

5TH SEM./ COMMON TO ALL/ 2023(W) NEW

Th-1 Entrepreneurship and Management & Smart Technology

Full Marks: 80

Time- 3 Hrs

**Answer any Five Questions including Q No.1& 2
Figures in the right hand margin indicates marks**

1. Answer **All** questions 2 x 10
 - a. What is entrepreneurship?
 - b. What is start up ?
 - c. What is project appraisal?
 - d. List the components of project cost.
 - e. Define management.
 - f. Write the need of inventory management.
 - g. List two barriers in business communication.
 - h. Write two methods of maintaining relations with subordinates.
 - i. What is trademark? Write two advantages of having trade marks.
 - j. What is smart technology?
2. Answer **Any Six** Questions 6 x 5
 - a. Explain in brief the qualities of entrepreneur.
 - b. What is Maslow theory of motivation. Explain.
 - c. Explain SSI, Ancillary unit and Tiny units.
 - d. Write a note on staffing as a function of management.
 - e. Explain ABC Analysis (selective inventory control), a model of inventory managements.
 - f. Write the components of IOT.
 - g. Explain different styles of leadership.
 - h. Write five points in payment of wages act.
3. Explain the assessment of demand and supply in potential area of growth. 10
4. Write the important functions of management. 10
5. Explain TQM concept-Quality Policy, Quality Management and quality system. 10
6. Explain the concept of 4Ps in marketing management. 10
7. Explain the application of IOT in smart healthcare and smart agriculture. 10

5TH SEM / CIVIL / 2023(W) NEW
Th-2 STRUCTURAL DESIGN-II

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks
(Steel table, IS 800, SP20, IS1161 and IS806 are allowed in exam)

1. Answer **All** questions 2 x 10
 - a. Define gauge.
 - b. For bolts of property class 4.6, what do the number 4 and 6 indicate.
 - c. State the types of welds.
 - d. What are the types of mortar?
 - e. Where do you recommend HSFG bolts?
 - f. What is web crippling?
 - g. For what type of structures, tubular steel sections are suitable?
 - h. What do you mean by partial safety factor in limit state of design?
 - i. What is load bearing masonry wall?
 - j. Define net section area of a tension member.
2. Answer **Any Six** Questions 5 x 6
 - a. Write down the special consideration in steel design.
 - b. Mention the advantages of welded connection over bolted connection.
 - c. Two plates 8mm and 12mm thickness are to be joined using longitudinal fillet weld. Suggest a suitable size of weld and length of the end returns.
 - d. Explain block shear failure in tension members.
 - e. Calculate the design compressive load for an ISHB 350@ 710.2 N/m, 3.5m high. The column is restrained in direction and position at both the ends. It is to be used as a column in a single storey building. Use steel of grade Fe410. Use table of IS code for calculation of f_{cd} .
 - f. What are classification based on cross section for steel beams?
 - g. Write down the codal provision of design consideration of masonry walls.
3. A tension member consists of a flat 120mm X 8mm is connected to a gusset plate of 12mm thick of 02numbers of M20 bolts of property class 4.6. Determine the strength of tension member. Use steel of grade Fe410. 10
4. Design a column to support a factored load of 1050kN. The column has an effective length of 7.0m w.r.t. z-axis and 5m w.r.t. y-axis. Use steel of grade Fe410. 10
5. Design a simply supported beam of effective span 1.5m carrying a factored concentrated load of 360kN at mid span. 10
6. Describe the factors affecting the strength of a tubular section. 10
7. Design a brick masonry column of height 3m, tied effectively, fixed at top and bottom. The load from slab is 100kN, including self weight of the brick pillar. 10

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Th- 3 Railway & Bridge Engineering.

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks.

