

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-VI EXAMINATION – WINTER 2025****Subject Code:3160617****Date:25-11-2025****Subject Name:Construction Equipment and Automation****Time:02:30 PM TO 05:00 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) Explain importance of construction equipments. **03**  
 (b) State and explain the factors affecting on owning and operating cost. **04**  
 (c) Draw neat sketch of scrapers and label it. **07**
- Q.2** (a) What are the types of batching plant of concrete? **03**  
 (b) What are the advantages and disadvantages of Automation in construction industry? **04**  
 (c) State the use of scrapers and working of scrapers. **07**
- OR**
- (c) Draw neat sketch of belt conveyor and describe its components. **07**
- Q.3** (a) What is the full form of DRONE? And write the advantages of the DRONE? **03**  
 (b) Write down the different types of the DRONE. **04**  
 (c) What are the application of drones in construction? **04**
- OR**
- Q.3** (a) How Automation help in canal lining? **03**  
 (b) What are the benefits of 3D printing in construction? **04**  
 (c) What is SCADA system? And how SCADA is working for highway construction? **07**
- Q.4** (a) How do you do Structural Health Monitoring? **03**  
 (b) What are the three phase of BIM? **04**  
 (c) How Robotics used in bridges and roads? **07**
- OR**
- Q.4** (a) How Robotics could change the future of construction? **03**  
 (b) Which material is used to 3d print for house? How does 3d printing work? **04**  
 (c) What are the advantage and disadvantages of 3d printing for construction? **07**
- Q.5** (a) What are the challenges will 3d painting have in the future? **03**  
 (b) How is laser scanning technology used in land surveying? **04**  
 (c) What is augment and virtual reality technology? **07**
- OR**
- Q.5** (a) What are the benefits of BIM in construction project? **03**  
 (b) How drone are work for under water survey? **04**  
 (c) Write short note on: Properties of Canal Lining. **07**

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**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024**

**Subject Code:3160617**

**Date:05-12-2024**

**Subject Name:Construction Equipment and Automation**

**Time:02:30 PM TO 05:00 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) Write the importance of construction equipments in construction industry. **03**  
(b) Write and explain the factors affecting selection of construction equipment. **04**  
(c) State advantages and disadvantages of automation in construction. **07**
- Q.2** (a) List the different excavating equipment. **03**  
(b) Write note on purpose, components and classification of concrete batching plant. **04**  
(c) Differentiate between Standard equipment and Special equipment. **07**
- OR**
- (c) Classify different construction equipment. **07**
- Q.3** (a) What do you mean by real time data and aerial mapping? **03**  
(b) What are the function of a tractors what are the various type of tractor. **04**  
(c) Explain depreciation. List the methods of calculating depreciation cost. Explain simple line method of depreciation with a suitable example. **07**
- OR**
- Q.3** (a) How can be the automation applied to canal lining? **03**  
(b) Write a short note on pavers. **04**  
(c) Enlist various types of cranes used in construction work and explain anyone in detail with figure. **07**
- Q.4** (a) Write short note on types and working of brick laying machine/robots. **03**  
(b) How is quantity survey carried out by drones? **04**  
(c) Explain working mechanism of drones. **07**
- OR**
- Q.4** (a) What are the advantages of using robots in structural steel cutting? **03**  
(b) How drones are useful for project monitoring? **04**  
(c) Classify different types of drones. **07**
- Q.5** (a) Explain about 3D printing and its use in construction industry. **03**  
(b) What are the uses and benefits of Virtual reality technologies? **04**  
(c) Write short note on Building Information Modelling. **07**
- OR**
- Q.5** (a) Define photogrammetry. For what purpose it is used? **03**  
(b) Write note on automation in highway construction. **04**  
(c) Differentiate between virtual reality and augmented reality. How both are applicable in construction industry? **07**

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3160617****Date:13-12-2023****Subject Name: Construction Equipment and Automation****Time:02:30 PM TO 05:00 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 are the benefits of utilizing equipments for construction? **03**  
 (b) Write a note on plastering equipment. **04**  
 (c) How will you arrive at the operating cost for power shovel? **07**
- Q.2** (a) What is the need of automation in construction? **03**  
 (b) How does automated canal lining equipments works? **04**  
 (c) Describe the state of the art equipments of highway construction. **07**
- OR**
- (c) Write a note on automation in ready mix concrete plant **07**
- Q.3** (a) Give classification of construction equipments. **03**  
 (b) Briefly describe different types of excavators. **04**  
 (c) What are the benefits and shortfalls of aerial mapping through drones over traditional survey methods? **07**
- OR**
- Q.3** (a) Describe the features of construction equipments. **03**  
 (b) Write a brief note on tower cranes. **04**  
 (c) Explain how drones can be used for project management in real time? **07**
- Q.4** (a) How can robots be used for material handling at sites? **03**  
 (b) Describe automated brick laying robot. **04**  
 (c) What is Drone Photogrammetry? Explain how it works? **07**
- OR**
- Q.4** (a) Explain how drones can be used for marine surveys? **03**  
 (b) Describe a typical structural health monitoring framework where drones plays an essential part. **04**  
 (c) Write a note on robotic structural steel cutting system **07**
- Q.5** (a) Describe a typical example of implementation of virtual reality and augmented reality in buildings. **03**  
 (b) How can BIM be implemented in construction of buildings? **04**  
 (c) What are the advantages of using robotics in construction? **07**
- OR**
- Q.5** (a) How can robotics be utilized for demolition? **03**  
 (b) Write a note on 3D Printing of residential unit. **04**  
 (c) Describe 4D - BIM Model to be implemented in construction planning. **07**

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160617****Date:17-12-2022****Subject Name:Construction Equipment and Automation****Time:02:30 PM TO 05:00 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) Why are construction equipment required? **03**  
(b) State advantages of automation in construction. **04**  
(c) How robots are useful in construction industry with respect to time, cost, quality and safety? **07**

- Q.2** (a) Explain working mechanism of drones. **03**  
(b) State unique features of construction equipment. **04**  
(c) Which are the applications of Building Information Modeling (BIM) in a civil engineering construction project? **07**

**OR**

- (c) Differentiate between virtual reality and augmented reality. How both are applicable in construction industry? **07**

- Q.3** (a) What do you mean by real time data and aerial mapping? **03**  
(b) How is quantity survey carried out by drones? **04**  
(c) Write a short note on concrete batching plant. **07**

**OR**

- Q.3** (a) How drones are useful for project monitoring? **03**  
(b) How is quality survey carried out by drones? **04**  
(c) Enlist various types of cranes used in construction work and explain anyone in detail with figure. **07**

- Q.4** (a) What are the advantages of using robots in demolition work? **03**  
(b) Write a short note on pavers. **04**  
(c) How to determine owning and operating cost of excavators? **07**

**OR**

- Q.4** (a) What are the advantages of using robots in structural steel cutting? **03**  
(b) What do you mean by canal lining? How it is to be done? **04**  
(c) Discuss future scopes of robotics in construction. **07**

- Q.5** (a) Define photogrammetry. For what purpose it is used? **03**  
(b) Explain 3D printing in construction. **04**  
(c) Explain various applications of automation in concrete technology. **07**

**OR**

- Q.5** (a) Which are the key parts of a drone? **03**  
(b) How 3D scanner is useful for surveying? **04**  
(c) Which are the major advantages we got using automation in highway construction? **07**

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