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Department of Civil Engineering
III Year VI Semester
6CE3-01: Wind & Seismic Analysis
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. Write a short note on shear walls and what is the function of shear walls in a building.	BLT-6	CO-1
Q2. What are the symmetry and asymmetry building explain with a neat sketch.	BLT-1	CO-1
Q3. Explain the concept of load flow to different structural components with the figure.	BLT-2	CO-1

Q4. Differentiate between the following:
  i) Rigid frame and Braced frame structures
  ii) Vertical (Gravity) load and lateral load-resisting elements in a building
	BLT-3	CO-1

Q5. What the help of suitable examples of differences between vertical and lateral load resisting members of a building.	BLT-1	CO-1

ASSIGNMENT-II

Q1. What do you mean by Dead load and Live load? Explain various types of loads as per IS-875.	BLT-1	CO-2
Q2. What is the "Aspect Ratio"? What are the assumptions of aspect ratio?	BLT-1	CO-2
Q3. Write the types of buildings according to IS-875(part 2).	BLT-6	CO-2

Q4. Differentiate between the following:
  i) Rigid frame and Braced frame structures
  ii) Vertical (Gravity) load and lateral load-resisting elements in a building
	BLT-3	CO-2

ASSIGNMENT-III

Q1. What is Wind? Write down the characteristics of wind.	BLT-1	CO-3
Q2. Write the Design steps of wind load calculation according to IS- 875 Part-3.	BLT-6	CO-3
Q3. Calculate wind load on the wall and roof of a rectangular clad building with a pitched roof, having a plan dimension of 10mX50m and a height of 5m. The building is situated in Delhi in an industrial area 500m inside open land on a fairly level topography. The wall has 20 openings of 1.5mX1.5m size. If roof angle is 15°.	BLT-4	CO-3
Q4. Calculate wind load on a rectangular clad building with a pitched roof located in a farmhouse, The height of the building is 4.0m, width 12m and length 20m. Roof angle 10°, Opening in wall = 10%. Overhangs on either side are 0.5m. The building is located in Hyderabad.	BLT-4	CO-3
Q5. Calculate wind load on a rectangular-clad building with a mono-slope roof with an overhang. Consider Height(h)=5.0m, length(l)=20m, Width(w)=10m., Roof angle(α)=20° and overhang is 0.5m,Ground is flat. Terrain category-2, life of building 25 years and building is situated at Surat.	BLT-4	CO-3

*BLT: BLT shows the **Bloom's taxonomy** levels.

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6CE3-01: Wind & Seismic Analysis
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Department of Civil Engineering
III Year VI Semester

ASSIGNMENT-IV

Q.1. How do you define walls and columns in a masonry building? Explain the effective length of the masonry wall and column.	BLT-2	CO-4
Q. 2. Describe the role of architectural and planning considerations in earthquake resistance construction	BLT-2	CO-4
Q.3. A three-storey building is to be constructed in seismic zone 5 on a plot of 8mX8m. The building is to be designed with a special moment-resisting frame. Determine the seismic weight and base shear of the building with the following data. Intensity of dead load on the building -10KN/m2 Intensity of weight at floor level-3KN/m2 The soil of the area is medium hard . Zone factor Z=.36 , I=1.5, R=5.0 Sa/g=2.5 The height of each storage is 3.5m.	BLT-4	CO-4

ASSIGNMENT-V

Q1. Explain the typical seismic failure mechanism of masonry and RCC structures.	BLT-1	CO-5
Q2. Write about the role, importance and various provisions of following IS codes used in designing earthquake-resistant structures. i) IS-4326 ii) IS-13827 iii) IS-13828 iv) IS-13920 v) IS-13935	BLT-1	CO-5
Q3. Discuss the methods of seismic strengthening of earthen buildings.	BLT-1	CO-5
Q4. Define: i) Separation Section ii) Centre of rigidity iii) Band	BLT-1	CO-5
Q5. Explain the types of damages observed in traditional structures (namely brick and stone masonry) during earthquakes.	BLT-1	CO-5

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Department of Civil Engineering

III Year VI Semester

6CE4-02: Structure Analysis-II

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. What do you mean by an influence line diagram and what is its importance in structural analysis?	BLT-1	CO-1
Q2. What do you mean by rolling load?	BLT-1	CO-1
Q3. Derive the expression of Castiglione's theorems & their applications in the analysis of determinate and redundant frames up to two degrees of redundancy	BLT-6	CO-1
Q4. Explain the unit load method and its application.	BLT-2	CO-1

