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Seat No.	

Fourth Year B.Tech. (Civil Engineering) (Semester - VIII) (CBCS) Examination, March - 2023

PCC-CV802 : WATER RESOURCES ENGINEERING - II

Sub. Code : 84746

Day and Date : Saturday, 17 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions :

1) **Q. No. 4 and Q. No. 8 are compulsory, and it should be based on all units of respective sections.**
2) **Attempt any two questions from Q.No. 1, 2, 3, and any two questions from Q. No. 5, 6, 7.**
3) **Figures to the right indicate full marks.**
4) **Assume suitable data if necessary and state them clearly.**
5) **Answer shall be supported by adequate sketches.**

SECTION - I

Q1) Attempt all questions. **[10]**

a) Explain in detail the components and functions of Earthen dams.

b) Discuss step by step the analytical procedure that you will adopt for analyzing the stability of gravity dam.

Q2) Attempt all questions. **[10]**

a) What are the essential requirements of the spillway?

b) Describe in brief modes of failures in Earthen dams.

Q3) Attempt all questions. **[10]**

a) Describe in brief the design criteria for an Earthen Dam.

b) Enlist the types of dams and explain their suitability.

Q4) Attempt all questions. **[15]**

a) Enlist various types of spillways and explain chute spillway in detail.

b) How will you select a suitable site for the spillway?

c) What is silting of reservoirs? What factors influence it?

P.T.O.

SECTION - II

Q5) Attempt all questions. **[10]**

a) Define exit gradient. Explain its significance.

b) What do you know by piping in hydraulic structures? What are its ill effects?

Q6) Attempt all questions. **[10]**

a) Explain the causes of failure of weirs on permeable foundation.

b) What are the objectives of river training works?

Q7) Attempt all questions. **[10]**

a) Write down about the components of Diversion Head Work.

b) What are various stages of river? Give salient features of each stage.

Q8) Attempt all questions. **[15]**

a) Describe the superiority of hydropower on thermal power.

b) Explain Bligh's creep theory in detail.

c) Write a note on CD work admitting drainage water into canal.

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Civil

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Seat No.	

Total No. of Pages : 2

F.Y. B.Tech. (Civil Engineering) (CBCS) (Semester - VII) Examination, March - 2023

SOLID WASTE MANAGEMENT

(PCE-CV 705 Professional Elective - I)

Sub. Code : 83739

Day and Date : Tuesday, 20 - 06 - 2023 **Total Marks : 70**

Time : 02.30 p.m. to 05.00 p.m.

Instructions :
1) Q. No. 4 and Q.No. 8 are compulsory of respective sections.
2) Attempt any two questions from Q. No. 1, 2, 3 and any two questions from Q. No. 5, 6, 7.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary and state them clearly.
5) Answer shall be supported by adequate sketches.

SECTION - I

Q1) Answer any two of the following questions.
a) What are the objectives of SWM? [5]
b) What are the different types and sources of Solid Waste? Explain. [5]
c) Explain concept of hazardous Waste management with example. [5]

Q2) Answer any two of the following questions.
a) List and explain the factors affecting MSW generation rate. [5]
b) List the various advantages of Waste segregation. [5]
c) What are the different MSW collection systems? Explain any one. [5]

Q3) Answer the following questions.
a) What is recovery and recycling of solid waste? What are the major recoverable materials present in the MSW? [5]
b) What are the different types of Transfer Station? [5]

P.T.O.

Q4) Answer the following questions. (all compulsory)

a) Explain the need of Municipal Solid Waste Management. [5]

b) Define following unit operation of HCS: [5]

i) Pick up

ii) At-site

c) What is MRF? Explain the processes for MSW at these facilities with flow diagram. [5]

SECTION - II

Q5) Answer any two of the following questions.

a) What is Sanitary landfilling? List the adverse effects of open land dumping of solid waste. [5]

b) Describe the various methods of Landfilling. [5]

c) What is a leachate? Give the typical characteristics of leachate. [5]

Q6) Answer any two of the following questions.

a) Explain composting process of biodegrable municipal solid waste. [5]

b) Explain Indore method of Composting. [5]

c) Explain the recovery of Biogas energy from MSW with flow diagram. [5]

Q7) Answer the following questions.

a) Write advantages and disadvantages of incineration. [5]

b) List different types of incinerators and explain any one. [5]

Q8) Answer the following questions. (all compulsory)

a) List and explain maintenance and precautions required for sanitary landfill. [5]

b) What are the important factors affecting composting? How they are controlled during composting? [5]

c) Write the air pollution problem associated with Incineration and its control techniques. [5]

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Total No. of Pages : 2

Seat No.	