1. Answer **All** questions 2 x 10
 - a. Define creep of rails.Mention two causes of creep in rails.
 - b. Name the types of gradients provided in railway track.
 - c. Differentiate between B.G and M.G.
 - d. Explain equilibrium cant.
 - e. What do you mean by crossing?
 - f. Differentiate between bridge and culvert.
 - g. Define afflux.
 - h. What do you mean by coffer dam?
 - i. What is free board?
 - j. Differentiate between square and skew alignment.
2. Answer **Any Six** Questions 6 x 5
 - a. Write down the functions of sleeper?
 - b. Describe the requirement of good ballast in laying of rails.
 - c. Write the component of permanent way with neat sketch?
 - d. What are the characteristics of an ideal bridge site?
 - e. Explain the necessity and procedure of track maintenance.
 - f. Explain relationship of e,G,V,R on superelevation.
 - g. Discuss the theories of creep.
3. What are the requirements of rail joints &Write down different types of rail joints with the neat sketches? 10
4. Draw the figure showing constituents of a right hand turn out and label it neatly. 10
5. Explain various types of crossing in use on Indian railways. 10
6. Define cassin.Briefly explain the different types of cassin along with their uses. 10
7. Mention and Explain the general principles of the design of bridge foundations. 10

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Th-4 Water Supply & Waste Water Engineering

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
 - a. Explain the term per capita demand.
 - b. What are the available sources of water?
 - c. Define yielding of well.
 - d. What is sewage?
 - e. Define sewage farming.
 - f. What is screening?
 - g. What are the impurities in water?
 - h. Define slow sand filter.
 - i. What are the different methods of calculating population growth?
 - j. What is self cleaning velocity?
2. Answer **Any Six** Questions 6 x 5
 - a. Explain break point chlorination.
 - b. Determine the velocity of flow in a circular sewer of diameter 150cm. laid on slope of 1 in 500 while running full, by using Chezy's formula. The value of C=70
 - c. Write a short note on rapid sand filter.
 - d. Explain with neat sketch the working operation of a "trickling filter".
 - e. Describe the physical test of water briefly.
 - f. Explain about the surface sources of water supply.
 - g. What is confined & unconfined aquifer? Explain.
3. Describe the various methods of water distribution system. 10
4. Draw the flow diagram of water treatment system and describe each unit. 10
5. Write down the constructional features and working principle of Rapid sand filter. 10
6. Describe the process of primary treatment of sewage with the help of a flow diagram. 10
7. Describe about the factors affecting per capita demand. 10

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Th-5 Estimation & Cost Evaluation-II

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks.

1. Answer **All** questions. 2X10
 - a. Mention the need of kerb and coping in culverts.
 - b. Under which circumstances, fall is provided in canal?
 - c. What are the components of a drainage siphon?
 - d. Differentiate between original work and repair work.
 - e. Differentiate between lumpsum contract & item rate contract.
 - f. Define earnest money deposit (EMD) .
 - g. What is the weight of a 16 mm dia. reinforcing bar of 4 m length?
 - h. Define muster roll.
 - i. What is RERA and when it was formed in Odisha?
 - j. Define setback and bin card.
2. Answer **Any Six** Questions. 6 x 5
 - a. An RCC slab of 5m x 3m x150 mm is reinforced with 10 mm dia bars along shorter span with alternate bent ups at 150 mm spacing c/c.8 mm bars are used straight along longer span at 250 mm spacing c/c.6 nos of 8 mm bars used as binder to support bent up bars along longer span 3 nos on each side. The slab is having a bottom cover of 20 mm and side cover of 15 mm. No end hooks are provided in any reinforcing bar in this slab. Estimate the quantity of reinforcing bar used in this slab.
 - b. Define measurement book(MB). Mention the procedure for making entries of measurement of work in an MB.
 - c. Estimate the quantities of following items from Fig.1. 2.5x2
 - i. Earthwork in excavation
 - ii. Foundation Concrete (1:3:6)
 - d. Write short notes on administrative approval.
 - e. Elaborate the method of execution of work through contractors and Engineering Department.
 - f. Estimate the quantities of following items from Fig.2. 2.5x2
 - i. Earthwork in excavation
 - ii. Cement concrete 1:4:8 in foundation
 - g. Explain building byelaws and mention the objectives of it.