ASSIGNMENT-II

Q1. Explain the Muller-Breslau method & Plastic Structural Analysis.	BLT-2	CO-2
Q2. Explain collapse mechanisms for statically determinate beams.	BLT-2	CO-2
Q3. What is Castigliano's theorem and its application?	BLT-1	CO-2
Q4. A beam having an I section 5m in length carrying a uniformly distributed load of 15 kN/m and having the section properties listed below. Calculate the maximum bending stresses induced in the member when the trace of the load plane is inclined at 180 to the principal axis YY. Calculate the maximum deflection in the beam. IXX = 13158 cm4 , IYY = 631.9 cm4 , ZXX = 751.9 cm3 ZYY =76.6 cm3, h = 350mm, b = 165mm.	BLT-3	CO-2

ASSIGNMENT-III

Q1. Explain the concept of vibration.	BLT-2	CO-3
Q2. Explain the FBD.	BLT-2	CO-3
Q3. Explain the concept of SHM.	BLT-2	CO-3

Q4. Write short notes on
  a) D Alembert's principle
  b) Frequency & period of vibration
  c) Newton's law of motion,
	BLT-6	CO-3

Q5. A mass is suspended on two springs connected in series. The stiffness of one spring is twice as high as that of the other: k2=2k1. How does the period of oscillation change if the springs are connected in parallel?	BLT-3	CO-3

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Department of Civil Engineering
III Year VI Semester
6CE4-02: Structure Analysis-II
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-IV

Q1. Explain tension coefficient method in detail and obtain the required values.	BLT-2	CO-4
Q2. A pair of shear leg has length of each leg as 5 m and the distance between their feet is 4 m. The line joining the feet of the legs is 7 m from the foot of the guy rope. If the length of the guy rope is 10 m, find the thrust in each leg and the pull in the guy rope when a load of 100 KN is suspended from the head.	BLT-4	CO-4
Q3. What is neutral axis.	BLT-1	CO-4
Q4. Define shear centre.	BLT-1	CO-4
Q5. Determine the principal moments of inertia for an unequal angle section (60 x 40 x 6) mm.	BLT-4	CO-4

ASSIGNMENT-V

Q1. Write down the assumptions of portal and cantilever method.	BLT-6	CO-5
Q2. Write down the design steps of factor method.	BLT-6	CO-5
Q3. What is space truss. Illustrate with a diagram.	BLT-3	CO-5
Q4. A beam of rectangular section 80 mm wide and 120 mm deep is subjected to a bending moment of 12KN-m. The trace of the plane of loading is inclined at an angle of 45^0 to the Y-Y axis of the section. Locate the neutral axis of the section and calculate the maximum bending stress in the section.	BLT-4	CO-5

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Department of Civil Engineering

III Year VI Semester

6CE4-03: Environmental Engineering

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. Define sewage, sullage, sludge, sewer and sewerage. What are the constituents of domestic sewage?	BLT-1	CO-1
Q2. Explain the procedure to determine various kinds of solids present in sewage in the laboratory.	BLT-2	CO-1
Q3. Derive the BOD satisfaction equation $y_t = L[1-10^{-kdt}]$ from the first principles.	BLT-6	CO-1
Q4. For a water sample, 5-day BOD at 20^oC is 375 mg/lit and it is 67% of ultimate BOD. What will be the 2-day BOD at 35^oC?	BLT-4	CO-1
Q5. Define BOD and COD. What is the difference between them? Write their significance also.	BLT-1	CO-1

ASSIGNMENT-II

Q1. Determine the size of a circular sewer for a discharge of 800 litres per second running half full. Assume s = 0.0001 and n = 0.015.	BLT-4	CO-2
Q2. Write a short note on testing of sewer line.	BLT-6	CO-2
Q3. What are the criteria for the spacing of manholes? Sketch and describe the working of the drop manhole.	BLT-4	CO-2
Q4. Explain the concept of self-cleansing velocity.	BLT-2	CO-2