F.Y. B.Tech. (Civil Engineering) (CBCS) (Semester - VII) Examination, March - 2023

TOWN PLANNING (PCE-CV 705)

Sub. Code : 83741

Day and Date : Tuesday, 20 - 06 - 2023 **Total Marks : 70**

Time : 02.30 p.m. to 05.00 p.m.

Instructions :
1) **Q. No. 4 and Q. No. 8 are compulsory.**
2) **Solve any two questions from Q. No. 1, 2, 3 and Q. No. 5, 6, 7 from each section.**
3) **Figures to the right indicate full marks.**
4) **Assume suitable data if necessary and state them clearly.**
5) **Answer shall be supported by adequate sketches.**

SECTION - I

Q1) a) Explain the necessity and scope of town planning. [5]

b) Explain the contribution of Sir Patrick Geddes in town planning. [5]

Q2) a) Differentiate between Regional survey and civic survey. [5]

b) Which maps considered for zoning? [5]

Q3) a) What are the characteristics of slum? [5]

b) Describe the agencies for housing. [5]

Q4) Attempt all questions. [15]

a) Describe in details necessary and scope of town planning.

b) Mention the main principles of zoning.

c) What are the important aspects of rural housing?

P.T.O.

SECTION - II

Q5) a) State the recreation measure. Explain any one in detail. [5]

b) What are the effect of industries on towns and cities? [5]

Q6) a) Explain in brief Building bye laws. [5]

b) Draw layout plan for residential area showing LIG, MIG, HIG, houses and other amenities. [5]

Q7) a) Explain the MRTP Act. [5]

b) Describe in details the importance of development control rules in town planning and explain it in brief. [5]

Q8) Attempt all questions. [15]

a) Explain classification and location of public buildings and industries.

b) Write detailed note on Decentralization.

c) Differentiate between Land provision Act and conservation act.

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Total No. of Pages : 2

Seat No.	

F.Y. B.Tech. (Civil Engineering) (Part - IV) (CBCS) (Semester - VII) Examination, March - 2023

TRANSPORTATION ENGINEERING - I

Sub. Code : 83735

Day and Date : Monday, 19 - 06 - 2023 **Total Marks : 70**

Time : 02.30 p.m. to 05.00 p.m.

Instructions : 1) **All questions are compulsory.**

2) **Write any two from question in 2, 3, 5 and 6.**

SECTION - I

Q1) a) Explain the requirements of an ideal highway alignment. [6]

b) Explain in brief : [6]

i) NHAI

ii) MSRDC

iii) PMGSY

Q2) a) Explain the necessity of widening of pavements on curve with sketch. [5]

b) Calculate extra widening required for a pavement width 7 m on a horizontal curve of radius 300 m, if the longest wheel base of vehicle expected is 7 m. Design speed is 60 kmph. [6]

c) Write a note on Vertical highway alignment. [5]

Q3) a) Enlist various tests on bitumen and explain one in detail. [6]

b) Explain rigid and flexible pavement failures in detail. [6]

c) Write a note on Stresses in rigid pavement. [6]

P.T.O.

SECTION - II

Q4) a) Explain the construction steps for BBM in detail. [6]

b) What do you mean of evaluation of pavements explain structural and functional evaluation of pavement. [6]

Q5) a) Explain : [6]

i) Traffic Volume Study

ii) O and D Study

b) Explain 'Regulatory Signs' with neat sketches. [5]

c) Explain : [5]

i) Shafts

ii) Pilot tunnels

Q6) a) Explain various shapes of tunnels. [6]

b) Explain the shield method of tunneling. [6]

c) Explain Pavement management system. [6]

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Total No. of Pages : 2

Seat No.	

