CE-L

Total No. of Questions: 22 **Total No. of Pages: 02**

Roll No. _____ **Paper Code**
3E1206

B.Tech. III-Sem (Main & Back) 2025-26
Aeronautical Engineering
3AN2-01 Advanced Engineering Mathematics-I
AN,AG,AE,CE,CR, EC,EI,ME,MH,PI,PT,BM
3E1206

Time : 3 Hours **Maximum Marks : 70**

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)
1._____ 2._____

Part A
(Answer should be given up to 25 words only)
All questions are compulsory . T-435 **10x2=20**

1. With usual notation prove that $\mu = E^{\frac{1}{2}} + \frac{1}{2}\delta$
2. Write Newton cotes Quadrature formula.
3. Write the corrector formula of Adam's predicator corrector method.
4. Define transcendental equation with examples.
5. Find Laplace transform of $\cos^2 2t$.
6. Write convolution theorem for Inverse Laplace transform.
7. Write Fourier sine transform of $\frac{e^{-ax}}{x}$.
8. T-435 Write Fourier cosine transform of $f(t)$.
9. Find z-transform of $cas\ h\ n\theta$.
10. Find inverse z-transform of $\frac{4z}{z-a}$, $|z| > |a|$

Part-B
T-435
(Analytical/Problem solving questions)

Attempt any five questions. **5x4=20**

1. Use stirling formula to find Y_{28}, given $y_{20}=49225, y_{25}=48316,$ $y_{30}=47236, y_{35}=45926, y_{40}=44306$.
2. Find the root of $x^4-x-10=0$ which is nearer to x=2 by Newton Raphson method.
3. Solve $\frac{d^2x}{dt^2}+9x=\cos 2t$, if $x(0)=1, x\left(\frac{\pi}{2}\right)=-1$
4. Use Euler's method to solve $\frac{dy}{dx}=\frac{y^2-x}{y^2+x}$ given y=1 at x=0 also. Find y for x=0.1, 0.2 and 0.3.
5. Find Laplace transform of $\sin\sqrt{t}$
6. Find the Fourier transform of $e^{-|x|}$ hence show that

$$\int_0^\infty \frac{x\sin mx}{1+x^2}dx=\frac{\pi e^{-m}}{2}, m>0$$

7. Find Z-transform of following - (i) n^2e^{an} (ii) $\sin(3n+5)$

Part-C
T-435
(Descriptive / Analytical / Problem Solving/ Design question)

Attempt any three questions. **3x10=30**

1. Find value of $\int_1^2 \frac{1}{x}dx$ by (i) Simpson's 1/3 rule (ii) Trapezoidal rule
2. Using fourth order Runge-Kutta method with one step, compute y(0.1) to five places of decimal, if $y'=0.31+0.25y+0.3t^2$ and $y=0.72$ when $t=0$
3. Apply convolution theorem to evaluate $L^{-1}\left[\frac{s^2}{(s^2+a^2)(s^2+b^2)}\right]$
4. An infinite string is initially at rest and that the initial displacement is $f(x)$ $-\infty<x<\infty$. Determine the displacement y(x,t) of the string.
5. Using Z-transform solve $U_{n+2}-2U_{n+1}+U_n=3n+5$

Total No. of Questions: 22 Total No. of Pages: 02

Roll No. _____ Paper Code 3E1200

B.Tech. III-Sem (Main & Back) 2025-26
Aeronautical Engineering
3AN1-03 Managerial Economics and Financial Accounting
All Branches
3E1200

Time : 3 Hours Maximum Marks : 70

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.
Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/ calculated must be stated clearly. Use of following supporting material is permitted during examination.
(Mentioned in form No.205)

1. _____ 2. _____

Part A
(Answer should be given up to 25 words only)

All questions are compulsory **10x2=20**

Q.1 Explain the meaning and nature of economics.

Q.2 Explain the concept of oligopoly.

Q.3 Define the law of demand.

T-435

Q.4 What are the different types of demand?

Q.5 Define cost function and explain its significance.

Q.6 Explain the concept of perfect competition.

Q.7 What is a balance sheet?

Q.8 What is financial ratio analysis?

