JALPAIGURI GOVERNMENT ENGINEERING COLLEGE
[A GOVERNMENT AUTONOMOUS COLLEGE]
JGEC/B.TECH/CE/PC-CE606B/2023-24
2024
STRUCTURAL ANALYSIS II

Full Marks: 70 Times: 3 Hours

The figures in the margin indicate full marks. Assume reasonable data if required. Candidates are instructed to write the answers in their own words as far as practicable.

GROUP-A

Answer ***all*** questions 5x2=10

1. Write the assumptions of CANTILEVER METHOD.

2. Write the expression of fixed end moment at LHS of fixed ended beam of span L carrying uniformly distributed load [w kN/m] of length (b-a); a and b are distances from LHS.

3. A prismatic beam AB, support A being hinged and support B being fixed, has following details: Span =5.0m; Cross-section = 25mm x 400mm and Young Modulus = 25000 MPa. Estimate flexural stiffness at A.

4. Write the major characteristics of a Plastic Hinge in a beam.

5. A 5.0 m long 20 mm diameter steel round bar, clamped at top, hangs vertically. Calculate axial flexibility coefficient of the bar at bottom end of the bar.

GROUP-B

Answer any ***four*** questions 4x15=60

6. Analyze the two span beam shown in the Fig.1 using Slope Deflection Method. Both the ends A and C are fixed and support B is subjected to support settlement of 15mm downward. Also, draw BMD and SFD. Given, E = 2.1E+08 kN/m^2 and I = 0.0025 m^4 with usual notations.

7. Analyze the portal frame of Fig. 2 by Moment Distribution Method; joints B and C are being subjected to horizontal displacement 10mm in the direction of BA towards left. Also, draw BMD and SFD.

8. Apply Cantilever Method to determine axial force, shear force and bending moment for members 1-2, 4-5, 1-4, & 4-7of the portal frame shown in the Fig. 3. Depict magnitude and direction of axial, and shear forces pictorially. Also, draw tension-side BMD for said members. Given, $1.2A_{1-4-7} = A_{2-5-8} = 1.15A_{3-6-9} = A$

9. a) Determine the value of P for the portal frame shown in the Fig.4 by Plastic Analysis Method. 12
   b) Write the expression of plastic section modulus of a symmetric I-section about centroidal axis parallel to web with usual notations. 3

10. A symmetric suspension bridge has span of 140m. The stiffening girder has three hinges: one at the mid-point and other two hinges at both ends. The central dip of the cables is 14m.The stiffening

girder is subjected to a dead load of 20kN/m including self-weight for full length and a live load of 50kN/m of length 25m long. Draw the BMD and SFD for the girder when the live load is placed symmetrically at the center of the span.

11. A cantilever beam has clear span 3.0m and cross section as shown in Fig. 5. It is subjected to a vertical downward load 30kN at free end in the XY-plane. Determine stresses at points marked A, B, C, & D. Also, determine equation and inclination of neutral axis.

12 Determine the actions at support D of the fixed ended beam shown in Fig.6 by Flexibility Matrix Method. Given, EI = Constant.