F.Y. B.Tech. (Civil Engineering) (CBCS) (Semester - VIII) Examination, March - 2023

TRANSPORTATION ENGINEERING - II

Sub. Code : 84747

Day and Date : Monday, 19 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions :
1) **Q.No. 4 and Q.No. 8 are compulsory and attempt any two questions from Q.No. 1, 2, 3 and any two questions from Q.No. 5, 6, 7.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary and state them clearly.**
4) **Answer shall be supported by adequate sketches.**

SECTION - I

Q1) Attempt all questions. **[10]**

a) Write a detailed note on various Airport Surveys.

b) Explain the factors affecting the site selection for an airport.

Q2) Attempt all questions. **[10]**

a) Explain Wind Rose Diagram with a neat sketch.

b) Explain in brief about different runway patterns with neat sketch.

Q3) Attempt all questions. **[10]**

a) Explain the concept of 'Littoral Drift'.

b) What are breakwaters? Explain the types of breakwaters with sketches.

Q4) Write a short note on the following. **[15]**

a) Runway Lighting

b) ICAO

c) Site selection of harbour

P.T.O.

SECTION - II

Q5) Attempt all questions. [10]

a) Define points and crossings. Sketch and explain acute angle crossing.

b) Define and enlist different types of station yards.

Q6) Attempt all questions. [10]

a) Enlist the elements and necessity of geometric design of track.

b) State objects of signaling and enlist advantages of automatic signaling.

Q7) Attempt all questions. [10]

a) State the types of bridge bearing and explain the suitability of each.

b) Differentiate between permanent and Temporary Bridges.

Q8) Write a short note on the following. [15]

a) Functions of points and crossings

b) Classification of Railway signals

c) Pipe culvert and Box culvert

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Seat No.	

Civil

QP Code: 4706QP

Total No. of Pages: 2

Summer Examination March - 2023

Subject Name: Bachelor of Engineering_83732_67558_83732_84012 - Design of Concrete Structures-I_15.06.2023_02.30 PM To 05.00 PM

Subject Code: 83732

Day and Date: - Thursday, 15-06-2023
Time: - 02:30 pm to 05:00 pm

Total Marks: 70

Instructions.:

1) All questions are compulsory
2) Figures to the right indicate full marks
3) Use of scientific calculator and logarithmic table is allowed

Special Instruction.:

Use of IS 456:2000 is allowed

Q.1. a)Find Xmax, Pt,lim, and Mu,lim for Fe250 and M20 grade concrete [6] [12]
b)Explain the following

i) Characteristic Strength
ii) Partial Safety Factors. [6]

Q.2. a)Explain the various modes failure of RC beam [4] [12]
b)Find MR of singly reinforced beam of 200mm width and 400mm effective depth, reinforced with 3-16mmΦ of Fe415 steel & M20 grade concrete. [8]
OR
A doubly reinforced section is 250mm wide and 450mm deep to the centre of tensile reinforcement. It is reinforced with 2-16mmΦ as compression reinforcement at an effective cover of 50mm and 4-25mmΦ as tensile steel. Using M15 concrete & Fe250 steel. Calculate the MR of beam section [8]

Q.3. Design the shear reinforcement in a rectangular beam section 400×600mm deep(overall depth) subjected to an ultimate shear of 500kN. The tension reinforcement available is 4-25mmΦ. Use M25 concrete and Fe415 grade steel. Assume mild exposure condition. Sketch reinforcement details [11]

Q.4. Design a simply supported roof slab for a room 7m×3m clear in size, if the superimposed load is 5kN/m2, Use M20 concrete and Fe415 grade steel. No Checks are required. [12]
OR
Design a dog-legged staircase from the following details,
Floor to floor height -2.88m
Rise -160mm
Use M20 concrete and Fe415 grade steel.

Q.5. Design a circular column to carry an axial load of 1000kN. Use M20 concrete & Fe415 steel. [12]

Q.6. **Design an isolated rectangular sloped footing for the column of size 230mm×650mm, reinforced with 6-20mmΦ and carrying an axial load of 1200kN. The bearing capacity of the soil is 300kN/m2. Use concrete grade M20 and steel grade Fe415. Effective cover for bottom steel is 60mm. take offset from the face of the column equal to 50mm. Take size of footing -2350mm×1930mm, Take only check for one way shear.** **[11]**

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Total No. of Pages : 2

Seat No.	

