



CIVIL ENGINEERING						
OCT-NOV 2025						
NEP 2.0-3rd Sem & CBCS-3rd,4th,5th,6th,7th,8th sem						
SN	Sem.	Pattern	Branch	Year	Sub code	Subject
1	III	NEP 2.0	CE	2	112332	Strength of Materials ✓
2	III	NEP 2.0	CE	2	112407	Renewable Energy Sources(ECE) MDM ✓
3	III	NEP 2.0	CE	2	113430	Environment & Development ✓
4	III	NEP 2.0	CE	2	112330	Engineering Mathematics III ✓
5	III	NEP 2.0	CE	3	112331	Building Construction ✓
6	III	B Tech	CE	2	73200	Fluid Mech-I ✓
7	III	B Tech	CE	2	73201	Building Constructions & Materials ✓
8	III	B Tech	CE	2	73197	Engineering Maths - III ✓
9	III	B Tech	CE	3	73198	Surveying-I ✓
10	III	B Tech	CE	2	73199	Strength Of Material-I ✓
11	IV	B Tech	CE	2	79115	Fluid Mechanics-II ✓
12	IV	B Tech	CE	2	79116	Building Design and Drawing ✓
13	IV	B Tech	CE	2	79112	Structural Mechanics ✓
14	IV	B Tech	CE	2	79118	Environmental Studies ✓
15	IV	B Tech	CE	2	79113	Surveying-II ✓
16	IV	B Tech	CE	2	79114	Concrete Technology ✓
17	V	B Tech	CE	3	80763	Water Resource Engineering-I ✓
18	V	B Tech	CE	3	80764	Design of Steel Structures ✓
19	V	B Tech	CE	3	80765	Environmental Engineering-I ✓
20	V	B Tech	CE	3	80766	Geotechnical Engineering - I ✓
21	V	B Tech	CE	3	80939	Waste Management ✓
22	VI	B Tech	CE	3	81515	Theory of Structures ✓
23	VI	B Tech	CE	3	81518	Geotechnical Engineering - II ✓
24	VI	B Tech	CE	3	81516	Engineering Management ✓
25	VI	B Tech	CE	3	81517	Environmental Engineering-II ✓
26	VI	B Tech	CE	3	81519	Soil and Water Conservation Techniques ✓
27	VII	B Tech	CE	4	83735	Transportation Engineering - I ✓
28	VII	B Tech	CE	4	83739	Solid Waste Management ✓
29	VII	B Tech	CE	4	83732	Design of Concrete Structures-I ✓
30	VII	B Tech	CE	4	83733	Earthquake Engineering ✓
31	VII	B Tech	CE	4	83734	Quantity Survey and Valuation ✓
32	VIII	B Tech	CE	4	84753	Advanced Design of Concrete Structures ✓
33	VIII	B Tech	CE	4	84759	Advanced Construction Techniques ✓
34	VIII	B Tech	CE	4	84745	Design of Concrete Structures-II ✓
35	VIII	B Tech	CE	4	84746	Water Resources Engineering - II ✓
36	VIII	B Tech	CE	4	84747	Transportation Engineering-II ✓

Seat No.

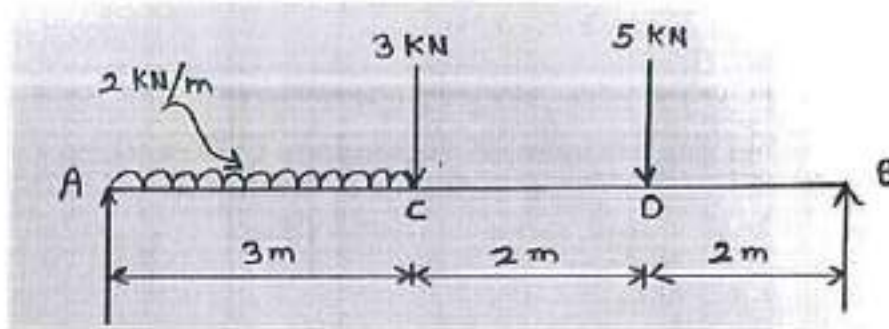
CE-3rd Sem 2

Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION**11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Strength of Materials****Sub. Code: 114405/112332****Day and Date: Friday, 05-12-2025****Time: 02:30 PM To 05:00 PM****Total Marks: 60**

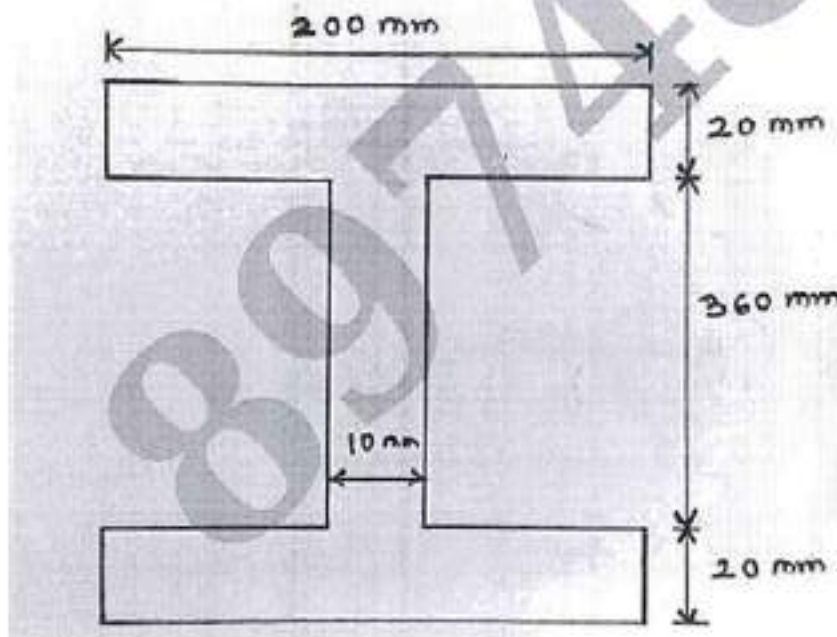
- Instructions:**
1. All questions are compulsory
 2. Assume suitable data wherever necessary and mention it boldly
 3. Draw neat labelled diagrams wherever necessary
 4. Figures to the right indicate full marks
 5. Use of Scientific calculator is allowed

- Q1)** Derive relationship between Young's modulus and modulus of rigidity. **[5]**
- Q2)** Define the following terms: **[5]**
 i) Strain Energy
 ii) Modulus of resilience
- Q3)** What are the different methods of analysis of truss? **[5]**
- Q4)** Attempt the following questions. **[15]**
- a.** Explain the term point of contraflexure. **[5]**
 - b.** Write assumptions made in theory of pure bending. **[5]**
 - c.** Draw shear stress distribution diagram for L-section and T-section. **[5]**
- Q5)** Attempt *any one question* from following. **[10]**
- a.** Construct S.F. and B.M. diagrams for the beam shown in the figure below. **[10]**



- b. A cantilever 1.5m long is loaded with a uniformly distributed load of 2kN/m run [10] over a length of 1.25m from the free end. It also carries a point load of 3kN at a distance of 0.25m from the free end. Draw the shear force and bending moment diagrams of the cantilever.

- Q6) A rolled steel joist of I section has the dimensions as shown in figure. This beam of I [10] section carries a udl of 40 kN/m run over a span of 10 m, calculate the maximum stress produced due to bending.