ASSIGNMENT-III

Q1. Explain different types of settling with a sketch.	BLT-2	CO-3
Q2. Compare the trickling filter process and the activated sludge process.	BLT-3	CO-3
Q3. What is the purpose of providing a septic tank? Draw a neat sketch of the septic tank and explain its working.	BLT-4	CO-3
Q4. Differentiate between aerobic and anaerobic digestion.	BLT-3	CO-3
Q5. Explain the working of an oxidation pond. What are the different design criteria and the usefulness of an oxidation pond?	BLT-2	CO-3

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Department of Civil Engineering
III Year VI Semester
6CE4-03: Environmental Engineering
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ASSIGNMENT-IV

Q1. Sketch and explain the working of various traps.	BLT-4	CO-4
Q2. Explain various methods of sewage disposal.	BLT-2	CO-4
Q3. Describe different systems of plumbing with their advantage, disadvantages and neat sketches.	BLT-4	CO-4
Q4. What is the oxygen sag curve? Draw a typical oxygen sag curve for river turning septic on the discharge of waste.	BLT-4	CO-4

ASSIGNMENT-V

Q1. Explain the effects of air and noise pollution on humans.	BLT-2	CO-5
Q2. Elaborate on the features of acid rain.	BLT-2	CO-5
Q3. Describe various measures controlling noise pollution.	BLT-2	CO-5
Q4. State the air quality standards. What are the main pollutants emitted by vehicles and how can they minimize?	BLT-2	CO-5
Q5. What are the causes of air pollution	BLT-1	CO-5

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Department of Civil Engineering

III Year VI Semester

6CE-04: Design of Steel Structures

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. Find safe factors for triangle sections.	BLT-3	CO-1
Q2. What are the three theorems for plastic analysis?	BLT-1	CO-1
Q3. Enumerate types of steel. Which steel is used in structures and why?	BLT-1	CO-1
Q4. Determine a safe factor for a diamond section.	BLT-3	CO-1
Q5. Find a safe factor for the circular section.	BLT-3	CO-1

ASSIGNMENT-II

Q1. State statical and kinematical theorems for plastic analysis.	BLT-1	CO-2
Q2. Design the welded joint for a single angle section ISA 100x l00xg mm with a gusset plate l0 mm thick, using shop welds of size 6mm, along the end and both sides. The member carries an axial factored load of 200 Kn.	BLT-6	CO-2
Q3. What is the prying action? How is it accounted for?	BLT-1	CO-2
Q4. What are buckling classes and how do they affect the compression carrying capacity of the column section?	BLT-1	CO-2
Q5. A Built-up column is to be designed for an axial factored load of 1400 kN. Taking two ISLB or ISMB sections, placed side by side, design the column if it is 4.0 m in length. The column is hinged at the top and fixed at the bottom. Also, design a system of battens for the column.	BLT-6	CO-2

ASSIGNMENT-III

Q1. Design a gantry girder without lateral restraint along its span, to be used in an industrial building carrying an overhead travelling crane for the following data – Span of gantry =7.5m Crane capacity =200 kN Self-weight of crane girder excluding trolley= 200 kN Self-weight of trolley, hook etc= 40kN Min hook approach = 1.2m Distance between wheel centre = 3.5 m C/C distance between gantry rails= 15m Self wt. of rail section= 300 N/m Steel grade Fe-410	BLT-6	CO-3
Q2. Design a gantry girder for an industrial building to carry an electrical overhead travelling crane, for the following data – Span of gantry =7 m Crane capacity =150 kN Self-weight of crane girder excluding trolley= 100 kN Self-weight of trolley, hook etc.= 40kN Span of crane = 12 m Min hook approach = 1 m Distance between wheel centre = 3 m	BLT-6	CO-3

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Department of Civil Engineering
III Year VI Semester
6CE-04: Design of Steel Structures
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ASSIGNMENT-IV

Q1. Design a gantry girder for an industrial building to carry an electrical overhead travelling crane, for the following data – Span of gantry = 6.8 m Crane capacity= 80 kN Self-weight of crane girder excluding trolley= 120 kN Self-weight of trolley, hook etc= 50kN Span of crane girder = 14 m Min hook approach = 1 m Wheelbase = 3.2 m	BLT-6	CO-4
Q2. Design purlins for a fink-type roof truss taking dead loads and wind loads. Ignore the live load. Use I section- The data is – Span of roof truss= 14m Spacing of trusses= 3.5m Rise of truss = 3.5m Wind load = 1450 N/m2 D.L from sheets =220 N/m2	BLT-6	CO-4
Q3. A plate girder simply supported at the ends has an effective span of 16m. It carries a superimposed load of 25 kN/m over the whole span. Assumed Laterally supported compression flange and design the section at mid-span. Do not design stiffeners.	BLT-6	CO-4