B.Tech. (Civil Engineering) (Semester - VII) (CBCS) Examination, March - 2023
EARTHQUAKE ENGINEERING
Sub. Code : 83733

Day and Date : Friday, 16 - 06 - 2023 **Total Marks: 70**

Time : 2.30 p.m. to 5.00 p.m.

Instructions:
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Use of IS1893 only is permitted.**
4) **Assume any other additional data if necessary and state it clearly.**

SECTION-I

Q1) a) Write a note on seismic waves. [4]

b) Explain the causes of earthquake. [3]

OR

Q1) a) Briefly explain the Elastic rebound theory. [5]

b) Define intensity of the earthquake. [2]

Q2) a) Derive solution for forced damped vibration. [7]

b) A machine foundation weighs 60 kN. Spring Constant is 11000 KN/m, Dashpot constant is 200 KN. s/rn. Determine system is underdamped, overdamped or critically damped. Also determine logarithmic decrement. [7]

Q3) A four storied RCC residential building is 4 bays of 6 m in both directions. L.L.= 4 kN/m^2 and building is to be located in Pune. Calculate seismic forces on structure. All beams and columns are having the sizes of 300 x 400 mm. Thickness of slabs = 120 mm. Wall is of 150 mm thickness all around. Height of each floor 3.5 m. Assume Medium and stiff soil. [14]

P.T.O.

SECTION -II

Q4) a) What are the planning aspects required for earthquake resistant design of structures? [6]

b) Write a detailed note on strong column-weak beam theory. [6]

OR

Q4) a) Explain the concept of strength and ductility. [6]

b) Write a note on strengthening techniques of RC member. [6]

Q5) a) What are the types of bands in brick masonry? Which band is most important for earthquake resistance of structure? [5]

b) Explain ductile detailing of column as per IS 13920 [6]

Q6) a) Write a note on Visco elastic damper. [6]

b) What are the types of base isolators? [6]

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Total No. of Pages : 2

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Fourth Year. B.Tech. (Civil) (Semester - VIII) (CBCS) Examination, March - 2023

DESIGN OF CONCRETE STRUCTURES - II

Sub. Code: 84745

Day and Date :Thursday, 15 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume any suitable date whenever necessary and mention in clearly.**
4) **Use of non programmable calculator allowed.**
5) **Use of relevant I.S. Codes are allowed.**

SECTION- I

Q1) Design a rectangular beam of cross section 300 mm × 550 mm subjected to factored bending moment, torsional moment and shear as 105kN-m, 50 KN-M and 90kN respectively. Use concrete grade M20 and steel of grade Fe 415. **[11]**

OR

A R.C. beam rectangular in section 230 mm wide and 450 mm deep is reinforced with 3 bars of 16 mm diameter at top and 4 bars of 20mm diameter at bottom, with an effective cover of 40 mm. Calculate the strength of section in torsion, when it is subjected to an ultimate shear of 25 kN and ultimate bending moment of 54 kNm. Use: M20 grade of concrete and Fe500 steel. **[11]**

Q2) Design a Three span continuous rectangular beam ABCD of 7m each simply supported at A, and D and continuous over B and C. It carries a dead load of 11kN/m and live load of 15kN/m. Use concrete grade M20 and steel of grade Fe 415. **[12]**

Q3) Design circular reinforced concrete tank resting on ground with its wall fixed at base to store 8 lakh liters of water, the top tank is open. Height of water tank is 4.5m including free board. Use concrete grade M20 and steel of grade Fe 415. **[12]**

P.T.O.

SECTION- II

Q4) A simply supported concrete beam of rectangular cross section 200 mm × 600 mm is loaded with udl of 20 KN/m including self weight over a span of 6 m. Find the stresses at mid span and end span sections if the prestressing force is 960 KN and the tendon are Eccentrictly located at 150 mm above the bottom fiber. **[11]**

Q5) A pretensioned concrete beam 10 m span having 250 mm square cross section, contains 60 wires each of 2 mm diameter, uniformly distributed over the section. The wires are initially tensioned on the prestressing bed with a total force of 300 KN. Calculate the percentage loss of prestress. **[12]**

Take -

a) $Es = 2.1 \times 10^5$ N/mm^2 and $Ec = 0.32 \times 10^5$ N/mm^2

b) Shrinkage strain = 0.0002

c) Creep coefficient = 1.2

d) Relaxation of steel = 5%.