T-435

Q.9 Define production function and explain its significance.

Q.10 Explain the concept of supply and its determinants.

Paper Code
3E1200

Part B

(Analytical/Problem solving questions)

Attempt any Five questions . 5x4=20

Q.1 Differentiate between deductive and inductive methods in economics.

Q.2 Define national income and explain its concepts. T-435

Q.3 What is elasticity of demand? Explain its significance.

Q.4 Discuss the factors influencing the pricing strategies of a firm.

Q.5 What are the different types of costs? Explain.

Q.6 What is monopoly? Explain its characteristics.

Q.7 A company has the following cost structure: Fixed Cost = Rs. 50,000, Variable Cost per unit = Rs. 10, Selling Price per unit = Rs. 20. Calculate the break-even point.

Part C

(Descriptive/Analytical/Problem solving/Design question)

Attempt any Three questions 10x3=30

Q.1 Discuss the various tools and techniques used in managerial decision-making. Explain any two in detail. T-435

Q.2 Differentiate between 'straight-line depreciation' and 'written-down value method' with examples.

Q.3 From the following data, prepare a cash flow statement:-
Opening cash balance : Rs. 20,000, Cash received from customers: Rs. 1,00,000, Cash paid to suppliers: Rs. 60,000, Operating expenses paid : Rs. 15,000

Q.4 Explain the concept of 'capital budgeting' and discuss the various methods used to evaluate investment proposals.

Q.5 Discuss the significance of ratio analysis in financial management. Calculate any three important ratios from the following data:
- Current Assets : Rs. 2,00,000
- Current Liabilities : Rs. 1,00,000
- Total debt : Rs. 3,00,000
- Total Equity : Rs. 5,00,000
- Net Profit : Rs. 1,20,000

Total No. of Questions: 22 **Total No. of Pages: 04**

Roll No. _____ **Paper Code**
3E1213

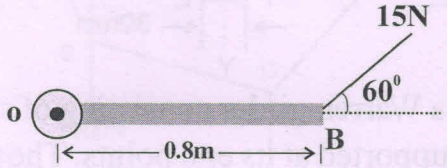
B.Tech. III-Sem (Main & Back) January-2026
Civil Engineering
3CE3-04 Engineering Mechanics
3E1213

Time : 3 Hours **Maximum Marks : 70**

Attempt all ten questions from Part A, five questions out of seven questrion from Part B and three questions out of five questions from Part C.
(Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/ calculated must be stated clearly.
Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)
1. _____ 2. _____

Part-A
(Answer should be given up to 25 words only)
All questions are compulsory. **10x2=20**

Q.1 Define Lami's theorem with diagram.
Q.2 Two forces of 400N and 600N act at an angle 60^0 to each other determine the resultant in magnitude and direction.
Q.3 State parallel axis theorem. T-435
Q.4 Differentiate centroid and center of gravity.
Q.5 Write the principle of virtual work.
Q.6 What is the difference between springs in series and parallel?
Q.7 Define bulk modulus.
Q.8 What is angle of repose? T-435
Q.9 A force of 15N is applied at an angle of 60^0 to the edge of a door 0.8m wide as shown in Fig. Find the moment of the force about the hinge(O).

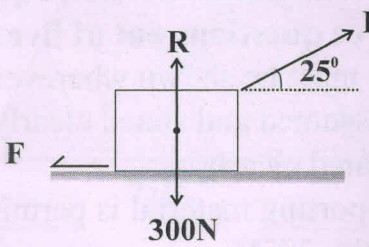


Q.10 A bar of length 2m is subjected to a tensile force, causing an extension of 0.1mm. Find the strain. T-435

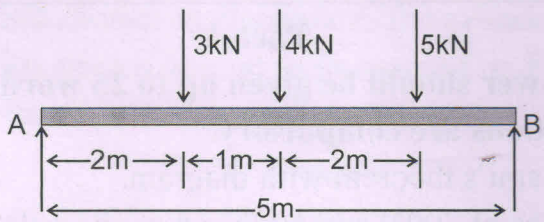
Part-B
(Analytic/Problem solving questions)