- Q7) The shear force acting on a section of a beam is 50kN. The section of the beam is [10] of T-shape having flange- 100mm X 20mm and web- 20mm X 80mm. The moment of inertia about the horizontal neutral axis is $314.221 \times 10^4 \text{ mm}^4$. Calculate the shear stress at the neutral axis and at the junction of the web and the flange. Also sketch the shear stress distribution across the section.

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.

Seat No. MM0

MME3CE-3rd-Sem

QP-9817

Total No. of Pages: 2

OCT-NOV 2025 WINTER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Renewable Energy Sources (ECE)

Sub. Code: 114442/112407

Day and Date: Wednesday, 10-12-2025

Time: 02:30 PM To 05:00 PM

Total Marks: 60

- Instructions: 1. All questions are compulsory
2. Figures to the right indicate full marks

- Q1) Answer any three questions from the following. [15]**
- Write the different types of renewable energy sources. Explain briefly. [5]
 - With a neat diagram, explain a solar dryer. [5]
 - Draw the I-V (current-voltage) characteristics of a solar cell and explain. [5]
 - What are the advantages and disadvantages of wind energy. [5]
- Q2) Answer any three questions from the following. [15]**
- List the advantages of biogas as a source of energy. [5]
 - Explain the basic process involved in anaerobic digestion. [5]
 - With a neat diagram, explain biogas production in a simple biogas plant. [5]
 - With a diagram, explain a fixed-dome biogas plant. [5]
- Q3) Answer any three questions from the following. [15]**
- Write the limitations of tidal power plants. [5]
 - What are the advantages and disadvantages of tidal power plants. [5]
 - Write a short note on the environmental effects of tidal power plants. [5]
 - With a diagram, explain electricity generation using tidal power. [5]
- Q4) Answer any three questions from the following. [15]**
- With a neat diagram, explain the basic Ocean Thermal Energy Conversion (OTEC) plant. [5]

QP-9817

- 5
- b. List the applications of ocean thermal energy. [5]
- c. With neat diagram explain the open cycle of Ocean Thermal Energy Conversion (OTEC). [5]
- d. What are the advantages of using OTEC for power generation? [5]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरभी प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

- 1] (1154) B.Tech. CBCS (114442) Renewable Energy Sources(ECE) Part 2 SEM 3
- 2] (11731) Bachelor of Technology (NEP-2.0) (112407) Renewable Energy Sources(ECE) Part 2 SEM 3

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Environment & Development****Sub. Code: 114497/113430****QP-9917****Total No. of Pages: 2****Total Marks: 60****Day and Date: Friday, 12-12-2025****Time: 02:30 PM To 05:00 PM**

Instructions: 1. All questions are compulsory
2. Figures to the right indicate full marks

- Q1) Solve any three.** [15]
- Give a detailed account on ethics of Buddhism for Biodiversity Conservation. [5]
 - What is environment? Discuss various environmental problems faced by world. [5]
 - Write a brief note on Deep Ecology. [5]
 - What are the types of Natural Resources? Add a note on Natural Resource Management (NRM). [5]
- Q2) Solve any three.** [15]
- Explain the concept of "Development-induced Displacement" with an example from India stating problems faced by environment and society. [5]
 - Give a detailed account on Narmada Bachao Aandolan. [5]
 - Explain the concept of ENvironmental Impact Assessment (EIA). Also add a detailed note on various stages of EIA. [5]
 - How do resistance movements help protect the rights of displaced and indigenous communities? [5]
- Q3) Solve any three** [15]
- Define Gender, Environment and Development (GED) and its main objectives. [5]
 - What is climate change? State the three core principles of the UNFCCC (United Nations Framework Convention on Climate Change). [5]
 - Discuss how women's roles are connected to environmental management and sustainability. [5]
 - Describe the India's climate change policy framework with the help of any 3 [5]

National Missions under NAPCC (National Action Plan on Climate Change).

Q4) Solve any three

[15]

- a. How do local communities use ecological knowledge to protect plants and animals? [5]
- b. What is Traditional Ecological Knowledge (TEK)? Also explain the main features of TEK. [5]
- c. What are "Sacred Groves"? Explain its Importance in Biodiversity Conservation. [5]
- d. What is Biodiversity? Explain the in-situ and ex-situ methods of Biodiversity conservation. [5]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरयी प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (11731) Bachelor of Technology (NER 20) (113430) Environment & Development Part 2 SEM 3

2] (1154) B.Tech. CBCS (114497) Environment & Development Part 2 SEM 3

Seat No. CE-32056m

8

QP-10166

Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION**11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Engineering Mathematics III****Sub. Code: 114403/112330**

Day and Date: Tuesday, 16-12-2025

Total Marks: 60

Time: 02:30 PM To 05:00 PM

Instructions: 1. Assume suitable data wherever necessary and mention it boldly
2. Figures to the right indicate full marks

Special Inst.: 1) Question No.1 is Compulsory.
2) Attempt any Three Questions from Question No. 2 to Question No.5.
3) Use of non-programmable scientific calculator is allowed.

Q1) Attempt any Three of the following.**[15]**

a. Solve $(D^2 + 2D + 2)y = 1 + x^2$ **[5]**

b. Show that $\vec{F} = (x^2 + 2x + 3y)\mathbf{i} + (3x + 2y + z)\mathbf{j} + (y + 2xz)\mathbf{k}$ is irrotational but not solenoidal. **[5]**

c. Fit a straight line $y = a + bx$ to the following data. **[5]**

x	1	2	3	4	5
y	14	27	40	55	68

d. Solve $(D^4 + 10D^2 + 9)y = \sin 2x \cos x$ **[5]**

Q2) Solve the following.**[15]**

a. If the probability that an individual suffers a bad reaction from a certain injection is 0.001, determine the probability that out of 2000 individuals (i) exactly 3, (ii) more than 2 (iii) more than 1 individual will suffer a bad reaction. **[8]**

b. The life-time of certain type of battery has mean life of 400 hours and a standard deviation of 50 hours. Assuming the distribution of life-time to be normal find (i) The percentage of batteries which have life-time of more than 350 hours. (ii) The percentage of batteries which have life-time between 300 and 500 hours. [Given: For S.N.V.Z the area under the curve from $z=0$ to $z=1$ is 0.3413, and from $z=0$ to $z=2$ is 0.4772] **[7]**

Q3) Solve the following.

9

[15]

a.

Find the Laplace transform of $\frac{e^{-4t} \sin 3t}{t}$.

[5]

b.

Find the Inverse Laplace transform of the following by Convolution Theorem.

[5]

$$\frac{1}{(s^2+4)(s^2+9)}$$

c.

Evaluate using Laplace transform $\int_0^{\infty} e^{-2t} t \cos t \, dt$.

[5]

Q4) Solve the following.

[15]

a.

Evaluate $\int_0^{\pi} (x - \cos x) \, dx$ by using Simpson's $\frac{3}{8}$ rule and Weddle's rule by dividing $[0, \pi]$ into 6 equal sub intervals.

[8]

b.

Evaluate $\int_0^1 \frac{x^2}{1+x^3} \, dx$ by using (i) Trapezoidal rule and (ii) Simpson's $\frac{1}{3}$ rule by dividing the interval into 4 equal sub intervals.

[7]

Q5) Solve the following.

[15]

a.

