

# **Sai Nath University**

## **Assignment For Diploma In Civil 4<sup>th</sup> Sem.**

The Assignment will consist of two parts, A and B. Part A will have 5 short answer questions(40-60 words) of 4 marks each. Part B will have 4 long answer questions of 5 marks each.

### **All questions are compulsory.**

These Assignments should be completed and submitted in written form by the student to his/her respective Faculty/ Examiners. Assignment Submission Dates are:

➤ **June-18**

### **List Of Suggested Questions**

The list of suggested questions is for students to practice. Although optional, we recommend that students solve these questions, as they will help them in preparing for exams as well as in clearing the important concepts of the subject.

### **List of Practical and suggested practical's**

The list of practical's should be done by the students in their Lab Sessions. These are the basic practical's, which each student should be able to do himself independently. While the list of suggested practicals are optional, but it is recommended that students should perform those practical so as to have a thorough knowledge of the subject

### **Education Delivery Schedule (EDS)**

As per University Semester scheme, the minimum contact hours of each paper has been Divided into two hours theory and practical class.

The faculty will maintain this attendance paper wise for his/her batch.

<b>Subject Code</b>	<b>Subject Name</b>
DECE-401	CONSTRUCTION MATERIAL AND PROCESS
DECE-402	BUILDING CONSTRUCTION SYSTEM -1
DECE-403	CONCRETE TECHNOLOGY & SOIL MECHANICS
DECE-404	SURVEING
DECE-405	CIVIL ENGINEERING DRAWING
DECE-406	PRACTICAL

# SAI NATH UNIVERSITY

## Cover page of Assignment

ID NUMBER .....  
NAME .....  
COURSE Diploma.....  
STREAM Civil Engineering.....  
SEM 4<sup>Th</sup>.....  
SUBJECT CODE .....  
SUBJECT NAME .....

**Assignments will be completed by the Student in his/her own handwriting.**

# **CONSTRUCTION MATERIAL & PROCESS**

## **DECE-401**

### **PART-A**

1. Why stone is called building material?
2. Explain in detail about ceramic.
3. What is meant by hydration of cement?
4. List down the application of light weight concrete blocks.
5. Write down the function of solvent.

### **PART-B**

1. With neat sketches explain the manufacturing process of concrete.
2. Write short note on refractory bricks.
3. Explain in detail about the principal process involve in heat treatment of steel.
4. Explain the self compacting concrete.

## **Building construction sytem-1**

## **DECE-402**

### **PART-A**

1. What is the purpose of dressing stone? Discuss the different types of surface finishes employed in stone masonry construction.
2. Define bond. Distinguish between a wall in English bond and a wall in Flemish bond with the help of sketches.
3. What are the characteristics of good timber? Explain the terms : Decay of timber, Seasoning of timber and Preservation of timber.
4. What do you understand by the term "Curing"? Why is it essential to cure concrete ? What are the various methods commonly adopted in curing? 1
5. Write short notes on the following :  
(a) Normal Setting Cement (b) High Alumina Cement

### **PART-B**

1. What are plastics and how are they classified? What are the general properties of plastics?
2. Draw neat sketches to explain the following types of foundations :  
(a) Grillage foundations (b) Raft foundations
3. What do you understand by the terms, arches and lintels? Describe in brief the various types of arches used in modern construction
4. What are the advantages of using Asbestos-cement sheets as a roof covering for pitched roof ? Describe the methods of fixing A.C. sheets to timber purlins.

Concrete technology & Soil mechanics

DECE-403

**PART-A**

1. Explain the geophysical methods of soil exploration.
2. Write the equation for finding the bearing capacity of a shallow foundation given by Terzaghi. Mention the assumptions made.
3. Explain the merits and demerits of direct shear test.
4. What is the difference between consolidation and compaction? Discuss the factors affecting compaction.
5. Using phase relationship, show that  $1 + e = \frac{G}{G_y} w$

**Part-B**

1. Describe various laboratory test on cement.
2. Describe in detail I.S. methods for mix design.
3. Explain stress- strain characteristics in concrete.
4. What are the different types of vibrator used in concrete? Explain each of them.

**Surveying**

**DECE-404**

**PART-A**

1. Write the differences between prismatic and surveyor's compasses.
2. Convert the following quadrantal bearings into whole circle bearings and find their back bearings : N 67 E, S 31 E, N 26 W and S 43 W.
3. Enumerate the methods for Plane Table Surveying. Explain any one method in detail with a suitable line diagram.
4. Differentiate between Magnetic Bearing and True Bearing. 2 BICE-002 2
5. Explain the temporary adjustment of transit theodolite.

