

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VI EXAMINATION – SUMMER 2026

Subject Code:3160617

Date:01-06-2026

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) Explain the need of equipment in construction. 03
(b) Give a detailed classification of construction equipments. 04
(c) Write note on purpose, components and classification of concrete batching plant. 07
- Q.2 (a) How does the capacity of equipment affect its productivity? 03
(b) How does the productivity of an excavator can be worked out? 04
(c) State advantages and disadvantages of automation in construction industry. 07

OR

- (c) Write and explain the factors affecting selection of construction equipment. 07
- Q.3 (a) How is the owning and operating cost of an equipment be worked out ? 03
(b) Explain about construction using 3D printing. Which are the elements of 3D printing? 04
(c) Explain use of robots for construction activities (i) Brick laying, (ii) Structural steel cutting (iii) Form work mould making 07

OR

- Q.3 (a) Define automation. What is the need of automation in construction? 03
(b) Differentiate between Standard equipment and Special equipment. 04
(c) How is the 3D Scanner useful for surveying and project management? 07
- Q.4 (a) What are the advantages and disadvantages of automation? 03
(b) Explain working of 3D scanner for surveying. 04
(c) State and explain types of drones used in construction industry 07

OR

- Q.4 (a) Which are the key parts of a drone? 03
(b) Explain 3D printing in construction industry. 04
(c) What are the advantages of using drones in Civil Engineering projects? 07
- Q.5 (a) What is robotic demolition in construction? 03
(b) How the automation can be helpful to increase productivity of pavers ? 04
(c) Explain about virtual reality (VR) and augmented reality (AR). How can it be used in construction industry? 07

OR

- Q.5 (a) Explain use of robot in material handling and steel cutting. 03
(b) Explain how drones can be helpful in land survey, quantity survey and quality survey? 04
(c) State and explain the uses of BIM in construction industry? 07
