td>4</td><td>10</td><td>4</td></tr><tr><td>5</td><td>12</td><td>4</td></tr></table>	Objects	X-coordinate	Y-coordinate	1	2	4	2	4	6	3	6	8	4	10	4	5	12	4	10	L3	CO5
Objects	X-coordinate	Y-coordinate																					
1	2	4																					
2	4	6																					
3	6	8																					
4	10	4																					
5	12	4																					
	b.	Explain the various components of reinforcement learning.	10	L2	CO5																		

OR

Q.10	a.	Find the Manhattan and Chebyshev distance if the coordinates of the objects are (0, 3) and (5, 8).	4	L3	CO5
	b.	Explain the mean shift clustering algorithm.	6	L2	CO5
	c.	List and explain the i) Characteristics of reinforcement learning ii) Challenges of reinforcement learning iii) Applications of reinforcement learning	10	L3	CO5