Solve using Laplace transform

[5]

$$\frac{d^2y}{dt^2} - 3\frac{dy}{dt} + 2y = 4e^{2t} \text{ with } y(0) = -3 \text{ and } y'(0) = 5.$$

b.

Six fair coins are tossed simultaneously. If 192 such tosses are made, find the expected number of tosses showing (i) one and only one head (ii) all heads.

[5]

c.

Evaluate $\int_{0.2}^{1.4} (\sin x - \log x + e^x) \, dx$ by using Weddle's rule by dividing $[0.2, 1.4]$ into 6 equal sub intervals.

[5]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

संदर्भी प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

Seat No. CE-304-Son

[10]

QP-10281

Total No. of Pages : 2

OCT-NOV 2025 WINTER EXAMINATION**11731 Bachelor of Technology (NEP-2.0)****Sub. Name: Building Construction****Sub. Code: 114404/112331****Day and Date: Thursday, 18-12-2025****Total Marks: 60****Time: 02:30 PM To 05:30 PM**

- Instructions:**
1. All questions are compulsory
 2. Assume suitable data wherever necessary and mention it boldly
 3. Draw neat labelled diagrams wherever necessary
 4. Drawings must be drawn to the given scale
 5. Figures to the right indicate full marks

Q1) Solve any three. [15]

- a. What are the requirements of good building stone? List the different types of stone giving their suitability in construction works. [5]
- b. List all the basic requirements of building & explain any four in detail. [5]
- c. What is composite masonry? List the types of composite masonry with their use. [5]
- d. List the ingredients of concrete and explain their functions. [5]

Q2) Draw sectional plan and Elevation for a T.W. Framed Panelled window with following data: [15]
 a) Clear opening: 900 X 1200 mm; b) Frame size: 75 X 100 mm; c) No of shutters: 2 Nos
 d) No Panels: 4 Assume suitable data.

Q3) Design and draw the plan and sectional elevation of R.C.C. Dog legged stair case for building for following data- [15]
 a) Storey height -3.50 m ; b) Width of stair - 1.40m

Q4) Solve any three [15]

- a. Discuss the various factors which require to consider while selecting a flooring material for a building. [5]
- b. Write Advantages and Disadvantages of flat roofs. [5]
- c. Differentiate between king post truss and queen post truss. [5]
- d. Explain requirements of good roof. [5]

OCT-NOV 2025 WINTER EXAMINATION**1154 B.Tech. CBCS****Sub. Name: Fluid Mech-I****Sub. Code: 63341/73200/77772****Day and Date: Monday ,08-12-2025****Total Marks: 70****Time: 02:30 PM To 05:00 PM**

Instructions: 1. Assume suitable data wherever necessary and mention it boldly
 2. Figures to the right indicate full marks

Special Inst.: Q4 and Q8 are compulsory
 Attempt any three questions from each section

Q1) SOLVE THE FOLLOWING [11]

- A.** State Newtons Law of viscosity and Enlist Types of Fluid [5]
- B.** A plate 0.05 mm distant from a fixed plate moves at 1.2 m/s and requires a shear stress of 2.2 N/m^2 to maintain this speed. Find the viscosity of the fluid between the plates. [6]

Q2) SOLVE THE FOLLOWING [12]

- A.** Derive formula for Total Pressure and Centre of Pressure for Plane inclined surface immersed into liquid. [6]
- B.** A rectangular plate 3 meters long and 1 metre wide is immersed vertically in water in such a way that its 3 meters side is parallel to the water surface and is 1 metre below it. Find: (i) Total pressure on the plate, and (ii) Position of centre of pressure [6]

Q3) SOLVE THE FOLLOWING [11]

- A.** Define Stream Function and Velocity potential Function [5]
- B.** Given that, [6]
- $$u = -4ax(x^2 - 3y^2)$$
- $$v = 4ay(3x^2 - y^2)$$
- Examine whether these velocity components represent a physically possible two-dimensional flow; if so whether the flow is rotational or irrotational?

Q4) Write a Short Note on (Attempt Any Three) [12]

- A.** Sp. Gravity and Bulk Density [4]
- B.** Buoyancy and Floatation [4]
- C.** Pressure Diagram [4]

D. Flow Net (Properties and uses) [4]

E. Stability Conditions for Floating bodies [4]

Q5) SOLVE THE FOLLOWING [11]

A. Write Bernoulli's Theorem Limitations and modifications [5]

B. A horizontal venturimeter with inlet diameter 200 mm and throat diameter 100 mm is employed to measure the flow of water. The reading of the differential manometer connected to the inlet is 180 mm of mercury. If the co-efficient of discharge is 0.98, determine the rate of flow. [6]

Q6) SOLVE THE FOLLOWING [12]

A. Explain Concept of Separation of Boundary Layer [6]

B. Water flowing through a 2 cm dia pipe. The shear stress at a point 4 mm from the axis is 0.1 N/cm² Assuming flow to be viscous Calculate shear stress at Pipe wall [6]

Q7) SOLVE THE FOLLOWING [11]

A. What do you mean by Concept of Equivalent Pipe [5]

B. Three pipes of diameters 300 mm, 200 mm and 400 mm and lengths 450 m, 255 m and 315 m respectively are connected in series. The difference in water surface levels in two tanks is 18 m. Determine the rate of flow of water if coefficients of friction are 0.0075, 0.0078 and 0.0072 respectively Neglecting minor losses. [6]

Q8) Write a Short Note on (Attempt Any Three) [12]

A. Mouthpiece and Rotameter [4]

B. Laminar Flow and Turbulant Flow [4]

C. Major and Minor Losses [4]

D. Control of Separation of Boundary layer [4]

E. Hydraulically Smooth and Rough Boundaries [4]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

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Seat No. _____

CE-3rd Sem 13

QP-9821

Total No. of Pages : 2

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Building Constructions & Materials

Sub. Code: 63342/73201/77773



Day and Date: Wednesday, 10-12-2025

Total Marks: 70

Time: 02:30 PM To 05:30 PM

- Instructions:**
1. Assume suitable data wherever necessary and mention it boldly
 2. Draw neat labelled diagrams wherever necessary
 3. Figures to the right indicate full marks

- Special Inst.:**
- 1) Section I: Solve any three questions.
 - 2) Section II : Q.5 and Q.6 compulsory. Solve any one question from Q.7 & Q.8

Q1) SECTION-I [11]

- a) List out types of bricks and write specific engineering properties of each brick. (6)
- b) Explain the manufacturing process of bricks in detail. (5)

- Q2) [12]**
- a) Draw neat with Sketch cross section of wall of load bearing structure and explain its components. (6)
 - b) Differentiate between framed structure and load bearing structure (6)

- Q3) [11]**
- a) Differentiate and compare English bond and Flemish bond. (6)
 - b) Explain with sketch various types of closers and brick bats in brick masonry. (5)

- Q4) [12]**
- Write short note on:
- i) Ashlar masonry
 - ii) shallow foundations
 - iii) Seasoning of Timber

Q5) SECTION II [12]

Draw sectional plan and Elevation for a T.W. Framed Glazed Window with following data:

- a) Clear opening : 900 X 1200 mm :
- b) frame size : 75 X 100 mm :
- c) No of shutters : 2 Nos

Assume suitable data.

