

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI EXAMINATION – SUMMER 2025****Subject Code: 3160617****Date:30-05-2025****Subject Name: Construction Equipment and Automation****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) State the need of equipment in construction project.	03
	(b) Classify different type of excavating equipment and explain any one with sketch.	04
	(c) Sketch the concrete batching plant and explain the how it would be functioning.	07
Q.2	(a) State advantages of automation in construction.	03
	(b) Explain the Building Information Modeling up to 7D.	04
	(c) Explain automation used in construction of canal lining.	07
	OR	
	(c) Explain automation is beneficial for construction of Highway.	07
Q.3	(a) Explain the use of robot for demolition of structure.	03
	(b) Compare photogrammetry with drone and without drone.	04
	(c) Discuss in brief the factors affecting the selection of construction equipments.	07
	OR	
Q.3	(a) Describe the sentence "Robotics could change the future of construction"	03
	(b) Demonstrate the future scopes of robotics in construction.	04
	(c) Enlist various types of cranes used in construction work and explain anyone in detail with figure.	07
Q.4	(a) Explain the 3D printing with its parts and object.	03
	(b) Explain the robots use for construction activities like Structural steel cutting,	04
	(c) Argue the benefits of robots in construction industry with respect to time, cost, quality, safety."	07
	OR	
Q.4	(a) Discuss how 3D printing is useful to construct bridges and roads.	03
	(b) How the robots used for construction activities like Brick laying.	04
	(c) Judge the sentence "3D Scanner for surveying and project management is necessary."	07
Q.5	(a) Describe the quantity survey carried out by drones	03
	(b) Identify the sensor used for monitoring the structural health of building.	04
	(c) Compare virtual reality vs. augmented reality with respect to civil engineering application	07
	OR	
Q.5	(a) Discuss the method used to carried out quantity survey by drones.	03
	(b) Explain the marine survey method used by drones.	04
	(c) Examine that the virtual reality is useful for quality inspection on site.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3160617****Date:24-05-2024****Subject Name: Construction Equipment and Automation****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) What is building automation system. **03**
 (b) How 3d –printing Robot is working? **04**
 (c) How does a drone survey work? **07**

- Q.2** (a) Discuss the contribution of construction equipments in construction industry. **03**
 (b) Classify the construction equipments. **04**
 (c) Discuss in brief the factors affecting the selection of construction equipment's. **07**

OR

- (c) Explain in detail how automation is working in concrete technology? **07**

- Q.3** (a) What is difference between robotics and automation? **03**
 (b) Write short note on types and working of brick laying machine/robots. **04**
 (c) Explain the benefits of robots in construction industry in context of time, safety, quality and cost. **07**

OR

- Q.3** (a) How canal automation help in canal lining. **03**
 (b) What are the advantages & disadvantages of the Drone? **04**
 (c) Write note on automation in highway construction. **07**

- Q.4** (a) Classify different types of drones. **03**
 (b) Explain use of robot in material handling and steel cutting **04**
 (c) What is 3D printing? What are the advantages of 3D printing **07**

OR

- Q.4** (a) What is drone mapping? **03**
 (b) How Robotics could change the future of construction? **04**
 (c) What is the full form of DRONE? What are drones useful for? **07**

- Q.5** (a) What is concept of virtual reality technology? **03**
 (b) Explain in Brief about BIM **04**
 (c) What is structural health monitoring? Explain how effective structural health monitoring can be done using drones. **07**

OR

- Q.5** (a) What is robotic demolition in construction? **03**
 (b) Write about applications of Automated construction and robotics. **04**
 (c) Write short note on Building Information Modelling. **07**

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3160617****Date:14-07-2023****Subject Name:Construction Equipment and Automation****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1**
- | | |
|--|-----------|
| (a) Define: Scrap values, Obsolescence and Depreciation | 03 |
| (b) List the different construction equipment. | 04 |
| (c) What are the uses of power shovels? Describe basic parts and operation, giving with neat sketch. | 07 |