Attempt any Five questions **5x4=20**

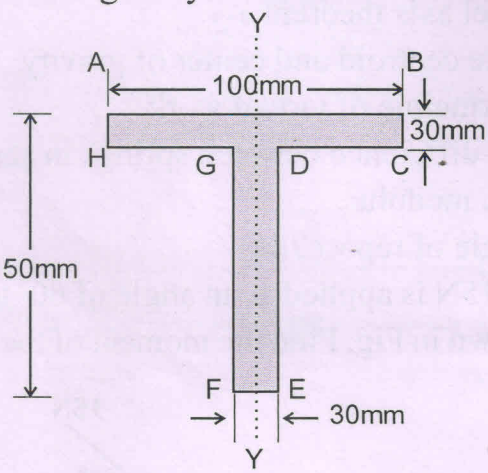
Q.1 A body of weight 300N is lying on a rough horizontal plane having a coefficient of friction as 0.3. Find the magnitude of the force (P), which can move the body, while acting at an angle of 25^0 with the horizontal.



Q.2 A simply supported beam AB of span 5m is loaded as shown in Fig. Find the reactions at A and B.



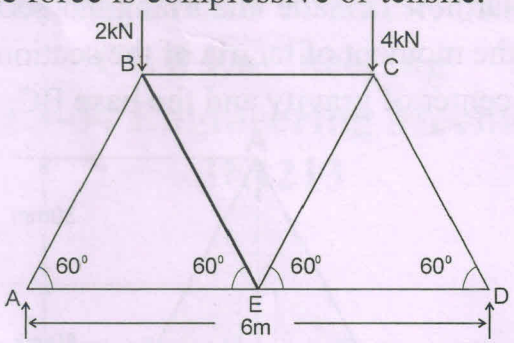
Q.3 Find the centre of gravity of a 100mm x 150mm x 30mm T-section.



T-435

Q.4 Figure shows a Warren girder consisting of seven members each of 3m length freely supported at its end points. The girder is loaded at B and C

as shown. Find the forces in all the members of the girder, indicating whether the force is compressive or tensile.



Q.5 A steel ball of weight 60 N is dropped onto a spring of stiffness 500N/m from a height of 100 mm. Find the maximum deflection of the spring (Use the work energy principle) T-435

Q.6 A steel rod of diameter 20mm and length 1m is subjected to a tensile force of 50kN. Find the volumetric strain in the rod. (E=200 GPa, v=0.3)

Q.7 A circular wheel of mass 50 Kg and radius 200 mm is roatating at 300 r.p.m. Find its kinetic energy.

Part-C

(Descriptive/Analytical/Problem Solving/Design question)

Attempt any three questions **3x10=30**

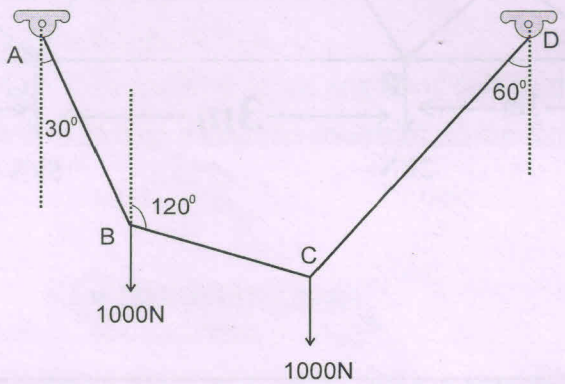
Q.1 Explain:-

(a) Concept of virtual work. T-435

(b) Bulk Modulus, Young Modulus, Modulus of rigidity.

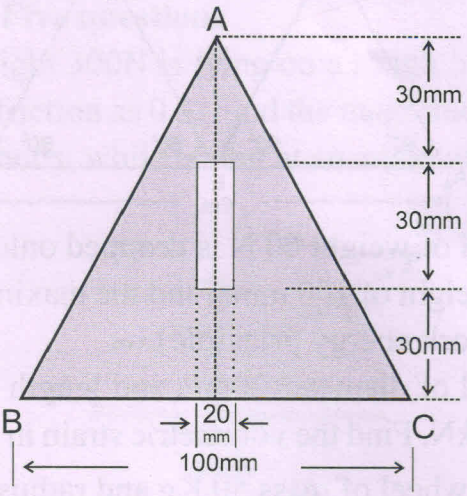
(c) Define and Comapre Co-efficient of friction and angle of friction.