- Q6) [18]**
- Design and draw the plan and sectional elevation of R.C.C. quarter turn stair case for residential building for following data-
- a) Storey height - 3.20 m ;
 - b) width of stair - 1.0m

- Q7) [5]**
- State different types of lintels, Explain any one.

- Q8) [5]**
- Explain the construction details of a pitched roof which is generally employed for

covering the verandah of a building.

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरघो प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

- 1] (101) Bachelor of Engineering (77773) Building Constructions & Materials Part 2 SEM 3
- 2] (1154) B.Tech. CBCS (73201) Building Constructions & Materials Part 2 SEM 3
- 3] (101) Bachelor of Engineering (63342) Building Constructions & Materials Part 2 SEM 3

Seat No. CE-3rd Sem

1st

QP-10144

Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Engineering Maths - III

Sub. Code: 63338/73197/77769



Day and Date: Tuesday, 16-12-2025

Total Marks: 70

Time: 02:30 PM To 05:00 PM

Instructions:

- Special Inst.: 1. Attempt any three full questions from each section.
 2. Figures to the right indicate full marks.
 3. Use of non-programmable scientific calculator is allowed.

Q1) Solve the following. [12]

a) Solve $\frac{d^3y}{dx^3} - 3\frac{d^2y}{dx^2} + 4y = e^{2x}$ [6]

b) Solve $(D^2 + D + 1)y = \sin 2x$ [6]

Q2) Solve the following. [11]

a) Find the angle between the surfaces, $x^2 + y^2 + z^2 = 9$ and $z = x^2 + y^2 - 3$ at the point $(2, -1, 2)$ [5]

b) Find the directional derivative of $\phi = 2x^3y - 3y^2z$ at $P(1, 2, -1)$ in the direction of $Q(3, -1, 5)$. In what direction from P is the directional derivative maximum? [6]

Q3) Solve the following. [11]

- a) Obtain the equation of line of regression of cost on age from the following table giving the age of car of certain make and the annual maintenance cost. [5]

Age of car(x)	2	4	6	8
Maintenance(y)	1	2	2.5	3

- b) Fit a straight line to the following data: [6]

x	1	2	3	4	6	8
y	2.4	3	3.4	4	5	6

Q4)

Attempt any two from the following.

- a) The deflection of a strut of length l with one end ($x=0$) built in and the other

supported and subjected to end thrust P , satisfies the differential equation

$$\frac{d^2y}{dx^2} + a^2y = \frac{a^2R(1-x)}{P}, \text{ where } a^2 = \frac{P}{EI} \text{ Find the equation of the deflection}$$

curve. Given that $\frac{dy}{dx} = y = 0$ when $x=0$. [6]

- b) Find the directional derivative of the function $F(x, y, z) = x^2 + xy + z^2$ at the

point $A(1, -1, -1)$ in the direction of the line AB where B has co-ordinates

$(3, 2, 0)$. [6]

- c) Using the method of least squares fit a curve of the form $y=ab^x$ to the following

data.

x	1	2	3	4
y	4	11	35	100

[6]

Q5)

SECTION-II

[12]

Solve the following.

- a) If the mean and variance of a Binomial distribution are 4 & 2 respectively, find the probability of [6]

(i) Exactly 2 successes (ii) less than 2 successes (iii) atleast 2 successes

- b) A company produces condensers and supply them in the packs of 5 condensers

each. If 1.5% of the condensers produced by the company are defective, using

Binomial probability distribution find: [6]

- (i) Probability that a pack selected at random from the production line is free from defective condensers.

- (ii) A pack selected at random from the production line contain atmost one defective condenser.

Q6)

Solve the following.

[11]

- a) Find the laplace transform of $\frac{e^{-3t} \sin 4t}{t}$ [5]

- b) Evaluate using laplace transform $\int_0^\infty e^{-3t} t \cdot \sin t \, dt$ [6]

Q7)

Solve the following.

[11]

- a) Evaluate $\int_{-3}^3 x^4 \, dx$ by using Trapezoidal rule taking 6 equal sub intervals. [5]

- b) Evaluate $\int_4^{5.2} \log_e x \, dx$ using Simpson's $\left(\frac{3}{8}\right)^{th}$ rule by dividing the interval

$[4, 5.2]$ into 6 equal parts. [6]

Q8)

[2]

P.T.O.

Attempt any two of the following.

- a) Marks obtained by a student are normally distributed with mean 55 and standard Deviation 5. If 1000 students appear in an examination [6]
 (i) how many students will get marks more than 40?
 (ii) how many students will get marks in between 45 to 50?
 [Given: Area under normal curve from $z = 0$ to $z = 3$ is 0.4987, area under normal curve from $z = 0$ to $z = 2$ is 0.4773, area under normal curve from $z = 0$ to $z = 1$ is 0.2420]
- b) Find inverse laplace transform of $\frac{2s+3}{(s+1)^2(s+2)}$ [6]
- c) Evaluate $\int_0^1 \frac{dx}{1+x^2}$ using Weddle's rule by dividing the interval into 6 equal sub intervals. [6]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

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सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

- 1] (101) Bachelor of Engineering (77769) Engineering Maths - III Part 2 SEM 3
- 2] (1154) B.Tech. CBCS (73197) Engineering Maths - III Part 2 SEM 3
- 3] (101) Bachelor of Engineering (63338) Engineering Maths-III Part 2 SEM 3

OCT-NOV 2025 WINTER EXAMINATION**1154 B.Tech. CBCS****Sub. Name: Surveying-I****Sub. Code: 63339/73198/77770****Day and Date: Thursday ,18-12-2025****Total Marks: 70****Time: 02:30 PM To 05:00 PM**

- Instructions:**
1. Assume suitable data wherever necessary and mention it boldly
 2. Figures to the right indicate full marks
 3. Use of Scientific calculator is allowed

Special Inst.: Attempt any Three questions from question number 1 to question number 4
 Attempt any Three questions from question number 5 to question number 8

- Q1)** a) Explain curvature correction and refraction correction with neat sketch (06) [12]
 b) The following observations were made during the testing of a dumpy level. (06)

Instrument at	Staff reading at	
	A	B
A	1.725	2.245
B	2.145	3.045

Distance between A and B = 200m , RL of A = 450.000M

1. Is the instrument in adjustment?
2. What should be the staff reading on A during the second set up of the instrument for the line of collimation to be exactly horizontal?
3. What should be the RL of B?

- Q2)** a) Explain Trapezoidal rule for volume calculation with neat sketch (05) [11]
 b) Explain zero circle of the planimeter with neat sketch (06)
- Q3)** a) Explain Intersection Method of plane table survey with neat sketch (05) [11]
 b) Explain Traversing Method of plane table survey with neat sketch (06)
- Q4)** Attempt any three questions from the following , [12]
 a) Define level surface and levelling (04)
 b) What are the uses of Plane Table Survey (04)
 c) Explain characteristics of contour (04)
 d) Explain Mid ordinate rule for area calculation (04)
 e) Explain errors in plane table survey (04)
- Q5)** a) Describe temporary adjustments of theodolite in detail (06) [12]
 b) Describe sources of errors in theodolite (06)
- Q6)** a) Describe case in trigonometrical levelling when the base of the object is [11]
 accessible (03)

b)	LINE	LENGTH	BEARING
----	------	--------	---------

AB	100	?
BC	80.5	140°30'
CD	60	220°30'
DA	?	310°15'

b) An incomplete traverse table is obtained as above. Calculate the length of DA and bearing of AB (08)

Q7) a) Draw neat sketch of ghat tracer (05) [11]
b) what are the various usage of box sextant (06)

Q8) Attempt any three questions from the following , [12]
a) Describe uses of Theodolite (04)
b) Define face left and face right (04)
c) Explain direct method of measuring horizontal angle with theodolite (04)
d) Explain tunnel surveying (04)
e) Explain usage of hand level (04)

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सादरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

- 1] (101) Bachelor of Engineering (77770) Surveying-I Part 2 SEM 3
- 2] (1154) B.Tech. CBCS (73198) Surveying-I Part 2 SEM 3
- 3] (101) Bachelor of Engineering (63339) Surveying-I Part 2 SEM 3

Seat No.