- Q.2**
- | | |
|--|-----------|
| (a) Give classification of construction equipment. | 03 |
| (b) What are the importance of construction equipment in construction industry? | 04 |
| (c) What are the different types of mobile cranes? Describe any two mobile cranes with sketch. | 07 |

OR

- | | |
|--|-----------|
| (c) Discuss in detail the factors affecting the selection of construction equipment. | 07 |
|--|-----------|

- Q.3**
- | | |
|---|-----------|
| (a) What are the benefits of automation? | 03 |
| (b) Explain the advantages and disadvantages of automation. | 04 |
| (c) What is 3D printing? Explain advantages of 3D printing. | 07 |

OR

- Q.3**
- | | |
|--|-----------|
| (a) Define automation. Write need of automation. | 03 |
| (b) Write short note on automation in highway. | 04 |
| (c) Explain working of 3D scanner for surveying. | 07 |

- Q.4**
- | | |
|--|-----------|
| (a) What is robotic demolition in construction? | 03 |
| (b) Write the uses of robots in construction industry. | 04 |
| (c) Explain the automation in concrete technology. | 07 |

OR

- Q.4**
- | | |
|--|-----------|
| (a) How robotics could change the future of construction? | 03 |
| (b) Explain benefits of robots in construction industry. | 04 |
| (c) Explain in detail the canal hydraulic properties for automation. | 07 |

- Q.5**
- | | |
|--|-----------|
| (a) Give the full form of DRONE. Explain drone mapping. | 03 |
| (b) Explain real time data and structural health monitoring survey using drones. | 04 |
| (c) Explain Building Information Modelling. | 07 |

OR

- Q.5**
- | | |
|--|-----------|
| (a) What are the uses of virtual reality technologies? | 03 |
| (b) Explain the concept of virtual reality technology. | 04 |
| (c) What is photogrammetry? Explain advantages of using drone in photogrammetry? | 07 |

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3160617****Date:10/06/2022****Subject Name:Construction Equipment and Automation****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

- | | | |
|------------|--|-----------|
| Q.1 | (a) Define special equipment with example. | 03 |
| | (b) Explain need of construction equipment. | 04 |
| | (c) Write note on purpose, components and classification of concrete batching plant. | 07 |
| Q.2 | (a) Define: Depreciation, Salvage and scrap values | 03 |
| | (b) List the different excavating equipment. | 04 |
| | (c) Write note on types, basic parts, operation of power shovel with neat sketch. | 07 |
| | OR | |
| | (c) What is the difference between mobile cranes and tower cranes? Write note on components, purposes and types of tower cranes with sketch. | 07 |
| Q.3 | (a) What is automation? Explain need of automation. | 03 |
| | (b) What are the benefits of automation? | 04 |
| | (c) Write a note on canal lining equipment | 07 |
| | OR | |
| Q.3 | (a) What is difference between robotics and automation? | 03 |
| | (b) Write short note on types and working of brick laying machine/robots. | 04 |
| | (c) Write note on automation in highway construction. | 07 |
| Q.4 | (a) What are benefits of robotics in construction industry? | 03 |
| | (b) Explain robotics in building demolition activity | 04 |
| | (c) Explain working of 3D scanner for surveying | 07 |
| | OR | |
| Q.4 | (a) Classify different types of drones. | 03 |
| | (b) Explain use of robot in material handling and steel cutting | 04 |
| | (c) What is 3D printing? What are the advantages of 3D printing | 07 |
| Q.5 | (a) What is photogrammetry ? | 03 |
| | (b) Explain advantage of using drone in photogrammetry | 04 |
| | (c) Explain Real time data and land survey using drone. | 07 |
| | OR | |
| Q.5 | (a) What is concept of virtual reality technology? | 03 |
| | (b) Explain in Brief about BIM | 04 |
| | (c) What is structural health monitoring? Explain how effective structural health monitoring can be done using drones. | 07 |