Answer Any Three Questions
3. Estimate the cost of earthwork for a portion of a road of 1 km length from the following data. The cost of earthwork is Rs.800/- for banking and Rs. 950/- for cutting. Also draw the longitudinal section and typical section. Formation width of the road is 10 m and side slope is 2:1 in banking and 1.5:1 in cutting. Length of the chain is 40 m. 10
4. Estimate the quantities of following items from Fig.1. 5x2
 - i. 1st class brickwork in 1:4 cm
 - ii. Cement Pointing in 1:6
5. Estimate the quantities of following items from Fig.2. 5x2
 - i.1st class brickwork in 1:4 cm
 - ii. Cement Pointing in 1:6
6. Estimate the quantities of following items from Fig.3. 5x2
 - i. Earthwork in Excavation
 - ii.Foundation Concrete in (1:3:6)

- i. Administrative approval
- ii. Technical Sanction
- iii. Measurement Bill
- iv. RA Bill

R.C.C. SLAB CULVERT 1.50 m SPAN with standard modular bricks

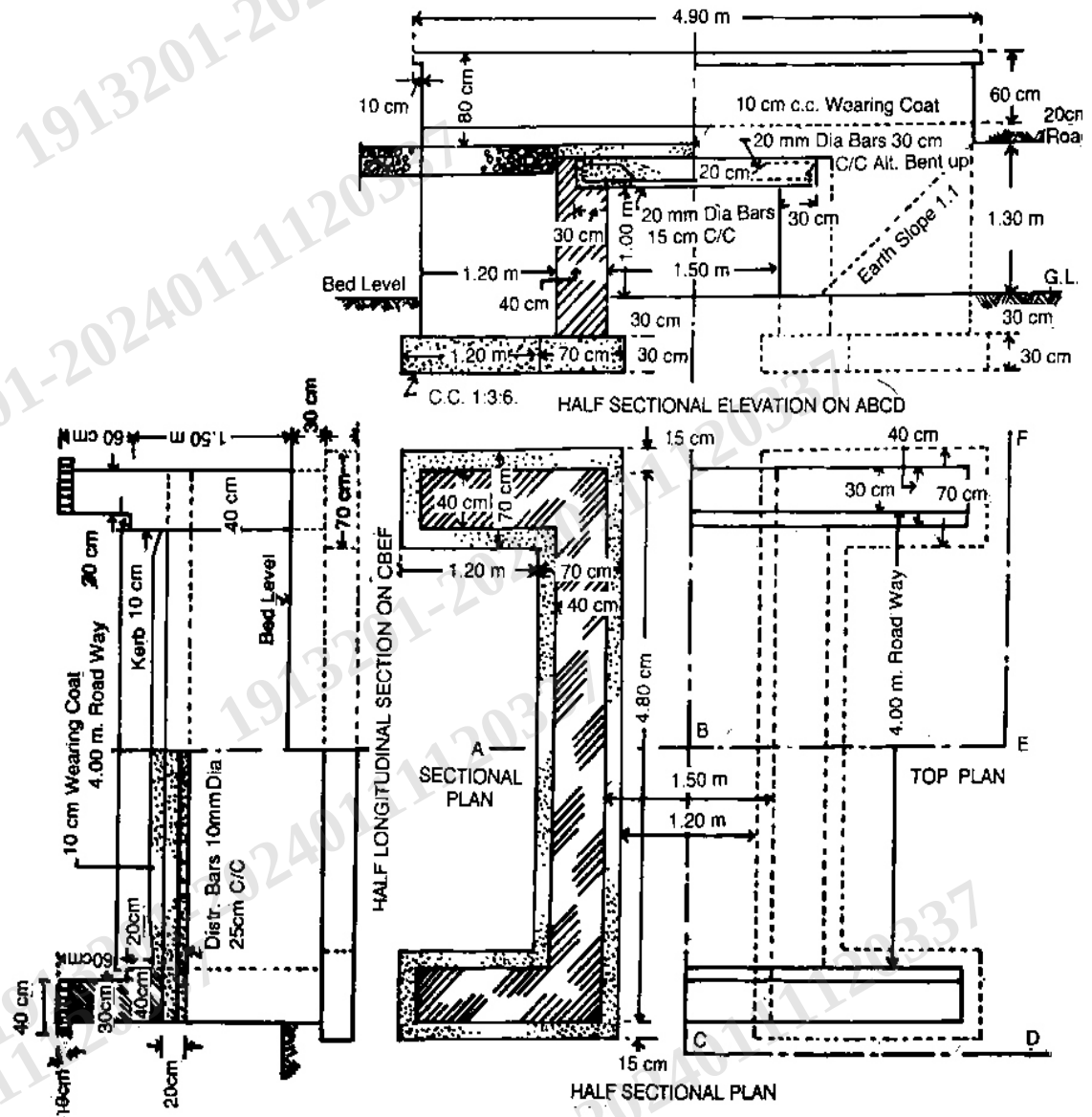


Figure-1

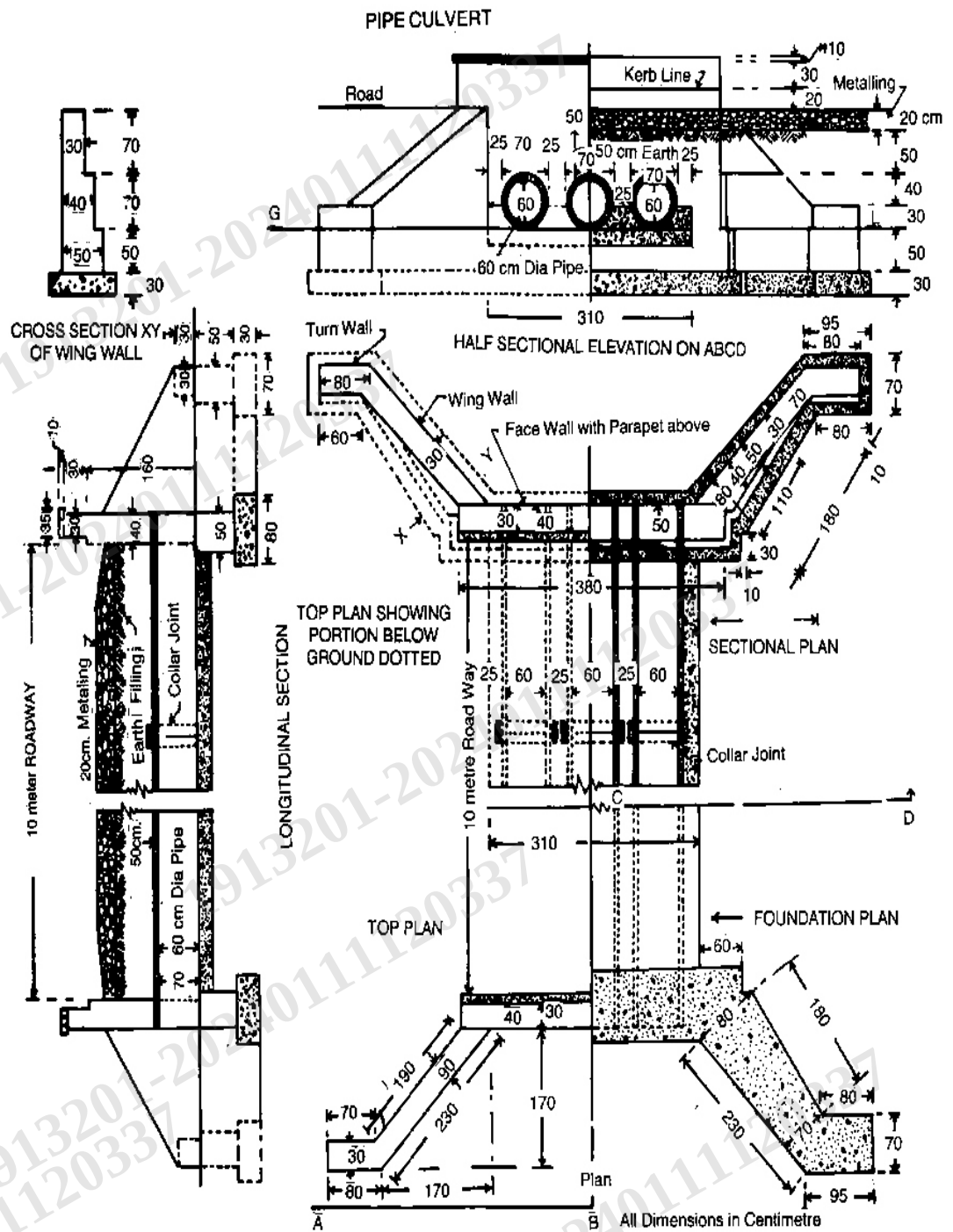


Figure-2