CE-3rd Sem 20

QP-9231

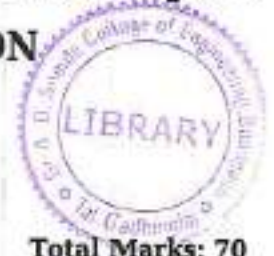
Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Strength Of Material-I

Sub. Code: 63340/73199/77771



Day and Date: Friday, 05-12-2025

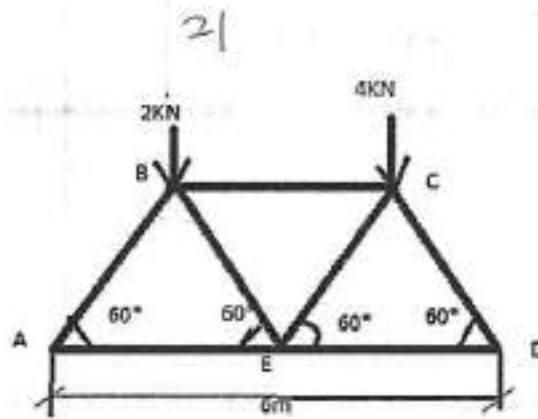
Time: 02:30 PM To 05:00 PM

Total Marks: 70

- Instructions:**
1. Assume suitable data wherever necessary and mention it boldly
 2. Draw neat labelled diagrams wherever necessary
 3. Figures to the right indicate full marks
 4. Use of Scientific calculator is allowed

Special Inst.: Q1 and Q5 are compulsory.
Solve any two from Q2 to Q4 and Q6 to Q8 respectively.

- Q1)** a) Define the following terms: (03) [9]
 i) Poisson's Ratio
 ii) Temperature stress
 b) Explain the following terms: (03)
 i) Sagging and Hogging Bending moment
 ii) Point of Contraflexure
 c) Differentiate between method of joint and method of section. (03)
- Q2)** A square RCC column is 300mm x 300mm in cross section. It is reinforced with 4 [13]
 bars of 20mm diameter. Determine the load carrying capacity of the column if
 allowable stresses in concrete and steel are 7MPa and 140MPa respectively.
 $E_s = 200\text{GPa}$ and modular ratio $m = 13$. (13)
- Q3)** Draw the shear force and bending moment diagram indicating principal values for [13]
 an overhanging beam ABC with $AB = 6\text{m}$ and $BC = 3\text{m}$. It is loaded with udl of
 intensity 2KN/m all over the span in addition to a point load 5KN at free end C. Also
 locate the point of contraflexure. (13)
- Q4)** Q4) Analyse the truss by using method of joint. [13]



- Q5) a) State the shear stress formula and explain the meaning of different symbols employed, (03)
 b) State assumptions made in theory of simple bending. (03)
 c) Explain i) Resilience, ii) Proof Resilience. (03)
- Q6) An unsymmetrical cast iron beam has overall depth 300mm, top flange 150mm x 25mm, bottom flange 250mm x 50mm and web thickness 25mm. The beam is 5m long and simply supported at ends. If permissible stresses are 100N/mm^2 in compression and 25N/mm^2 in tension. What uniformly distributed load beam will carry safely. (13)
- Q7) A simply supported beam of span 4m carries UDL of 80KN/m over the entire span. [13]
 Draw the shear stress distribution diagram at support indicating all important values, overall depth = 200mm, flange $150 \times 50\text{mm}$, web $50 \times 150\text{mm}$. (13)
- Q8) A tensile load of 100kN is gradually applied to a circular bar of 4 cm diameter and 5m long. Assuming $E = 200 \times 10^3 \text{N/mm}^2$. Determine i) Stress in rod.
 ii) Stretch in rod.
 iii) Strain energy absorbed by the rod. (13)

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (63340) Strength Of Material-I Part 2 SEM 3

2] (101) Bachelor of Engineering (77771) Strength Of Material-I Part 2 SEM 3

Seat No. CE-4th Sem 22

QP-9207

Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION**1154 B.Tech. CBCS****Sub. Name: Fluid Mechanics-II****Sub. Code: 63347/79115/79403****Day and Date: Thursday ,04-12-2025****Total Marks: 70****Time: 10:30 AM To 01:00 PM**

- Instructions:**
1. Assume suitable data wherever necessary and mention it boldly
 2. Draw neat labelled diagrams wherever necessary
 3. Figures to the right indicate full marks

Special Inst.: Attempt any THREE questions from each Section**Q1) Solve [11]**

- a. Describe What is most economical channel section. State the conditions for most efficient Trapezoidal section. [5]
- b. A channel is designed to carry a discharge of $20 \text{ m}^3/\text{s}$ with Manning's $n = 0.015$ and bed slope of 1 in 1000 (for trapezoidal channel side slope $M = 1\sqrt{3}$). Find the channel dimensions of the most efficient trapezoidal section [6]

Q2) Solve [12]

- a. What do you understand by critical, supercritical and sub critical flow in channel section? [6]
- b. Water flows in a rectangular channel of width $b=3\text{m}$ with a discharge of $Q=10 \text{ m}^3/\text{s}$. The channel has a bottom slope of $S_0=0.001$ and Manning's roughness coefficient $n=0.015$. The channel is transitioning from $y=1 \text{ m}$ to a depth $y=0.75 \text{ m}$. here normal depth $y_n=1.5 \text{ m}$. Use the stepping method [6]

Q3) Solve [11]

- a. Give the classification of hydraulic jump and their Froude number. [5]
- b. A rectangular channel of width $b=4 \text{ m}$ carries water with a discharge of $Q=20 \text{ m}^3/\text{s}$. The flow depth before the jump y_1 is 0.5 m . Determine, type of hydraulic jump and energy loss in the hydraulic jump. [6]

Q4) Write a Short Note on (Attempt any THREE) [12]

- a. Open channel flow & Pipe flow
- b. Specific energy curve with neat sketch

- c. Direct Step Method of GVF computation ²³
- d. Surges in open channel- Positive and Negative Surge
- e. M2 and S3 curve

Q5) Solve [11]

- a. Write advantages of triangular notch over rectangular notch. [5]
- b. A rectangular tank is 6 m long and 4m wide. It has a water depth of 2.5 m and is emptied through a rectangular notch of width $b=1.2$ m at the base of the tank. The discharge coefficient for the notch is $C_d=0.62$. Determine the time required to empty the tank completely. [6]

Q6) Solve [12]

- a. Derive the equation for force exerted on Flat Fixed Plate, Jet impacting normal to plate. [6]
- b. A jet of water with a diameter of 0.05 m strikes a flat vertical plate normally. The velocity of the jet is 25 m/s, and the density of water is 1000 kg/m³. Assume the jet is deflected by the plate without any loss of velocity. Determine, The force exerted by the jet on the plate and work done by the jet per second. [6]

Q7) Solve [11]

- a. What is draft tube. What are its functions? [5]
- b. What are the major components of Hydro-Power plant? Draw typical layout of Hydroelectric power plant [6]

Q8) Write a Short Note on (Attempt any THREE) [12]

- a. NPSH
- b. Ventilation of weir
- c. End Contraction and Velocity of approach
- d. Calibration of Notches and weir
- e. Impulse momentum principle

Seat No.