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III Year VI Semester
6CE-04: Design of Steel Structures
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ASSIGNMENT-V

Q1. Design a deck-type plate girder bridge for single-track BG main line loading, for the following data – Effective span – 28 m Plate girder span – 2 m c/c Wt. of stock rails – 440 N/m Wt. of guard rails – 260N/m Wt. of fastenings – 280 N/m of track Size of sleepers (timber) – 3m x 0.3m x 0.2m Sleepers spacing = 600 mm Timber density – 9 kN/m3	BLT-6	CO-5
Q.-2. Determine the load, maximum bending moment and max shear force in a deck-type plate girder railway bridge for single-track BG main line loading for the following data – Effective span – 24m Plate girder span – 1.9 m c/c Wt. of stock rails – 440 N/m Wt. of guard rails – 260N/m Wt. of fastenings – 280 N/m of track Size of sleepers (timber) – 2.8m x 250mm x 150mm @ 0.4m c/c Timber density – 7.4 kN/m3	BLT-4	CO-5

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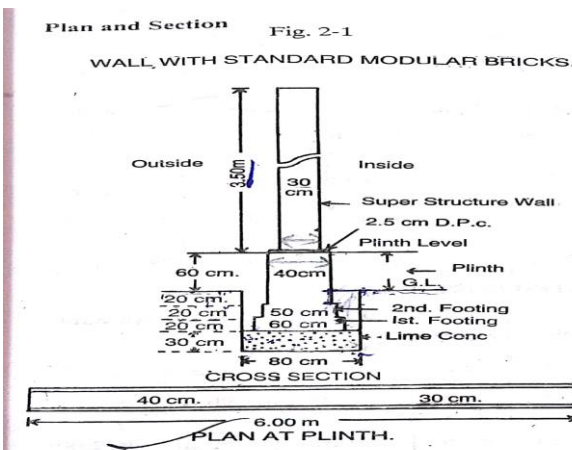
Department of Civil Engineering

III Year VI Semester

6CE4-05: Estimating and Costing

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. Write down the purpose and importance of estimates.	BLT-6	CO-1
Q2. What do you understand by abstract sheet? Explain.	BLT-1	CO-1
Q3. Explain the type of plans.	BLT-2	CO-1
Q4. Explain the main item of work (1) Earthwork (2) Concrete in foundation (3) Damp proof course (4) Masonry work	BLT-2	CO-1
Q5. Explain long-wall and short-wall methods.	BLT-2	CO-1

ASSIGNMENT-II

Q1. Explain the revised estimate and supplementary estimate.	BLT-2	CO-2
Q2. Explain all types of estimates.	BLT-2	CO-2
Q3. Prepare a detailed estimate of part of a wall of a building from the given plan and section and general specifications. GENERAL SPECIFICATIONS: (1) Foundation concrete shall be lime concrete. (2) The foundation and plinth shall be of 1st class brickwork in lime mortar. (3) Damp proof course - 2.5 mm c.c. 1:11/2:3 with a waterproofing compound. (4) Superstructure - 1st class brickwork in lime mortar. (5) Wall finishing – inside wall 12 mm cement plastered 1:6 and whitewashed 3 coats. Outside wall 12 mm cement plastered 1:6 including 10 cm below ground level and finished with two coats of colour wash over one coat of whitewashing. RATES: Assume local current rates. Plan and Section Fig. 2-1 WALL WITH STANDARD MODULAR BRICKS.	BLT-3	CO-2
Q4. What do you understand by detailed and general specification?	BLT-1	CO-2