Q6) Solve any Two of the following. **[12]**

a) Distinguish between pretensioned and post-tensioned methods of prestressing.

b) Explain in detail all the losses occur in prestress concrete

c) Why high strength steel and high strength concrete is required for prestressing

OR

A prestressed concrete beam of uniform rectangular cross section and span 15 m supports a Udl of 18 KN/M, excluding the self weight. Determine the suitable dimensions of the beam and calculate the area of the tendons and their position. Take permissible stresses for concrete 14 N/mm^2 in compression and Zero in tension. And for steel 1000 N/mm^2 **[12]**

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Total No. of Pages : 2

Seat No.	

F.Y. B.Tech. (Civil Engineering) (CBCS) (Semester - VIII) Examination, March - 2023

ESE - DESIGN OF BRIDGES

Sub. Code : 84748

Day and Date : Wednesday, 21 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 01.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary and state them clearly.**
4) **Answer shall be supported by adequate sketches.**

SECTION - I

Q1) Attempt all questions. **[12]**

a) What are the factors to be considered in selecting an ideal bridge site?

b) Explain the importance of bridges.

Q2) Attempt any two: **[11]**

a) Explain IRC class A and class B loading.

b) Explain Design loads for bridges.

c) Write down IRC specification for width of carriageway and clearances for bridges.

Q3) Attempt any two: **[12]**

a) Write a note on IRC specifications.

b) Explain in details Courbon's method for design of longitudinal girders of bridges.

c) What is economic span of bridge? Derive relation for economic span of bridge.

P.T.O.

SECTION - II

Q4) Attempt all questions. [12]

a) Enumerate various erection methods of deck.

b) How will you classify inspection of bridges?

Q5) Attempt any one: [11]

a) Explain procedure for design of bridge abutment.

b) Explain briefly bridge piers and its types with sketches.

Q6) Attempt any one: [12]

a) Write a note on Bearings and expansion joints in bridge.

b) Design an elastomeric unreinforced neoprene pad bearing to suit following data:

Vertical load (Sustained) : 300 kN

Vertical load (Dynamic) : 50 kN

Horizontal force : 30 kN

Friction Coefficient : 0.3

Modulus of rigidity of elastomer : 1 N/mm^2

Prefer any plan dimension of bearings (eg. 160 × 320, 200 × 400, 250 × 400, 250 × 500, 320 × 500, 320 × 630, 400 × 630 etc. based on IRC 83)

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Total No. of Pages : 2

F.Y. B.Tech. (Civil Engineering) (Part - IV) (CBCS) (Semester - VIII) Examination, March - 2023

ADVANCED DESIGN OF CONCRETE STRUCTURE

Sub. Code : 84753

Day and Date : Wednesday, 21 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 01.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary and state it clearly.**
4) **Answer shall be supported by adequate sketches.**
5) **IS 456, IS 3370 allowed.**

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SECTION - I

Q1) a) Describe component of flat slab with neat sketches? **[4]**

b) Calculate design moments in an interior panel of a flat slab with panel size 6m × 6m supported by columns of size 500mm × 500mm. Provide suitable drop. Take live load as 3 kN/m^2, Take floor finish load as 1 kN/m^2. Use M20 concrete and Fe415 steel. **[8]**

Q2) A continuous beam carries a superimposed load of 220 kN/m. Design deep beam for following requirements: **[12]**

i) Clear span length for each span = 4.75 m

ii) Width of beam = 250 mm

iii) Overall depth = 3000 mm

iv) Bearing at each support = 500 mm

Use M20 concrete and Fe415 steel

P.T.O.