Q.2 A string ABCD, attached to fixed points A and D has two equal weights of 1000N attached to it at B and C. The weights rest with the portions AB and CD inclined at angles as shown in Fig. Find the tensions in the portions AB, BC, and CD of the string, if the inclination of the portion BC with the vertical is 120°.



T-435

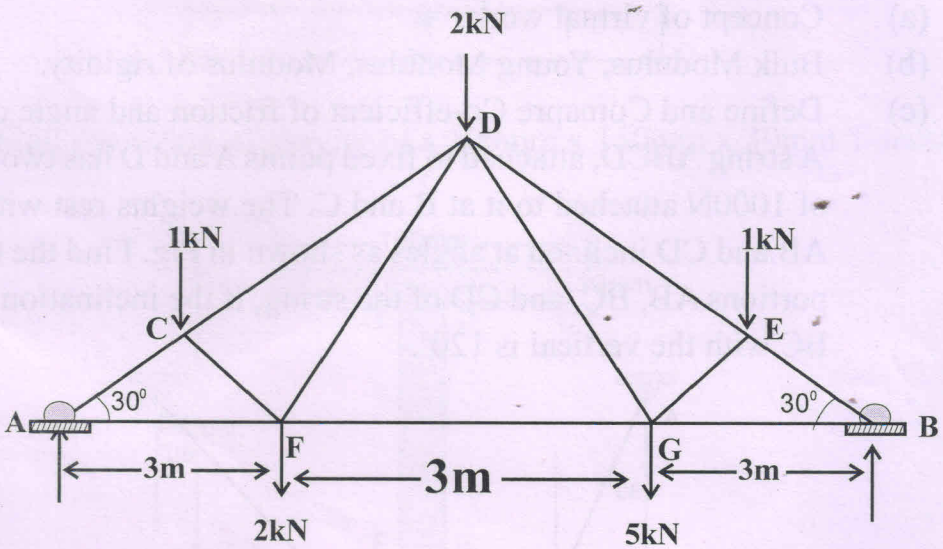
Q.3 A rectangular hole is made in a triangular section as shown in Figure. Determine the moment of inertia of the section about X-X axis passing through its center of gravity and the base BC.



Q.4 A thin cylinder of diameter 500mm and wall thickness 10mm is subjected to an internal pressure of 2MPa, find the hoop stress, longitudinal stress, and change in diameter of the cylinder. (E=200 GPa, v=0.3)

T-435

Q.5 A truss of 9m span is loaded as shown in Fig. Find the reactions at the two supports.



Total No. of Questions: 22 **Total No. of Pages: 02**

Roll No. _____ **Paper Code**
3E1215

B.Tech. III-Sem (Main & Back) January-2026
Civil Engineering
3CE4-05 Surveying
3E1215

Time : 3 Hours **Maximum Marks : 70**

Instructions To Candidates:
Attempt all Ten Questions from Part A. Five questions out of seven questions from Part-B and three questions out of five questions from Part-C

Schematic diagrams must be shown wherever necessary. Any data missing may suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly. Use of following supporting material is permitted during examination (As mentioned in form No. 205)

1. NIL _____ 2. NIL _____

Part A
(Answer should be given up to 25 words only)

All questions are compulsory. T-435 **10x2=20**

Q.1 What are the objectives of surveying?
Q.2 What do you understand by 'ranging'?
Q.3 Differentiate between WCB and RB.
Q.4 Define the term contour interval.
Q.5 What is meant by contour gradient?
Q.6 State the principle of tacheometric surveying.
Q.7 What do you understand by stadia wire?
Q.8 Enlist the applications of curve surveying.
Q.9 What is the use of aerial photograph?
Q.10 What do you understand by setting out works?

