Sai Nath University

Assignment For B.Tech Civil 6th 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:

- **17 June**

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.

Subject Code	Subject Name
BTCE-601	DESIGN OF STEEL STRUCTURE
BTCE-602	ADVANCED STRUCTURAL ANALYSIS
BTCE-603	ENVIROMENTAL ENGINEERING
BTCE-604	ADVANCED FOUNDATION ENGINERING
BTCE-605	INDUSTRIAL ECONOMICS & MANAGEMENT
BTCE-606	PRACTICAL

SAI NATH UNIVERSITY

Cover page of Assignment

ID NUMBER	……
NAME	…… ……
COURSE	B.TECH…….
STREAM	Civil Engineering……
SEM	6^{Th}……
SUBJECT CODE	……
SUBJECT NAME	……

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

DESIGN OF STEEL STRUCTURE

BTCE-601

PART-A

1. A cantilever beam 4 meter long carries a gradually varying load, zero at the free end to 3 kn/m at the fixed end. draw b.m. and s.f. diagram.
2. A steel join simply supported over a span of 6 m carries a point load of 50 kn at 1.2 m from the left hand support . find the passion and magnitude of the maximum deflection. ei= 14*10 12 n-mm 2.
3. Derive the formula slope and deflections simply supported beam with a central point load?
4. Condition to overturning of the dam? condition for the stability of a dam ?
5. What is moment of resistance? do you know about the position of neutral axis? do you know about rankine' theory.

PART-B

1. Relation between slope, deflection and radius of curvature?
2. A hollow circular column having and internal diameter of 300mm and 250 mm respectively a vertical load of 100 kn at outer edge of the column. Calculate the maximum and minimum intensities of stress in the section.
3. A wooden beam 140 mm wide and 240 mm deep has a span of 4 m. Determine the load that can be placed at its centre of cause the beam of 10 mm. e =6 gpa
4. A steel join simply supported over a span of 6 m carries a point load of 50 kn at 1.2 m from the left hand support. find the passion and magnitude of the maximum deflection. ei= 14*10 12 n-mm 2.

ADVANCED STRUCTURAL ANALYSIS

BTCE-602

PART-A

1. Relation between slope, deflection and radius of curvature?
2. A hollow circular column having and internal diameter of 300mm and 250 mm respectively a vertical load of 100 kn at outer edge of the column . calculate the maximum and minimum intensities of stress in the section.
3. DO you know about column with eccentric loading?
4. Define the retaining walls.
5. Define the active earth pressure and passive earth pressure.

Part-B

1. A water tank cantains 1.3 m deep water .find the pressure exerted by the water per meter length of the tank . Take specific weight of water as 9.8 kn/m3 write the sign convention?
2. Determine the moment of inertia of a semicircular section of 100mm diameter about its centre of gravity and parallel to x x and y y axes?
3. A simply supported beam of span 3 m is subjected to a central load of 10 kn . Find the maximum slop and deflection. i=12*106 mm4 and e= 200 gpa.
4. A wooden beam 140 mm wide and 240 mm deep has a span of 4 m. Determine the load that can be placed at its centre of cause the beam of 10 mm. e =6 gpa

ENVIROMENTAL ENGINEERING

BTCE-603

PART-A

1. Describe the various methods of forecasting population. Which method will be considered most appropriate for forecasting the population of cities like Delhi, Mumbai, etc? Why?
2. What is meant by hardness? Differentiate between temporary and permanent hardness.
3. What points should be considered in deciding the location of a pumping station ?
4. What are the different materials which are commonly used for water supply pipes ? Discuss their comparative merits and de
5. What are the common impurities found in natural sources of water ? Explain their effects upon its quality?

Part-B

1. A What is coagulation? What are its purposes? Explain the working of clariflocculator with a neat sketch.
2. Compare in detail the slow sand filter with Rapid sand filter.
   (a) Explain the various techniques used to remove taste and odour from water.
3. State the necessity and requirements of a good disinfectant.
   (a) Explain in detail the purification processes in natural systems.
4. Explain the Hardy Cross method used for pipe network analysis in water distribution system.

BTCE-604

PART-A

1. What are the requirements for a stable foundation?.
2. What is the limitation of Terzaghi's analysis?
3. Define net ultimate bearing capacity. Define allowable bearing capacity.
4. Define Shallow foundation. Define Deep foundation.
5. Define differential settlement. When will the Consolidation settlement get completed?

PART-B

1. Calculate the net ultimate bearing capacity of a rectangular footing 2m x 4m in plan, founded at the depth of 1.5m below the ground surface. Load on the footing acts an angle of 15 degrees to the vertical and its eccentric in the direction of width by 15 cm. The saturated unit weight of the soil is 18 kN/m3 the rate of loading is slow and hence the effective stress shear strength parameters can be used in the analysis, c'=15 kN/m2 , ø' = 25o . Natural ground water table is at the depth of 2m below from the ground surface. Use IS 6403 (1981) recommendations.
2. Determine the ultimate bearing capacity of a strip footing, 1.5m wide, with its base at a depth of 1m, resting on a sand stratum if the ground water table is located a) at a depth of 0.5m below the ground surface, b) at a depth of 0.5m below the base of the footing. Take 3 3 o d sat =17 kN/m , =20 kN/m , =38 and c' =0. $\gamma\gamma$ φ Use Terzaghi's theory.
3. A chimney, with a rigid base 2.5m square, is placed at a depth of 1m below the ground surface. The soil is clay with an unconfined compressive strength of 60 kN/ 2 m and unit weight of 20 kN/ 3 m . The weight of the chimney is 60 kN. The chimney has a resultant wind load of 19.5 kN acting parallel to one of the sides of the chimney base at a height of 1.5m above the ground surface. Determine the factor of safety with respect to bearing capacity. Use Meyerhof's recommendations.
4. A load test conducted at the soil surface on a 30cm square plate provided the following results:

Load	500	1000	1500	2000	2500	3000
Settlement, mm	1.25	1.50	1.75	2.00	2.25	2.50

Determine the following for a footing 3m X 3m with a factor of safety of 3.00:

a) Allowable bearing capacity if the deposit is deep and of sand

b) Allowing bearing capacity if the deposit is deep and of clay

c) Expected settlement of a 3m X 3m loaded with allowable bearing capacity as obtained (b).

INDUSTRIAL ECONOMICS & MANAGEMENT

BTCE-605

PART-A

1. Is economics a science or an art?
2. Outline the main features of new industrial policy in India.
3. Discuss the causes of market failure.
4. Examine the impact of macro-economic policies on consumer behaviour.
5. Explain price determination under monopoly.

PART-B

1. Critically examine Samuel Son's Revealed Preference theory
2. Explain Bergson - Samuelson Social Welfare function.
3. Explain briefly, the different types of competition with their advantages and disadvantages.
4. What is need, role and functions of central bank of India.

PRACTICALS

BTCE-606

1. Describe the lap joint of plate by welding process.
2. Describe the butt joint of plate by welding process.
3. Describe the lap joint of plate by riveting process.
4. Describe the butt joint of plate by riveting process.
5. Describe the C B R test.