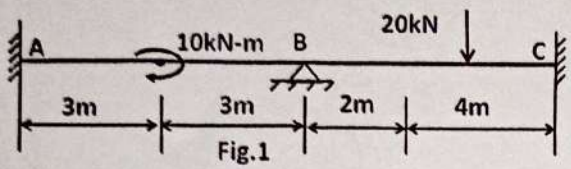

Fig.1

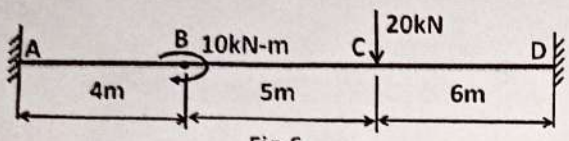

Fig.6

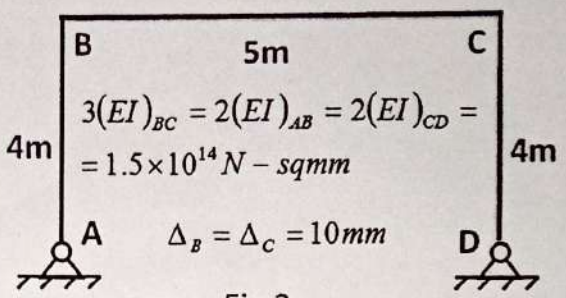

Fig.2

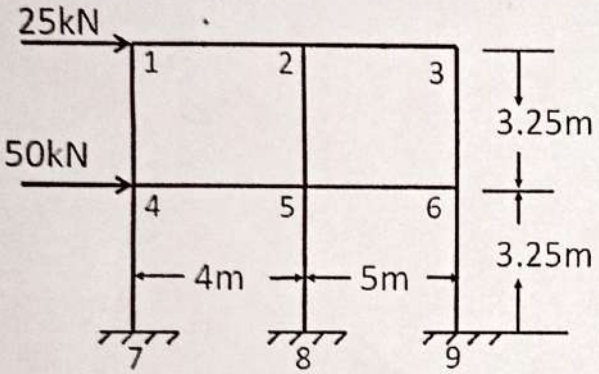

Fig. 3

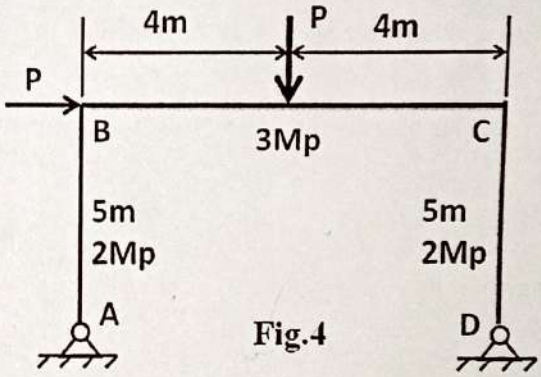

Fig.4

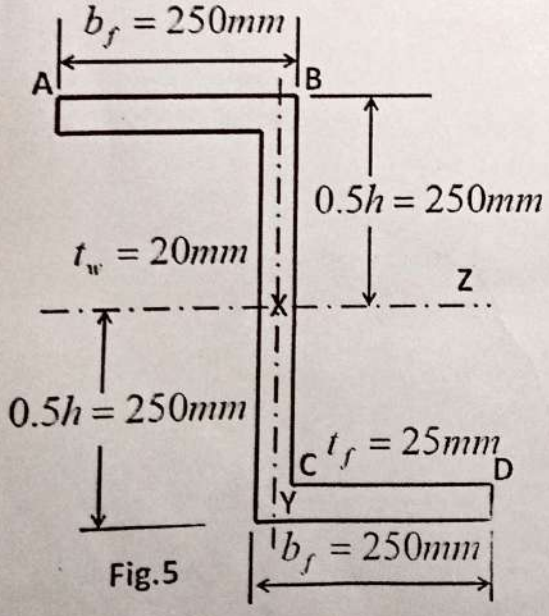

Fig.5

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JGEC/B.TECH/ CE/ PC-CE605/ 2023-24

2024

FOUNDATION ENGINEERING

Full Marks: 70 Times: 3 Hours

The figures in the margin indicate full marks.
Candidates are instructed to write the answers in their own words as far as practicable. Do not carry IS Code.

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer ***all*** questions 5x2=10