Part B
(Analytical/Problem solving questions)

Attempt any Five questions T-435 **5x4=20**

Q.1 The following bearings were observed with a compass survey:

Line	Fore Bearing
AB	60^0 30'
BC	122^0 0'
CD	46^0 0'

DE $205^0\ 30'$
EA $300^0\ 0'$
Determine the interior angles and plot the traverse for the same.

Q.2 Describe procedure to set out a horizontal angle by method of repetition.

Q.3 Describe various methods of contouring. Discuss the merits and demerits of each.

Q.4 Define the term: T-435
(a) True and magnetic bearing (b) Local attraction
(c) Back bearing (d) Magnetic declination

Q.5 The following readings were taken with a tacheometer with the line of sight horizontal on a staff held vertical: 0.950m, 1.285 m and 1.620m. Determine the horizontal distance from the instrument station to the staff station if k=100 and C=0.15m. Also determine the R.L. of the staff station if the R.L. of the instrument station is 101.580m and the height of trunnion axis is 1.460m.

Q.6 What are the different errors in theodolite work? How are they eliminated?

Q.7 Write short notes on:
(a) Terrestrial photogrammetry (b) Methods for laying out buildings

Part C
(Descriptive/Analytical/Problem Solving/Design question)

Attempt any three questions. T-435 **3x10=30**

Q.1 What are different tape corrections and explain that how are they applied?

Q.2 Explain how will you determine necessary data to set out a simple circular curve by using the method 'offset from extended chord'?

Q.3 The areas within the contour line at the site of reservoir and the face of the proposed dam are as follows:

Counter	Area (m^2)	Contour	Area (m^2)
101	1200	106	125000
102	12500	107	1875000
103	92200	108	2150000
104	150200	109	2510000
105	802500		

Taking 101 as the bottom level of the reservoir and 109 as the top level, determine the capacity of reservoir by trapezoidal and prismoidal rules / formula.

Q.4 Describe the 'height of instrument' and 'rise and fall' methods of computing the levels. Discuss the merits and demerits of each.

Q.5 What is total station? Explain the construction and working of total station with neat sketches.

Total No. of Questions: 22 **Total No. of Pages: 02**

Roll No. _____ **Paper Code**
3E1211

B.Tech. III-Sem (Main & Back) January-2026
Civil Engineering
3CE4-07 Building Materials and Construction
3E1211

Time : 3 Hours **Maximum Marks : 70**

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1._____ 2. _____

Part-A

(Answer should be given up to 25 words only)

All questions are compulsory **10x2=20**

Q1 Discuss Properties of Flyash.

T-435

Q2 Discuss Compressive strength test of stones.

Q3 Write about effloresence test on bricks.

Q4 Discuss the classification of Lime.

Q5 Write about the light wt concrete blocks.

Q6 Name Building components.

Q7 Differentiate soft and hard wood.

Q8 Name different types of brick bonds.

Q9 Write about water absorption test on bricks.

T-435

Q10 Name types of foundations.

Paper Code
3E1211

Part-B

(Analytical/Problem solving questions)

Attempt any five questions. **5x4=20**

Q1 Explain the various tests on Bricks.

Q2 Compare Brick and Stone masonary.

T-435

Q3 Explain the types of construction.

Q4 Draw the Fig of English and double Flemish Bond.

Q5 Discuss the natural method of seasoning of timber.

Q6 Explain the Fireproofing of timber.

Q7 Discuss the Pile Foundations.

Part-C

(Descriptive / Analytical / Problem Solving / Design questions)

Attempt any Three questions. **3x10=30**

Q1 Write about various tests on Stones.

Q2 Explain the Plywoods and Fibre boards.

T-435

Q3 Compare English, single Flemish and double Flemish Bonds.

Q4 Explain the Defects of wood with Fig.

Q5 Discuss the Design of Stair case.

Total No. of Questions: 22 **Total No. of Pages: 02**

Roll No. _____ **Paper Code**
3E1214

B.Tech. III-Sem (Main & Back) January-2026
Civil Engineering
3CE4-06 Fluid Mechanics
3E1214

Time : 3 Hours **Maximum Marks : 70**

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1._____ 2._____

Part A
(Answer should be given up to 25 words only)

All questions are compulsory **10x2=20**

Q.1. Differentiate between ideal fluids and real fluids.

