

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:2160601****Date:01/06/2022****Subject Name:Advanced Construction and Equipments****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.

		MARKS
Q.1	(a) Explain efficiency of group of piles and enlist the factors affecting efficiency of pile group.	03
	(b) What do you mean by multiple wells? Describe its construction procedure and its use.	04
	(c) Explain the safety measures to be adopted for the safe demolition of structure.	07
Q.2	(a) What are the causes of failure of piles?	03
	(b) What do you mean by cofferdams? Describe the situations in which cofferdams should be adopted.	04
	(c) Determine the probable cost of owning and operating of a diesel engine crawler mounted power shovel with the following given data: Engine = 200Bhp Crank case capacity = 50 litres Useful life = 10 Years Time between oil changes = 200 hours Cost of oil = ₹500/litre Shipping weights = 100 tonne List price of the equipment = ₹500000/- Operating factor= 0.4 Freight charges = ₹50/tonne Unloading and assembling charges = ₹1000/- Hour used/ Year = 10000 hours Investment cost = 12% of the average cost Scrap value= 10% of the factory cost Maintenance cost = 80% of the depreciation cost Specified fuel consumption = 0.8 Cost of diesel = ₹95/-	07
OR		
	(c) Enlist and explain the various costs associated in the total cost of owning and operating of construction equipment.	07
Q.3	(a) What do you mean by gradability and rolling resistance?	03
	(b) Enlist and explain the factors affecting selection of construction equipment.	04
	(c) Explain in detail design consideration of tall structure.	07

OR

- Q.3** (a) What measures to be adopted in the leakage prevention in the cofferdam. **03**
(b) Enlist and explain the factors affecting the actual production of a shovel. **04**
(c) Enlist different hoisting equipments and explain with sketches gantry crane. **07**

- Q.4** (a) Explain components of cycle time of truck with their equations. **03**
(b) What do you mean by pulling of piles? Explain the methods commonly adopted for it. **04**
(c) Enlist and explain factor affecting output of the dragline. **07**

OR

- Q.4** (a) Define rim pull, draw pull and coefficient of traction. **03**
(b) A four-cycle engine when tested under given condition of temperature is 30°C. At pressure 720mm hg was found 110bHp. Determine the bHp for standard condition. (Assume Standard Conditions) **04**
(c) Explain belt conveyer system with neat sketch. **07**

- Q.5** (a) Explain cellular cofferdam. **03**
(b) Enlist the equipments used for production of aggregates and explain the jaw crusher **04**
(c) Explain tunnel boring machine. **07**

OR

- Q.5** (a) Draw the sketch of power shovel showing its essential parts. **03**
(b) Explain pneumatic caisson with neat sketch. **04**
(c) Enlist the various method of demolition of structure and explain any one method. **07**