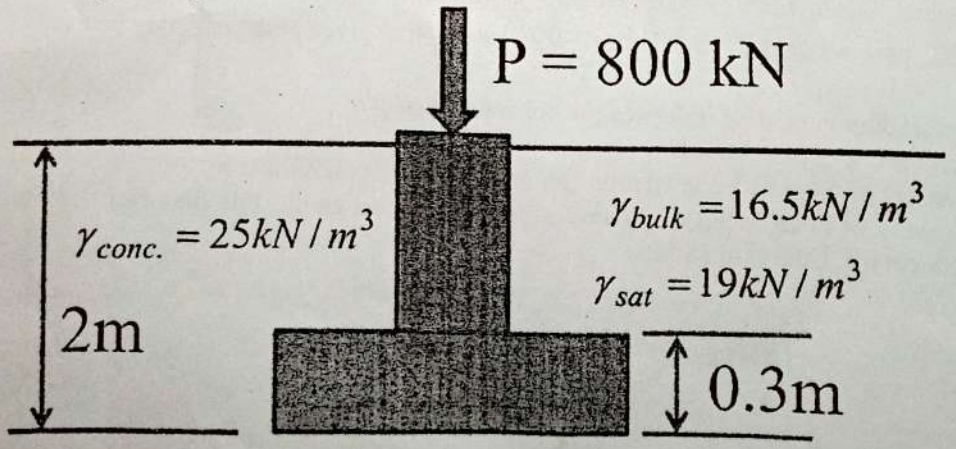
1. Why depth of exploration for single footing is about 1.5 B to 2B where B is width of foundation? 2
2. What are the causes of differential settlement of structure? 2
3. Which of the following pressures on soil is important in foundation engineering: i) gross pressure ii) net pressure. ? Explain. 2
4. When structural capacity of piles comes into play? 2
5. Determine the ratio of bearing capacities of two footings, square and circular in shape, placed on surface of a sand deposits if they have same width and diameter. 2

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any ***five*** questions 12x5 = 60

6. a) What is the purpose of soil exploration especially for old structure? 2
   b) Which method of soil exploration is suitable for all soil? 1
   c) To collect a silty-clay sample, sampler is pushed into the ground. Length of collected sample is 242mm while driving depth of sampler is 260mm. Is the soil sample undisturbed? 2
   d) At a depth of 4m in a sand deposit, SPT value is observed as 10. Water table is located at 2m below GL. Determine corrected N value. Given: $\gamma_{bulk} = 15.5kN/m^3$ and $\gamma_{sat} = 17.5kN/m^3$. Should you use the SPT sample to determine void ratio of the natural sand deposit? 3
   e) Why outside clearance is provided in a soil sampler? 1
   f) How do you determine location of ground water table in the field? 3

7. a) What is mat foundation and in which situation has the mat foundation been provided? 2
   b) Write criteria for selecting depth of shallow foundation? 2
   c) Determine net pressure increase on soil due placement of footing for the following two conditions: i) footing is backfilled ii) footing is not backfilled. 4



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e) Determine net ultimate bearing capacity of a footing of 2m*2.5m placed at 1.5m depth below GL in a clay deposit having unconfined compressive strength equals to 50kPa. Water table is located at 2m below GL. 4

8. a) Give an example of footing where load always acts at an eccentricity. What is the effect of eccentricity on soil pressure distribution? What is the limiting value of eccentricity for a purely compressive stress distribution? 3

b) What is a strap footing? When are strap footings typically used? 2

c) A strip footing of width 2m is placed at 1.5m depth below a sand deposit. Water table is located at 2.5m depth below GL. To determine bearing capacity, which one of the following two tests is suitable to determine angle of internal friction for this case: i) tri-axial test and ii) direct shear test? Determine net ultimate bearing capacity if $\phi = 32°$, $\gamma_{bulk} = 16.5kN/m^3$ and $\gamma_{sat} = 19kN/m^3$. Comment on the failure mode of the footing. The following table may be used. 1+5+1

Bearing Capacity Factors

ϕ (Degrees)	N_c	N_q	N_γ
20	14·83	6·40	5·39
25	20 72	10·66	10 88
30	30·14	18·40	22·40
35	46 12	33·30	48 03

9. a) What shall be the size and depth of the test pit for plate load test using **0.45m× 0.45m** plate? What is the effect of overburden pressure on plate load test results? 2

b) How plate load test results are extrapolated to prototype foundation? 4

c) What is routine pile load test? What is the purpose of it? How piles are selected for this test? 3

d) What are the different methods of pile load test? Describe is brief 3

10. a) What are the types of settlement a shallow foundation can experience? Define "Bearing Pressure" in the context of shallow foundation settlement. What is the effect of differential settlement on a structure? 3

b) How do engineers mitigate excessive settlement in shallow foundations? 2

c) An isolated column footing of **2m×2.5m** placed at 1m below GL in a silty clay deposit. Load on the column = 500 kN. Water table is located at 1m below GL. Determine settlement of the footing. Given: E = 30000 kPa, (above water table $\gamma = 16.5kN/m^3$), (below water table $\gamma = 19kN/m^3$), $\mu = 0.5$, $c_c/(1+e_0) = 0.07$, pore water correction factor = 0.7. Table, chart given at the end may be used. 7