CE-4th-Sem 24

Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Building Design and Drawing

Sub. Code: 63348/79116/79404



Day and Date: Friday, 05-12-2025

Total Marks: 70

Time: 10:30 AM To 01:30 PM

- Instructions:**
1. Assume suitable data wherever necessary and mention it boldly
 2. Draw neat labelled diagrams wherever necessary
 3. Figures to the right indicate full marks

- Special Inst.:**
- 1) Attempt any two questions from Q.1, Q.3 and Q.4
 - 2) Attempt any two question from Q.5, Q.6 and Q.7
 - 3) Q. 2 & Q. 8 are compulsory from section I & section II resp.

Q1) Answer all questions**[7]**

- a. Explain the significance of Wind Diagram with neat sketch. **[4]**

OR

Explain principles of planning a building in detail (any four).

- b. Explain factors affecting site selection of building. **[3]**

Q2) Attempt compulsory**[21]**

- a. Design a G + 1 twin bungalow for two brothers (consulting Architect & Civil engineer) having plot size 35m X 30m. Maximum width of plot facing on 9.0m wide road on North side. Design a single bungalow for following data : **[21]**
- i. Office with toilet : 1
 - ii. Living Room : 1
 - iii. Kitchen & Dining : 1
 - iv. Store room : 1
 - v. Utility : 1
 - vi. Master Bed Room with attach toilet : 2 Nos
 - vii. Children Bed Room : 1
 - viii. Guest Bed Room : 1
 - ix. Staircase
 - x. Sanitary Block as per requirement

The necessary verandah, porch should be provided in the design.

Show North Direction

Draw with the scale 1:100

1. Draw detail plan of Ground Floor
2. Draw detail plan of First Floor
3. Draw Site plan

[1]

P.T.O.

4. Give area statement

25

- Q3) Answer all questions** [7]
- a. Describe techniques used in low cost housing. [3]
- b. Explain Green Building rating systems in India. [4]
- OR
- Explain types of maintenance job of a building.
- Q4) Answer all questions** [7]
- a. Write a note on "Aspect" as a principle of planning a building. [3]
- b. Explain concept Repairs & Rehabilitation of structures. [4]
- OR
- Explain significance of sun diagram with neat sketch.
- Q5) Answer all questions** [12]
- a. Explain in detail various traps used in drainage system. [6]
- b. Write in detail concept of Earthing [6]
- Q6) Answer all questions** [12]
- a. What is the necessity of ventilation and what are the factors affecting on ventilation? [6]
- b. State the necessity of air conditioning. Explain the components of A.C. [6]
- Q7) Answer all questions** [12]
- a. Enlist the various types of Paints and write its application methods. [6]
- b. Enlist the various types of Pointing with sketches. [6]
- Q8) Attempt compulsory all questions** [11]
- a. Differentiate between summer and winter air conditioning. [3]
- OR

What is Sound insulation & give the advantages of sound insulation?

- b. Write a note on Defects in plastering. [4]
- c. Write characteristics of Fire resisting materials. [4]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

- 1] (1154) B Tech. CBCS. (79116) Building Design and Drawing Part 2 SEM 4
- 2] (101) Bachelor of Engineering (79404) Building Design and Drawing Part 2 SEM 4
- 3] (101) Bachelor of Engineering (63348) Building Design & Drawing Part 2 SEM 4

Seat No.

CE-4th Sem 27

Total No. of Pages : 2

OCT-NOV 2025 WINTER EXAMINATION**1154 B.Tech. CBCS****Sub. Name: Structural Mechanics****Sub. Code: 79112****Day and Date: Saturday ,06-12-2025****Total Marks: 70****Time: 10:30 AM To 01:00 PM**

- Instructions:**
1. Assume suitable data wherever necessary and mention it boldly
 2. Figures to the right indicate full marks
 3. Use of Scientific calculator is allowed

Special Questions One and Five are compulsory and solve any two questions from
Inst.: each Section. Section -I consists of Q.1 to Q.4 and Section -II consists of Q.5 to Q.8

- Q1)** A) Explain Obliquity and its formula 3 marks [9]
 B) Find the core or Kernel of Sections in Rectangle and Circular section 3 marks
 C) Draw Influence line diagram for Reaction of Simply supported Beam. 3 marks
- Q2)** An element in a stressed material has a tensile stress of 500 MPa and compressive stress of 350 MPa acting on two mutually perpendicular planes and equal shear stress of 100 MPa on these planes. Find principal stresses and the position of the principal planes. Find also maximum shear stresses [13]
- Q3)** A masonry dam is 4.5 m, 1 m wide at the top and 3.5 m wide at the base retains water to the full height. The water face of the dam is vertical. Determine the extreme pressure intensities at the base. Take Wt. of water and masonry 9,810 N/m³ and 22,500 N/m³ respectively. Find also the extreme intensities at the base, when the dam is empty. [13]
- Q4)** The overhang beam ABC, AB= 4m and BC=1 m simply supported at A and B. Draw ILD for RA, RB, S.F and B.M. at a point 2m From A. [13]
- Q5)** A) Explain the different types of end conditions 3 marks [9]
 B) Explain Moment Area Method 3 marks
 C) Derive the formula of Power transmitted through shaft. 3 marks
- Q6)** A hollow column 200mm external diameter and 25 mm internal diameter 8 m long has both ends fixed. It is subjected to an axial compressive load. Taking Factor of safety as 6, $\sigma_c = 560\text{N/mm}^2$ and $\alpha = 1/1600$. Determine the safe Rankine's load. [13]
- Q7)** A simply supported beam ACB of 6 m long is loaded with a point load of 300 KN and Clockwise moment of 150 KN.m at a distance of 4 m from left simple support A. Find deflection at point C at a distance of 4m from left simple support A. Take [13]

$EI = 8 \times 10^4 \text{ KN.m}^2$

२९

- Q8) Calculate the diameter of the shaft required to transmit 100 KW at 190 r.p.m, if the [13]
maximum torque is likely to exceed the mean by 40% for maximum permissible
shear stress of 75 MPa

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

- 1] (1154) B.Tech. CBCS (79112) Structural Mechanics Part 2 SEM 4

Seat No.

CSE, ECS, CE, EE - 4th-Sem

Total No. of Pages : 6

OCT-NOV 2025 WINTER EXAMINATION

11670 Bachelor of Science (B.Sc.) NEP 2.0

Sub. Name: ENVIRONMENTAL STUDIES

Sub. Code: 94282/91270/67043/78928/79089

/79118/83229/84775/91147/91155 /91166/91246/91270/91294/91302

/91437/91457/91555/91656/91966 /92943/93227/77942/93448/93546

/94220/94787/94884/96146/83818 /93528/67042/73487/78887/91680

/80344/91186/94746/67072/98758 /93704/110924/91697/97471/92965

/94950/94093/78951/67043/110993 /64275/51077/67074

Day and Date: Sunday, 07-12-2025

Total Marks: 70

Time: 02:30 PM To 05:30 PM

- Instructions: 1. All questions are compulsory
 2. Draw neat labelled diagrams wherever necessary
 3. Figures to the right indicate full marks.

