

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME - SEMESTER-1 (NEW) EXAMINATION – WINTER 2018**

**Subject Code: 3711415****Date: 04/01/2019****Subject Name: Sustainable Construction Practices****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 mark.

- Q.1** (a) Give briefly explanation on Sensing Technology. Also write how it can be helpful to make project sustainable. **07**
- (b) Discuss importance of sustainable construction in today's engineering world with suitable example. **07**

- Q.2** (a) Give classification of excavating equipments and write its application. **07**
- (b) Define sustainable construction with appropriate example. Also discuss its feasibility and challenges in Indian context. **07**

**OR**

- (b) How you can use on site resources to make construction sustainable. Support your answer with suitable examples. **07**

- Q.3** (a) Write short note on: Actuator techniques **07**
- (b) Explain in brief about straw bale construction. And write its advantages. **07**

**OR**

- Q.3** (a) Enlist types of sensors and write its application in construction. **07**
- (b) Discuss the construction sequences for straw bale construction. **07**

- Q.4** (a) Write short note on ferro cement as sustainable construction. **07**
- (b) A shovel having a bucket capacity of 3.5 cubic meters is loading poorly blasted rock having fill factor 85%. it is working at an average of 3 m high face. The shovel has a maximum rated digging height of 10 m. The haul units can be positioned so the swing angle is only 60 degree. What is a conservative ideal loose cubic meters production per hour if ideal cycle time is 20 sec? **07**
- Also Consider below data to find productivity.

- Optimum height for this machine is 50 % of maximum rated digging height.
- Efficiency factor 50 min per hour
- Consider below correction Factor for height and angle of swing effect on shovel production.

Percentage of optimum height/depth (%)	Angle of swing (60 degree)
40	0.89
60	1.03
80	1.12

**OR**

- Q.4** (a) Discuss the various factors can affect the Productivity of earth movers. **07**
- (b) What is fly ash? Write properties and its application in construction. **07**

- Q.5** (a) Enlist and explain the types of cranes. **07**
- (b) Write short note on Precast Construction Technology. **07**

**OR**

- Q.5** (a) Write short note on earth bag construction. **07**
- (b) Write short note on concrete blocks manufacturing Plant. **07**