**PART-B**

1. Define the following terms associated with theodolite survey :
  - a. Vertical axis
  - b. Horizontal axis
2. Short note
  - a. Trunnion axis
  - b. Face left observations
  - c. Axis of plate level tube
3. Write short notes on any two of the following :
  - i. Direct and Indirect Ranging
  - ii. Reciprocal Levelling

4. Write short notes on any two of the following :
- (a) Fast Needle Method
  - (b) Accessories for Compass Survey
  - (c) Local Attraction
  - (d) Field Book
  - (e) Offsets
  - (f) Correction for Temperature and Pull

## **Civil Engineering Drawing**

### **DECE-405**

#### **PART-A**

1. Sketch the section at support of an RCC slab bridge showing bed block and abutment cross-section and name the parts.
2. Sketch the cross-section of pipe along with bedding and benching of a pipe culvert with the following data : Internal diameter of the pipe = 1.00 m Thickness of pipe = 0.10 m No. of pipes = 1 Thickness of concrete bed = 200 mm Width of concrete bed = 1800 mm Thickness of concrete benching = 350 mm
3. Draw the cross-section of a washbasin fixed to wall at a height of 750 mm with the following data : Height of the room = 3000 mm Slab thickness = 150 mm Size of washbasin = 600 mm × 400 mm.
4. Draw the cross-section of a pipe culvert from the following data : Diameter of pipe = 1.2 m No. of pipes = 2 Distance between the centers of pipes = 1.9 m Thickness of concrete bed = 150 mm Concrete offset on either side = 250 mm Thickness of concrete benching = 500 mm
5. Draw the plan of a two-span (each 3.0 m) RCC T-beam bridge and label the components.

#### **PART-B**

1. Draw the cross-section of any empty soak pit with lining with the following specifications : Diameter (internal) = 900 mm Circular lining = 230 mm thick brick lining with dry joints Total depth of pit = 1.70 m General ground level = 450 mm below roof slab Inlet pipe with bend = 75 mm dia and kept at 250 mm below GL Inside cement plastering = The inside of the wall is plastered with CM (1: 3) to a thickness of 13 mm from top of the level of inflow (inlet) pipe Roof covering = Covered with removable precast concrete slabs 70 mm thick Casing around the circular lining on outer side = 75 mm thick outer casing is provided with coarse aggregate from bottom of the lining to the level of inlet pipe Ordinary soil may be provided around the pit to form sloped connection with the ground and it may be turfed.

2. Draw the longitudinal section of the body wall of a canal drop with the following data : Length of body wall = 9.0 m Top of notch pier = + 45.00 m Top of body wall = + 44.00 m Top of CC foundation = + 42.80 m Bottom of CC foundation = + 42.20 m Offset of CC foundation = 0.3 m on either side Notch = Trapezoidal shape with bottom width 0.6 m and side slopes = 1 : 1.
3. Draw the cross-section of a homogeneous Earthen Bund with the following specifications, at a scale of 1 : 100 : 15 Top width of bund = 1600 mm TBL = + 60.50 m General ground level = + 53.00 m Stripped GL = + 52.80 m Side slopes  $1\frac{1}{2}$  : 1 on U/s and 2 : 1 on D/s Provide key trenches of 1250 mm wide and 700 mm deep at 3600 mm c/c. U/s face of the bund is provided with 300 mm thick rough stone revetment over 150 mm thick gravel backing. This revetment is founded on toe of 1000 mm wide and 1300 mm deep. On D/s face, a rock toe with 300 mm rough stone boulders is provided with 1000 mm top width and top level being at + 54.20 m. Take side slope of rock toe as 1 : 1. Provide sand filter of 200 mm thick on rear side and at the bottom of the rock toe. Provide a longitudinal drain with bottom width 1000 mm and side slopes 1 : 1. This is in line with the outer surface of rock toe and taken to a level of + 51.00 m. Rough stones of 300 mm size are used for side revetment and bed pitching of toe drain.
4. General ground level at the site = +159.50

## **PRACTICALS**

### **DECE-406**

1. To physically identify different types of stones.
2. To determine the crushing strength of stones.
3. To determine the water absorption of bricks.
4. To conduct dimensional tolerance test on bricks.
5. To conduct field tests on cement.
6. To determine fineness (by sieve method) of cement.
7. To determine normal consistency of cement.
8. To determine initial and final setting times of cement.
9. To determine soundness of cement.
10. To determine compressive strength of cement.
11. To identify various types of timbers such as: Teak, Sal, Chir, Sisso, Deodar, Kail.