T-435

Q.2. Define capallarity.

Q.3. State the Pascal's law.

Q.4. Distinguish between absolute pressure and vaccume pressure.

Q.5. Briefly explain the term centre of Buoyancy and Metacentre.

Q.6. Define stream lines, streak lines and flow net.

Q.7. Define the kinetic energy correction factor.

Q.8. What are the assumption made in Bernoulli's equation?

Q.9. What is Hagen-Poiseuille formula?

Q.10. Define Vena-contracta.

Part-B
(Analytical/Problem solving questions)

T-435

Attempt any five questions. **5x4=20**

Q.1. State and explain Newton's law of viscosity. Deduce the expression for the dynamic viscosity.

Q.2. Explain the minor losses in pipes.

Q.3. What is Euler's equation? How will you obtain Bernoulli's equation from it?

Q.4. A three dimensional flow model is given by
$V = 2x^2y\,\hat{i} + 3y^2z\,\hat{j} - (4xz + 3yz^2)\hat{k}$.
Show that it is a case of possible steady, incompressible fluid flow.

Q.5. What is orificemeter? Derive an expression for discharge through orificemeter.

T-435

Q.6. Write a short note on Manometers.

Q.7. Calculate specific weight, density and specific gravity of two liters of a liquid which weight 7N.

Part-C
(Descriptive / Analytical / Problem Solving / Design questions)

Attempt any three questions. **3x10=30**

Q.1. Derive an expression for the centre of pressure for a plane immersed in water and inclined by an angle θ to free surface of water.

Q.2. If for a two dimensional potential flow the velocity function is given by $\phi = x(2y-1)$, determine the velocity at the point P(2,3). Determine also the value of stream function at the point P.

Q.3. Derive the Darcy-weisbach eqation for head loss due to a flow in a pipe in terms of the friction factor f. Also develope the relations for friction factor and boundary shear stress in terms of flow parameters for laminar flow.

T-435

Q.4. A venturimeter of diameters 200mm and 100mm inlet and throat respectively is installed in a vertical pipe carring oil of specific gravity 0.8. The inlet is 1.5m above the throat. Pressure gauges installed at the throat and inlet indicate a pressure difference of 9.81KN/m^2.

(a) Determine the discharge through the pipe.

(b) If the throat and inlet connected to a u-tube manometer containing mercury instead of the pressure gange. Find the difference in mercury levels in the two limbs of u-tube manometer.

Q.5. A hydraulic lift used for lifting automobiles has 25cm diameter ram which slides in a 25cm diameter cylinder. The annlar space being filled with oil having a kinematic viscosity of 3.7cm^2/sec and specific gravity 0.85. If the rate of travel of the ram is 15cm/sec, find the frictional resistance, when 3.3m long arm is engaged in cylinder.

Total No. of Questions : 13

Total No. of Pages : 04

Roll No. _____

Paper Code
3E1131

B.Tech.III Sem (Old/Mercy Back) Exam 2026
ESC Civil Engineering
3CE3-04 Engineering Mechanics
3E1131

Time: 2 Hours

Maximum Marks: 80
Min. Passing Marks: 28

Attempt all five questions from Part A, four questions out of six questions from Part B and two questions out of three from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No.205)

1. _____ 2. _____

Part A(Answer should be given up to 25 words only)
All questions are compulsory

5x2=10

Q.1 State Lami's theorem.

Q.2 Two concurrent forces of 12 N and 18 N are acting at an angle of 60°. Find the resultant force.

Q.3 State the parallel-axis theorem for moments of inertia.

Q.4 Write the principle of virtual work.

Q.5 Define stress and strain and their units.

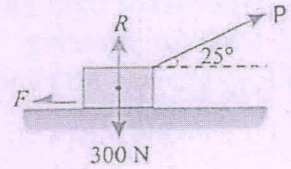
Part BAnalytical/Problem solving questions
Attempt any four questions

4x10=40

Q.1 (a) Define Young's modulus, modulus of rigidity, Poisson's ratio and bulk modulus.