Q3) Calculate stresses at base section due to self-weight and wind load for RCC chimney of 70m height having external diameter of 4.0 m at top and 5.0 m at base. The shell thickness at top is 200 mm and at base is 450 mm. The temperature difference between inside of chimney and outside surrounding air is 75°C. Take the coefficient of thermal expansion as 11×10^{-6}/°C, $E_s = 2.05 \times 10^5$ N/mm^2. The wind pressure intensity of 1900N/m^2 throughout the height of the chimney. Thickness of fire brick lining is 100 mm with air gap 100 mm. Calculate stresses for wind only. Shape factor is 0.7. M30 grade concrete and Fe415 steel. **[11]**

SECTION - II

Q4) Design a flat bottom circular elevated water tank of dia. 12 m and height 5 m which is to be supported by ring beam of 8.5m diameter. The ring beam is supported by six columns equally placed. Use M25 concrete and Fe415 steel. Design following components of water tank : **[12]**

i) Top Dome

ii) Top ring beam

Q5) Design Stem of a counterfort retaining wall if the height of wall above the ground level is 5.5m, SBC of soil = 180 kN/m^2, Angle of friction $\varnothing = 30°$ and unit weight of backfill = 18 kN/m^3. Keep spacing of counterforts as 3m. Coefficient of friction between soil and concrete $\mu = 0.5$. Adopt M20 concrete and Fe415 steel. **[12]**

Q6) A square slab of size 6m × 6m is reinforced with 10mm dia. Fe415 steel bars at a spacing of 180mm in both directions. The average effective depth may be taken as 120mm and overall as 150mm. Determine the permissible service load if M20 and Fe415 is used. Assume it is simply supported all around. **[11]**

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Total No. of Pages : 2

Seat No.	

F.Y. B.Tech. (Civil Engineering) (CBCS) (Semester - VIII) Examination, March - 2023

ADVANCE FOUNDATION ENGINEERING

Sub. Code : 84750

Day and Date : Wednesday, 21 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 01.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary and state them clearly.**
4) **Answer shall be supported by adequate sketches.**

SECTION - I

Q1) Attempt all questions.

a) Explain the importance of proportioning of footing. **[4]**

b) Write detailed design procedure for rectangular combined footing. **[6]**

Q2) Attempt all questions. **[12]**

A building consists of 9 columns 0.6 × 0.6 m in sizes arranged in three rows with three columns in each row. Distance between the columns in X-direction is 6 m and distance between the columns in Y-direction is 8 m each. the load carried by top row columns is 400 kN, 500 kN and 300 kN (from left to right), that carried by middle row columns is 1500 kN, 200 kN and 1200 kN (from left to right) and that carried by last row columns is 500 kN, 600 kN and 400 kN (from left to right). Allowable soil pressure is 100 kN/m^2. Calculate the soil pressure under each corner columns.

Q3) Attempt all questions.

a) What is Negative Skin Fiction? What is its effect on pile? **[5]**

b) A group of 16 piles of 600 mm diameter is arranged in square pattern with center to center spacing of 1.2 m. the piles are 10 m long and are embedded in soft clay with cohesion 30 kN/m^2. Determine the ultimate load capacity of pile group considering adhesion factor as 0.6. **[8]**

P.T.O.

OR

b) A group of nine piles arranged in square pattern is to be proportioned in medium stiff clay. Assuming that the piles are 30 cm diameter and 10 m long, find the optimum spacing for the piles. Assume adhesion factor of 0.8 and Cu = 50 kN/m^2, γ = 20 kN/m^3.

SECTION - II

Q4) Attempt all questions.

a) Define the following : [6]

i) Degree of freedom

ii) Resonance

iii) Frequency

b) The resonant frequency of a block is observed as 18 Hz. The amplitude at resonance is 1.25 mm. The dynamic force exerted at 18 Hz is 4.5 kN. If the weight of block is 18 kN, What is the damping factor? [7]

OR

b) The exiting force in a constant force type of excitation was 120 kN. The natural frequency of machine foundation is 4 Hz. The damping factor is 0.36. Determine the magnification factor and transmitted force at an operating frequency of 8 Hz.

Q5) Attempt all questions.

a) Explain earthen cofferdam and Rock-fill cofferdam with their advantages over each other. [6]

b) Explain Cantilever and Anchored sheet pile wall. [6]

Q6) Attempt all questions.

a) Discuss the problems associated with foundation installation in soft and compressible soils. [5]

b) Explain Mechanical Stabilization and Cement Stabilization. [5]

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Total No. of Pages : 2

Seat No.	

F.Y. B.Tech. (Civil Engineering) (CBCS)
(Semester - VIII) Examination, March - 2023
ADVANCED CONSTRUCTION TECHNIQUES
Sub. Code : 84759

Day and Date : Saturday, 24 - 06 - 2023 **Total Marks : 70**

Time : 10.30 a.m. to 01.00 p.m.