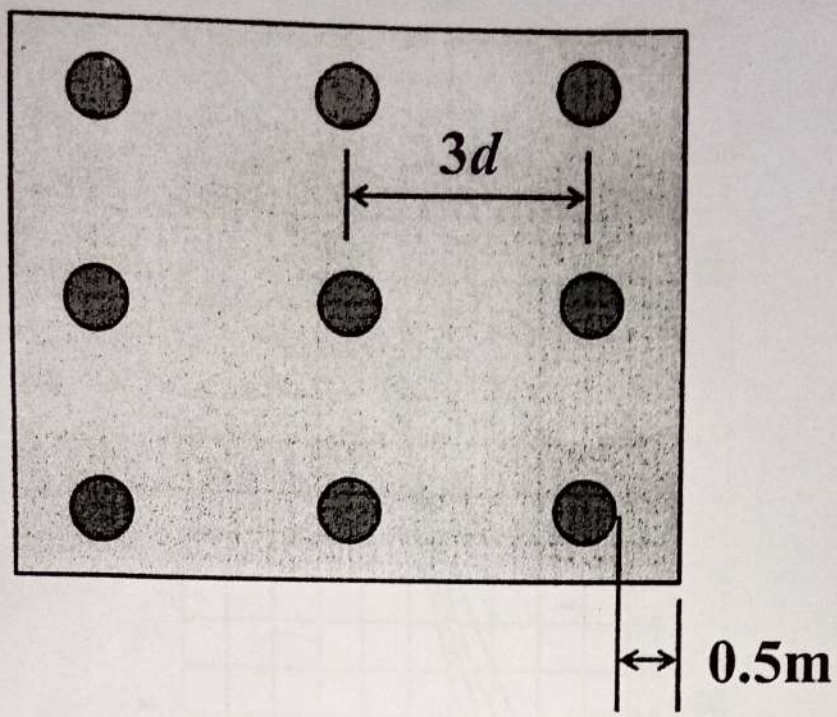
11. a) How does the installation method influence the behavior of piles? 3

b) Where free head pile groups are used? 1

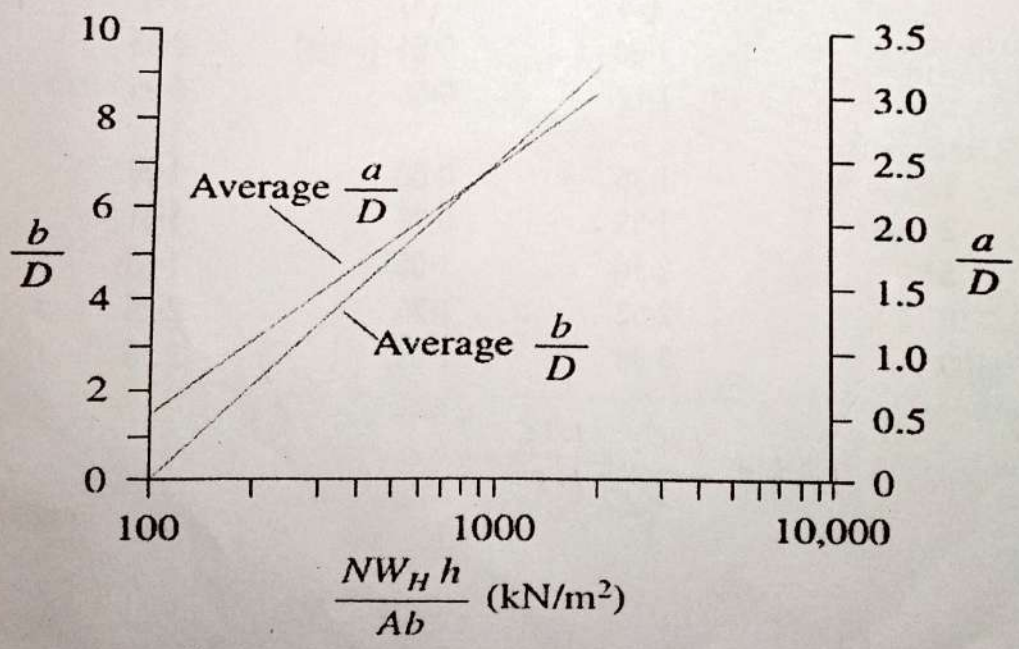
c) Explain the concept of "negative skin friction" on piles. How do you reduce it? 2