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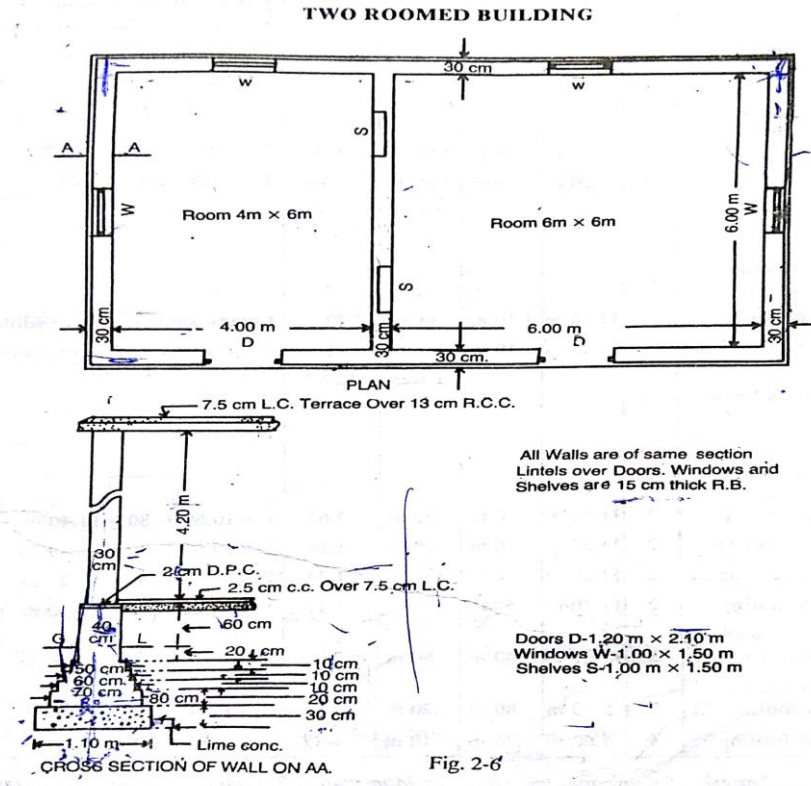- www.aryainstitutejpr.com
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Department of Civil Engineering

III Year VI Semester

6CE4-05: Estimating and Costing

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-III

Q1. Write factors affecting rate analysis.	BLT-6	CO-3
Q2. Explain the centre line method.	BLT-2	CO-3
Q3. Estimates the quantities of the following item of a two-roomed building from the given plan and section: - (1) Earthwork in excavation in foundation (2) Lime concrete in foundation. (3) 1st class brickwork in cement mortar in foundation and plinth wall. (4) 2.5 cm c.c. damp proof course. (5) 1st Class brickwork in lime mortar in the superstructure **TWO ROOMED BUILDING** Fig. 2-6 Note : — No beam has been shown in the plan as the object of this example is to explain the method of estimating the walls only.	BLT-3	CO-3
Q4. What is prime cost?	BLT-1	CO-3

ASSIGNMENT-IV

Q1. Write factors affecting rate analysis.	BLT-6	CO-4
Q2. What do you understand by detailed and general specification?	BLT-1	CO-4
Q3. Define standard measurement book.	BLT-1	CO-4
Q4. Define plinth area and floor area.	BLT-1	CO-4
Q5. What is a sinking fund? Explain.	BLT-1	CO-4

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Department of Civil Engineering
III Year VI Semester
6CE4-05: Estimating and Costing
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ASSIGNMENT-V

Q1. Enlist the different methods of valuation. Explain in detail the Land and Building method.	BLT-2	CO-5
Q2. Explain the role of Valuer in a society.	BLT-2	CO-5
Q3. Explain the term Lease Hold Property in Details.	BLT-2	CO-5
Q4. Differentiate between the following : (i) Scrap value and Salvage value (ii) Depreciation and Sinking fund.	BLT-4	CO-5
Q.5) Explain the rule for preparation of Muster Boll.	BLT-2	CO-5

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III Year VI Semester

6CE5-12: Solid and Hazardous Waste Management

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. What are the goals and objectives of solid waste management?	BLT-1	CO-1
Q2. Define solid waste generation. Explain factors affecting solid waste generation.	BLT-1	CO-1
Q3. Discuss the Classification of solid waste.	BLT-2	CO-1
Q4. Discuss the characteristics of solid waste.	BLT-2	CO-1
Q5. Write short notes on:- 1. Recycling and Reuse 2. Garbage and Rubbish 3. Hazardous waste	BLT-6	CO-1

