Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014**

**Subject Code: 160601** **Date: 19-05-2014**

**Subject Name: Advanced Construction Technology**

**Time: 10:30 am - 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.**

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|---|---|---|---|
| **Q.1** | **(a)** | Under which situation an Under Reamed piles are required ? Explain construction procedure of it. | **07** |
| | **(b)** | Discuss the well sinking operation with sketches. | **07** |
| **Q.2** | **(a)** | List different types of hammers used for pile driving. Give advantages and disadvantages of each. | **07** |
| | **(b)** | Explain with sketches, dewatering by well-point system. | **07** |
| | | **OR** | |
| | **(b)** | What are the reasons of pulling out piles from their positions ? What are the methods adopted for it ? | **07** |
| **Q.3** | **(a)** | Where do you prefer the construction of cofferdams ? What are its design features ? Explain with sketch construction of Rock-fill cofferdam. | **07** |
| | **(b)** | Where do you prefer pneumatic caisson ? Describe its construction procedure with sketch. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain with sketch construction of cellular cofferdams. How do you control the leakage of water from cofferdams. | **07** |
| | **(b)** | What is tilt and shift in construction of caissons ? How can you rectify the tilting of caissons ? | **07** |
| **Q.4** | **(a)** | Define (i) Centering (ii) Shuttering. What are the characteristics of timber, steel and plywood formwork ? | **07** |
| | **(b)** | How do you select the method of dewatering and control of ground water in excavation ? | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain with sketches formwork for (i) RCC column and (ii) RCC wall | **07** |
| | **(b)** | What are the advantages and disadvantages of Chemical Grouting method for underground water control ? In which situation Electro Osmosis method of under ground water control is preferred ? | **07** |
| **Q.5** | **(a)** | Explain the situations under which demolition of a structure is required ? List the factors considered before demolition of a structure is carried out. | **07** |
| | **(b)** | Define (i) Repair and (ii) Retrofitting. Differentiate between them. How retrofitting of concrete column is done ? | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | What are the advantages and disadvantages of prestressed concrete ? Explain methods of prestressing. | **07** |
| | **(b)** | Explain with neat sketch about provision of horizontal reinforcement and vertical reinforcement in masonry structures as per Indian Standard. | **07** |

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