(b) Define work, energy, and power. Also explain the law of conservation of energy with a practical example

Q.2 A body of weight 300 N is lying on a rough horizontal plane having a coefficient of friction as 0.3. Find the magnitude of the force (P), which can move the body, while acting at an angle of 25° with the horizontal.



Q.3 Derive an expression for the equivalent stiffness when springs are connected in series and parallel.

Q.4. (a) Define perfect, deficient, and redundant trusses. Derive the general relation connecting the number of members (m) and joints (j) for a perfect truss.

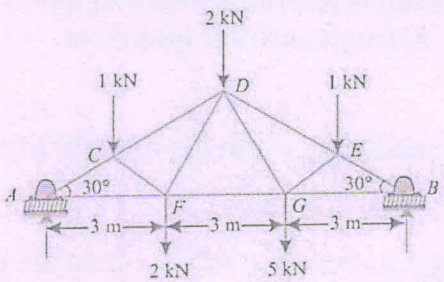
(b) Derive the expression for the moment of inertia of a rectangular section about its centroidal axis.

Q.5 Define the following terms:

(a) Kinetic friction, coefficient of friction, angle of friction, and laws of friction.

(b) Principle of transmissibility, centroid and center of gravity.

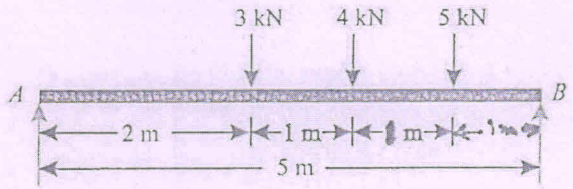
Q.6 A truss of 9 m span is loaded as shown in Fig. Find the reactions at the two supports.



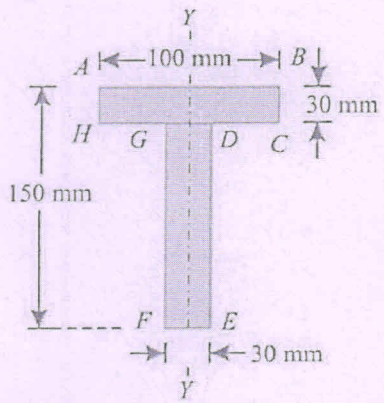
Part C (Descriptive/Analytical/Problem Solving/Design Question)

Attempt any two questions **2x15=30**

Q.1 (a) A simply supported beam AB of span 5 m is loaded as shown in Fig. Find the reactions at A and B.

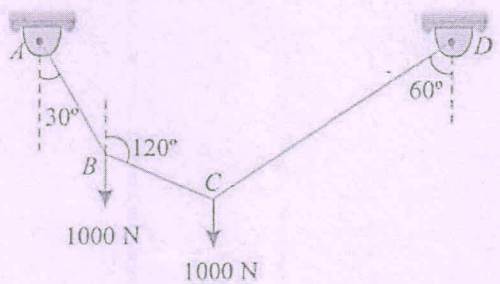


(b) Find the centre of gravity of a 100 mm × 150 mm × 30 mm T-section.



Q.2 (a) A circular rod of diameter 20 mm and 500 mm long is subjected to a tensile force of 45 KN. the modulus of elasticity for the material is 2.1×10^5 N/mm^2. Find the stress, strain.

(b) A string ABCD, attached to fixed points A and D has two equal weights of 1000 N attached to it at B and C. The weights rest with the portions AB and CD inclined at angles as shown in Fig. Find the tensions in the portions AB, BC and CD of the string, if the inclination of the portion BC with the vertical is 120°.



Q.3 (a) Define Moment and Couples. Also State Varignon's theorem of moments.

(b) Define a truss and explain different types of supports and their reactions in trusses with neat sketches.

(c) A circular wheel of mass 50 kg and radius 200 mm is rotating at 300 r.p.m. Find its kinetic energy.

Total No. of Questions : 22 Total No. of Pages : 02

Roll No. _____ Paper Code 3E1132

B.Tech.III Sem (Old/Mercy Back) Exam 2026
Civil Engineering
3CE4-05 Surveying
3E1132

Time: 3 Hours Maximum Marks: 120
Min. Passing Marks: 42

Attempt all ten questions from Part A, five question out of seven from Part B and four questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. _____ 2. _____

Part A

(Answer should be given up to 25 words only)

All questions are compulsory. **10x2=20**

Q.1 What is meant by chaining?