Q1) Solve following MCQ.

[10]

i. Which of the following is a point source of water pollution?

खालीलपैकी कोणता केंद्रीय जल प्रदूषणाचा एक स्रोत आहे ?

A. Agricultural lands

शेतजमीनी

B. Suburban land

उपनगरीय जमीन

C. Industry

उद्योग

D. None of the above

परीलपैकी कोणतीही नाही

ii. The pyramid of numbers is inverted in the case of----

-----च्या बाबतीत संख्यांचा मनोरा उलटा आहे

A. Parasitic food chain

परजीवी अन्न साखळी

B. Grassland ecosystem

गवताळ प्रदेश परिसंस्था

C. Forest ecosystem

वन परिसंस्था

D. Lake ecosystem

तलाव परिसंस्था

iii. Best method of proper solid waste disposal is -----?

घनकचरा थिलेवाट लावण्याची सर्वोत्तम योग्य पद्धत ----- आहे ?

A. Disposed into land

जमिनीत थिलेवाट

[1]

P.T.O.

- B. Burning
जाळणे
- C. Disposed into the ocean
समुद्रात विसर्जित
- D. Sanitary landfill
जमिनीत न झिरपता पुरणे

iv. PAN is a type of ----- pollutant.
पॅन (PAN) हा एक प्रकारचा ----- प्रदूषक आहे.

- A. Primary pollutant
मुख्य प्रदूषक
- B. Secondary pollutant
व्दतीय प्रदूषक
- C. Tertiary pollutant
तृतीय प्रदूषक
- D. None of the above
वरीलपैकी काहीही नाही.

v. The organisms which feed on dead organisms and excreta of living organisms are known-----

- जे जीव मृत जीवांना खातात आणि मलमूत्र यांच्यावर जगतात -----
- A. Decomposers
विघटन करणारे
- B. Renewable
अक्षय
- C. Abundant
सुबलक
- D. None of the above
वरीलपैकी काहीही नाही.

vi. What percentage of its geographical area of a country should be under forest cover?

देशाच्या भौगोलिक क्षेत्राचा किती टक्के भाग जंगलाखाली असावा ?

- A. 23%
२३%
- B. 33%
३३%
- C. 43%
४३%
- D. 53%
५३%

vii. The order of basic processes involved in succession is---

परिस्थितिकीय उन्नत अनुक्रम समाविष्ट असलेल्या मूलभूत प्रक्रियेचा क्रम आहे---

- A. Nudation->stabilization-> competition and co action->Invasion->reaction
ओसाढ जागेचा विकास > स्थैर्य > स्पर्धा आणि सहक्रिया > शिरकाव > प्रतिक्रिया

- B. Nudation->Invasion-> competition and co action->reaction->stabilization
ओसाड जागेचा विकास > शिरकाव > स्पर्धा आणि सहक्रिया > प्रतिक्रिया > स्थैर्य
- C. Invasion-> Nudation->competition and co action->Reaction->stabilization
शिरकाव > ओसाड जागेचा विकास > स्पर्धा आणि सहक्रिया > प्रतिक्रिया > स्थैर्य
- D. Invasion->stabilization-> competition and co action->Reaction->nudation
शिरकाव > स्थैर्य > स्पर्धा आणि सहक्रिया > प्रतिक्रिया > ओसाड जागेचा विकास

viii. Which is the largest ecosystem on Earth?
पृथ्वीवरील सर्वात मोठी परिसंस्था कोणती आहे ?

- A. Desert
बाळवंट
- B. Grassland
गवताळ प्रदेश
- C. Ocean
महासागर
- D. Forest
जंगल

ix. What role human plays in food chains?

अन्नसाखळीत मानवाची भूमिका काय आहे ?

- A. Producer
उत्पादक
- B. Consumer
ग्राहक
- C. Decomposer
विघटन करणारा
- D. None of the above
वरीलपैकी काहीही नाही

x. The surface area from which runs off rainwater is collected is called ----
ज्या पृष्ठभागावरून पावसाचे वाहत जाणारे पाणी एकत्र केले जाते त्याला ----- म्हणतात

- A. Rainwater Harvesting
पावसाच्या पाण्याचे संकलन
- B. Catchment Area
पाणलोटक्षेत्र
- C. Water establishment
पाणी स्थापना
- D. None of the above
वरीलपैकी काहीही नाही

Q2) Answer any three from the following खालीलपैकी कोणतेही तीन उत्तर द्या

[15]

- a. Q1. Describe the structure of the pond ecosystem.
Q2. Define deforestation and list the causes of deforestation.

- Q3. Define soil erosion and list the causes.
 Q4. Explain genetic, species and ecosystem diversity with examples.
 Q5. What are the causes of marine pollution?
 Q1. तलावाच्या परिसंस्थेच्या संरचनेचे वर्णन करा
 Q2. जंगलतोड परिभाषित करा आणि जंगलतोडीची कारणे सूचीबद्ध करा.
 Q3. मातीची धूप परिभाषित करा आणि कारणे सूचीबद्ध करा.
 Q4. उदाहरणांसह जनुकीय विविधता, प्रजातीय विविधता व परिसंस्था विविधता स्पष्ट करा.
 Q5. सागरी प्रदूषणाची कारणे कोणती ?

Q3) Write Short note on any three कोणत्याही तीनवर लहान टीप लिहा

[15]

- a. Q1. Solid waste pollution
 Q2. Biodiversity hotspot
 Q3. Forest resources
 Q4. Population growth
 Q5. Detritus food chain and Grazing food chain
 Q1. घनकचरा प्रदूषण
 Q2. जैवविविधतेचे संवेदनशील प्रदेश
 Q3. वन संसाधने
 Q4. लोकसंख्येची वाढ
 Q5. मृतोपजीवी अन्नसाखळी व चराऊ अन्नसाखळी

Q4) Explain in detail the Air (Prevention and Control of Pollution) Act
 OR

[10]

Briefly discuss the various types of terrestrial and aquatic ecosystems.

हवा (प्रदूषण प्रतिबंध आणि नियंत्रण) कायदाचे तपशीलवार वर्णन करा.

किंवा

विविध प्रकारच्या स्थलीय आणि जलीय परिसंस्थेची थोडक्यात चर्चा करा.

Q5) Describe the threats to biodiversity and the various methods used in the Conservation of Biodiversity.

OR

Explain in detail definition, Causes, effects and control measures of water pollution.

जैवविविधतेला असलेले धोके आणि जैवविविधतेच्या संवर्धनासाठी वापरल्या जाणाऱ्या विविध पद्धतींचे वर्णन करा

किंवा

जलप्रदूषणाची व्याख्या, कारणे, परिणाम आणि नियंत्रणाचे उपाय तपशीलवार स्पष्ट करा.

Q6) What are the roles of an individual in the prevention of pollution? Explain your Point of view and control measures.

OR

What is disaster management? Explain with cyclones, tsunamis or landslides.

