

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.

- Q.1** (a) Under which situation an Under Reamed piles are required ? **07**
Explain construction procedure of it.
- (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. **07**
What are the characteristics of timber, steel and plywood formwork ?
- (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 ? **07**
List the factors considered before demolition of a structure is carried out.
- (b) Define (i) Repair and (ii) Retrofitting. **07**
Differentiate between them. How retrofitting of concrete column is done ?
- OR**
- Q.5** (a) What are the advantages and disadvantages of prestressed concrete ? **07**
Explain methods of prestressing.
- (b) Explain with neat sketch about provision of horizontal reinforcement and vertical reinforcement in masonry structures as per Indian Standard. **07**