ASSIGNMENT-II

Q1. What do you understand by public health and esthetics?	BLT-1	CO-2
Q2. What is onsite handling?	BLT-1	CO-2
Q3. Describe community containers.	BLT-2	CO-2
Q4. Describe various onsite processing method of solid waste.	BLT-2	CO-2
Q5. What factors are considered during onsite storage?	BLT-1	CO-2

ASSIGNMENT-III

Q1. Describe various collection systems. What are the advantages and disadvantages of a door-to-door collection system?	BLT-2	CO-3
Q2. Explain the method of finding the labour requirement for the collection and transport of solid waste.	BLT-2	CO-3
Q3. What are the factors to be considered in selecting solid waste collection equipment?	BLT-1	CO-3
Q4. How do we plan for the collection routes? Explain guidelines with a neat sketch.	BLT-1	CO-3
Q5. What is a transfer station? Explain the benefits and factors affecting transfer station.	BLT-1	CO-3

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Department of Civil Engineering
III Year VI Semester
6CE5-12: Solid and Hazardous Waste Management
Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-IV

Q1. What is sanitary landfilling? Explain in detail.	BLT-1	CO-4
Q2. Discuss the selection of the disposal system concerning the quality and quantity of MSW.	BLT-2	CO-4
Q3. Discuss in brief various methods used for the disposal of solid waste.	BLT-2	CO-4
Q4. What do you understand by Bioremediation? Explain in detail.	BLT-1	CO-4
Q5. Write short notes on:- Vermicomposting Landfill site selection Leachate	BLT-6	CO-4

ASSIGNMENT-V

Q1. Explain the reuse of industrial waste with examples.	BLT-2	CO-5
Q2. Write short notes on:- 1. Generation of energy from solid waste. 2. Recovery from industrial solid waste. 3. Treatment of industrial solid waste. 4. Nature of solid waste generated from industries.	BLT-6	CO-5
Q3. Write the general safety guidelines for hazardous waste management.	BLT-6	CO-5
Q4. Write short notes on industrial solid waste management.	BLT-6	CO-5
Q5. Discuss methods of disposal of industrial solid waste.	BLT-2	CO-5

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III Year VI Semester

6CE5-16: Geographic Information System & Remote Sensing

Note: Each Assignment of Maximum marks10.All question carries equal marks.

ASSIGNMENT-I

Q1. What is the classification of remote sensing? Explain.	BLT-1	CO-1
Q2. Examples of steps used in remote sensing?	BLT-1	CO-1
Q3. What is the difference between passive and active remote sensing?	BLT-2	CO-1
Q4. Describe in Brief the Principle of G.I.S.	BLT-1	CO-1
Q5. Explain the different advantages of G.I.S.	BLT-2	CO-1

ASSIGNMENT-II

Q1. What is the difference between passive and active remote sensing? Explain with examples.	BLT-1	CO-2
Q2. What are the techniques used in GIS?	BLT-1	CO-2
Q3. What is the meaning of Microwave remote sensing?	BLT-1	CO-2
Q4. What are types of remote sensing based on the Electromagnetic Spectrum?	BLT-1	CO-2
Q5. Explain Thermal Remote Sensing.	BLT-2	CO-2

ASSIGNMENT-III

Q1. Explain Active Remote Sensing.	BLT-2	CO-3
Q2. What are the applications of GIS?	BLT-1	CO-3
Q3. What is the meaning of Remote Sensing?	BLT-1	CO-3
Q4. What is Optical Remote Sensing?	BLT-1	CO-3
Q5. Explain RADAR.	BLT-2	CO-3

ASSIGNMENT-IV

Q1. What is the meaning of GIS?	BLT-1	CO-4
Q2. Explain Passive Remote Sensing.	BLT-2	CO-4
Q3. Write short notes on Sensors.	BLT-6	CO-4
Q4. What are types of Remote Sensing?	BLT-1	CO-4
Q5. Explain LIDAR & RADAR.	BLT-2	CO-4

ASSIGNMENT-V

Q1. What is the meaning of Remote Sensing?	BLT-1	CO-5
Q2. Write short on ASTER?	BLT-6	CO-5
Q3. Explain Active Remote Sensing.	BLT-2	CO-5
Q4. What are the types of GIS?	BLT-1	CO-5
Q5. What do understand by GIS and Applications?	BLT-1	CO-5

*BLT: BLT shows the **Bloom's taxonomy** levels.