Q.2 Define closing error in a traverse.

Q.3 What is contour interval?

Q.4 What is a transition curve?

Q.5 Define tacheometry?

Q.6 What is meant by setting out in construction?

Q.7 Write the applications of Total Station.

Q.8 What is an aerial photograph?

Q.9 Define the term "benchmark."

Q.10 Define fore bearing and back bearing.

Part B

(Analytical/Problem solving questions)

Attempt any Five questions . **5x8=40**

Q.1 What are the temporary adjustments of a theodolite? Explain each briefly.

Q.2 Discuss the sources of error in levelling and the methods adopted to minimize them.

Q.3 What are transition curves? Explain their necessity and the methods of setting out.

Q.4 Explain the principle of tacheometric surveying and mention its advantages over ordinary levelling.

Q.5 Describe the main components and working of a Total Station.

Q.6 What is a contour map? Explain the methods of contouring and the uses of contour maps.

Q.7 Explain the difference between simple, compound, and reverse curves with neat sketches.

Part C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any four questions. **4x15=60**

Q.1 Explain the principles of levelling and the difference between direct, indirect, and profile Levelling with neat sketches.

Q.2 With a neat diagram, explain the principle of setting out a transition curve using the deflection angle method.

Q.3 Discuss the advantages, limitations, and applications of tacheometric surveying compared to direct methods.

Q.4 Explain the method of setting out a bridge or culvert using theodolite and cross-staff.

Q.5 What is traversing? Explain the procedure for conducting a compass traverse and the adjustments required for local attraction.

Total No. of Questions: 22 **Total No. of Pages: 02**

Roll No. _____ **Paper Code**
3E1212

B.Tech. III-Sem (Main & Back) January-2026
Civil Engineering
3CE4-08 Engineering Geology
3E1212

Time : 3 Hours **Maximum Marks : 70**

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1._____ 2. _____

Part A
(Answer should be given up to 25 words only)
All questions are compulsory **10x2=20**

T-435

1. Discuss the scopes of geology in civil engineering.
2. What is silicate mineral?
3. Write physical properties of a feldspar mineral.
4. Which is the most important seismic characteristic of asthenosphere?
5. Write down the most pronounced textural characteristic of saturated volcanic rock.
6. Differentiate discordant and concordant intrusive bodies.
7. Differentiate weathering and erosion.

T-435

8. Draw neat sketch of cylindrical plunging anticline fold.
9. Define electromagnetic spectrum which used in remote sensing.
10. Discuss the various factors which affect the stability of bridges.

Part-B
(Analytical/Problem solving questions)

Attempt any five questions. **5x4=20**

1. Explain various physical properties of silicate minerals.
2. Discuss the geological work of water in respect of erosion, transportation and deposition.
3. Discuss metamorphism. Explain the structures of schist and gneiss metamorphic rocks.
4. Elaborate differences between angular-unconformity, dis-conformity and non-conformity with sketches.
5. Describe following terms of fold with neat and clean diagram.
   a. Axial Plane b. Plunge of fold.
   c. Limbs d. Fold axis
6. Define GIS. Write the applications of GIS in civil engineering.
7. Write down the various geological and engineering properties that are important in the selection of rocks for building purposes.

Part-C
(Descriptive / Analytical / Problem Solving / Design questions)

Attempt any three questions. **3x10=30**

1. What are the differences between volcanic and plutonic igneous rocks? Also explain the textures and structures of igneous rocks.
2. Explain the process of formation of carbonate sedimentary rock. Also explain the chemically formed structures in detail.
3. Differentiate the normal and reverse fault. Describe classification of fault on the basis of apparent movement of hanging-wall and foot-wall with neat sketches.
4. Define gravity Dam. Discuss the characteristic of concrete gravity Dam. Elaborate on Bhakhda-Nangal Dam of India.
5. Describe the primary spectral regions used in earth remote sensing. Write down the applications of remote sensing in field of civil engineering.