

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**