प्रदूषण रोखण्यासाठी व्यक्तीची भूमिका काय आहे ? तुमचा दृष्टिकोन आणि नियंत्रण उपाय स्पष्ट करा.

किंवा

आपत्ती व्यवस्थापन म्हणजे काय ? चक्रीवादळ, त्सुनामी किंवा भूस्खलनांसह स्पष्ट करा.

[4]

P.T.O.

Seat No.

CE - 4th Sem 33

Total No. of Pages : 2

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Surveying-II

Sub. Code: 63345/79113/79401



Day and Date: Monday ,08-12-2025

Total Marks: 70

Time: 10:30 AM To 01:00 PM

- Instructions:**
1. Assume suitable data wherever necessary and mention it boldly
 2. Figures to the right indicate full marks
 3. Use of Scientific calculator is allowed

Special Inst.: Attempt any three questions from question number 1 to question number 4
Attempt any three questions from question number 5 to question number 8

- Q1)** a) Explain principle of Tacheometry with neat sketch(06) [12]
b) Following observations were taken with Transit Theolite

Inst.station	Staff station	Target	Vertical Angle	Staff Reading	Remark
O	A	Lower	+ 4°30'	0.950	R.L of instrument axis=255.500
		Upper	+ 6°30'	3.250	

Calculate the horizontal distance between the instrument station and staff , also the RL of station A(06)

- Q2)** a) Explain criteria for base line selection (05) [11]
b) Explain criteria for selection of station (06)

- Q3)** a) What are various use's of total station in civil engineering (05) [11]
b) Explain detailed survey for Road Project (06)

- Q4)** Attempt any three from the following [12]
a) Explain procedure and application of subtense bar with neat sketch. (04)
b) Explain Principal of Triangulation. (04)
c) Explain Principle of EDM. (04)
d) Radial Contouring. (04)

- Q5)** a) Explain in brief the field procedure for setting out the curve by offsets from long chord method (06) [12]
b) Two tangents intersect at a chainage of 1250m. The angle of intersection is 150°. Let us calculate all data necessary for setting out a curve of 250m radius by the deflection angle method (Rankines method). Peg intervals may be taken as 20M.(06)

- Q6)** a) Explain Terrestrial Photogrammetry and Aerial Photogrammetry (05) [11]
b) A line AB measures 11.00 cm on a photograph taken with a camera having a

focal length of 21.5 cm. The same line measures 3.00cm on a map drawn to scale of 1/45000, calculate the flying height of the aircraft, if the average altitude is 350m.(06)

- Q7) a) Explain applications of remote sensing in civil engineering (05) [11]
b) Explain basic components of GIS (06)
- Q8) Write short notes on any three from the following [12]
a) Vertical Curves (04)
b) Compound curve (04)
c) Drift & Crab(04)
d) GPS & its applications (04)

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विध्यांकरीता वितरित करता येईल.

- 1] (101) Bachelor of Engineering (79401) Surveying-II Part 2 SEM 4
- 2] (1154) B.Tech. CBCS (79113) Surveying-II Part 2 SEM 4
- 3] (101) Bachelor of Engineering (63345) Surveying-II Part 2 SEM 4

Seat No. CE-4th-Sem 35

QP-9882

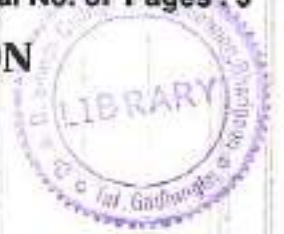
Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Concrete Technology

Sub. Code: 63346/79114/79402



Day and Date: Tuesday, 09-12-2025

Total Marks: 70

Time: 10:30 AM To 01:00 PM

- Instructions:**
1. All questions are compulsory
 2. Assume suitable data wherever necessary and mention it boldly
 3. Figures to the right indicate full marks
 4. Use of Scientific calculator is allowed

Q1) Attempt all questions. [12]

- a. Write a short note on alkali aggregate reaction. [6]
- b. Enlist the types of cement. Explain the suitability of any two types. [6]

Q2) Attempt the following. [11]

- a. Explain various methods of transportation of concrete [6]
- b. What is meant by segregation and bleeding? Explain their importance in concrete. [5]

OR

- c. Enlist the test for measurement of workability and explain compaction factor test. [5]

Q3) Attempt any Two. [12]

- a. Explain the maturity concept of concrete. [6]
- b. Explain how gel/space ratio affects strength of concrete. [6]
- c. Explain the techniques of measuring and factors affecting measurement of Ultrasonic Pulse Velocity. [6]

Q4) Attempt all questions. [15]

- a. What are the factors affecting design of concrete mix. [5]
- b. [5]

Design of M30 concrete mix as per IS:10262:2009

- Grade Designation: M30
- Type of cement- O.P.C 43 Grade
- Maximum nominal size of aggregate- 20 mm
- Workability- 100 mm slump
- Exposure- Severe for R.C.C.
- Specific gravity of cement- 3.15
- Specific gravity of coarse aggregate- 2.8
- Specific gravity of fine aggregate- 2.7
- Sieve analysis of Fine aggregate: Conforming to Zone I of IS:383

Table 1 : Assumed Standard Deviation

Sr. No.	Nominal size of Aggregate	Assumed standard deviation in N/mm^2
1.	M 10	3.50
2.	M 15	
3.	M 20	
4.	M 25	4.00
5.	M 30	
6.	M 35	
7.	M 40	5.00
8.	M 45	
9.	M 40	

Table 2 : Maximum Water Content per Cubic Meter of Concrete for Nominal Maximum Size of Aggregate

Sr. No.	Nominal Maximum Size of Aggregate	Maximum Water Content Kg
1.	10	208
2.	20	186
3.	40	165

Table 3 : Volume of Coarse Aggregate per Unit Volume of Total Aggregate for Different Zones of Fine Aggregate

Sr. No.	Nominal Maximum Size of Aggregate	Zone IV	Zone III	Zone II	Zone I
1.	10	0.50	0.48	0.46	0.44
2.	20	0.66	0.64	0.62	0.60
3.	40	0.75	0.73	0.71	0.69

Table 5 : Minimum cement content, Maximum Water cement ratio and Minimum grade of concrete for Different exposures with Normal Weight aggregates of 20 mm Nominal Maximum size

Sr. No.	Exposure	Plain Concrete			Reinforced concrete		
		Minimum Cement content Kg/m^3	Maximum free Water-cement ratio	Minimum grade of concrete	Minimum Cement content Kg/m^3	Maximum free water-cement ratio	Minimum grade of concrete
1	Mild	220	0.60	-	300	0.55	M20
2	Moderate	240	0.60	M15	300	0.50	M25
3	Severe	250	0.50	M20	320	0.45	M30
4	Very Severe	260	0.45	M20	340	0.45	M35
5	Extreme	280	0.40	M25	360	0.40	M40

Q5) Attempt any Two.

- a. Write short note on GGBS.
- b. Explain in detail effect of superplasticizers on concrete.
- c. Explain fly ash as admixture in concrete.

[8]

[4]

[4]

[4]

Q6) Attempt any Two.

[12]

- a. Explain acid attack on concrete in detail.
- b. Write short note on
 - 1. Self-compacting concrete
 - 2. High Performance concrete.
- c. Explain effect of permeability on concrete.

[6]

[6]

[6]

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

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