Instructions :
1) **All Questions are compulsory.**
2) **Figures to the right Indicate full marks.**
3) **Assume suitable data if necessary and state them clearly.**
4) **Answer shall be supported by adequate sketches.**

SECTION - I

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Q1) Attempt all questions. **[12]**

a) Explain sketch the behavior of composite and non composite materials.

b) Explain the different factors influence the cost of formwork.

Q2) Attempt any Two. **[11]**

a) Explain fibre reinforced concrete and their advantages.

b) What is Adhesive? Write their uses.

c) Define Geosynthetics. State benefits and barriers.

Q3) Attempt any Two. **[12]**

a) What is vibrocompaction? Explain the methods of vibrocompaction.

b) Explain soil nailing in detail with sketch.

c) What is Soilcrete? Explain in detail.

P.T.O.

SECTION - II

Q4) Attempt all questions. [12]

a) What is Cofferdam? Write the necessary of cofferdam.

b) Explain different types of Caissons with neat sketch.

Q5) Attempt any Two. [11]

a) Explain the necessity of Bridge Rehabilitation.

b) Write a note on Diaphragm walls.

c) Explain methods of bridge rehabilitation with sketch.

Q6) Attempt any Two. [12]

a) Explain with neat sketch the Vacuum Dewatering Process.

b) State the Mechanism of Revibration of concrete.

c) Explain the importance of Strengthening of Foundations.

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Total No. of Pages : 3

Seat No.	

Final Year B.Tech. (Civil Engineering) (CBCS) (Semester - VII) Examination, March - 2023

PCE-CV703 : QUANTITY SURVEY AND VALUATION

Sub. Code : 83734

Day and Date : Saturday, 17 - 06 - 2023 **Total Marks : 70**

Time : 02.30 p.m. to 05.30 p.m.

Instructions :
1) **Question No. 3 is compulsory. Attempt any 2 questions from remaing in Section-I and any 3 questions from Section-II.**
2) **Figures to the right indicate full marks.**
3) **Make suitable assumptions wherever Necessary and mention it clearly.**
4) **Use of non-programmable calculator is allowed.**

SECTION - I

Q1) a) What is IS1200? Write rules for deduction for plastering work as per code. **[5]**

b) What are the principles in selecting the units of measurement? **[5]**

Q2) a) Write a detailed note on factors affecting cost of construction. **[5]**

b) What is meant by Task work? Explain its importance in rate analysis with suitable examples. **[5]**

Q3) a) The plan as shown in the figure represents a single room with cross section of walls and foundations. Workout the quantities of following items using long wall and short wall method. **[10]**

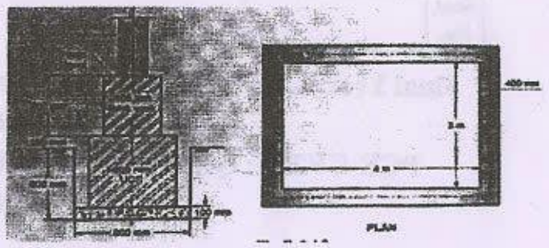
i) Excavation for foundations

ii) PCC 1:4:8 in foundations

iii) U.C.R. in foundation

iv) Brickwork in plinth

P.T.O.



b) Explain in short 'Long wall- Short wall method' for taking out quantities. [5]

Q4) Write a note on (Any two) : [10]

a) Prime cost and provisional sum.

b) Price escalation.

c) Approximate estimate and Detailed estimate.

SECTION - II

Q5) a) Write a note on bar bending schedule. [5]

b) Explain Price, cost and value with examples. [6]

Q6) a) Define Following terms : [5]

i) Gross Income

ii) Net Income

iii) Outgoings

b) Explain Belting method of valuation with the help of a neat sketch. [6]

Q7) a) A person purchased old building at a cost of Rs. 7,90,000 on basis that cost of land is Rs. 3,00,000 and remaining building cost. Considering the future life of building is 25 years work out annual sinking fund at 7% interest rate when scrap value is about 10% of cost of building. [9]

b) Write difference between scrap value and salvage value. [3]

Q8) Write a note on (Any two) : [12]

a) Building lease and Occupation lease.

b) Capitalized value and year purchase.

c) Different types of values.

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