

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**