d) Determine capacity of piled foundation (see fig below). Square group, Pile diameter = 0.5m, length = 15m including 2m cut off. Cohesion 35 kPa. 6

Contd.....p/3



12. a) How safe vertical load on single pile is determined from the initial pile load test results? 3
b) Describe concept of pre-compression/pre-loading technique for ground improvement. 2
c) A 6m thick clay layer is sandwiched between two sand layers at some depth below GL having $c_c = 0.29, e = 0.9, c_v = 0.35 m^2 / month$. The average effective overburden pressure at the middle of the clay layer is **200 kPa**. Due to proposed structure, the average permanent load on the clay layer is expected to increase by about **110 kPa**. Determine the surcharge needed to eliminate the entire primary consolidation settlement in **8 months** by pre-compression. Charts given at the end may be used. 4
d) It is desired to improve 4 m thick sand deposit by dynamic compaction. Given: Diameter of hammer = 1m, weight of the hammer = 50 kN, height of fall = 5m. Determine number of blows and grid spacing required for compaction. Chart given at the end may be used. 3



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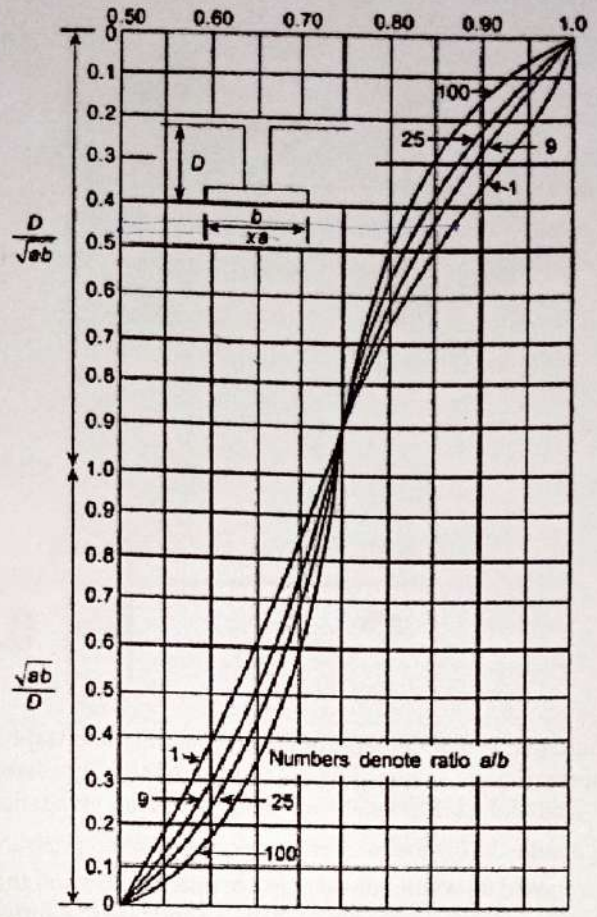

1.25

Shape	Influence Factor (I)		
	Centre	Corner	Average
(1)	(2)	(3)	(4)
Circle	1·00	0·64 (edge)	0·85
Square	1·12	0·56	0·95
Rectangle:			
L/B = 1·5	1·36	0·68	1·20
2	1·53	0·77	1·31
5	2·10	1·05	1·83
10	2·52	1·26	2·25
100	3·38	1·69	2·96

$1.36 + \frac{1.53 - 1.36}{2 - 1.5}$

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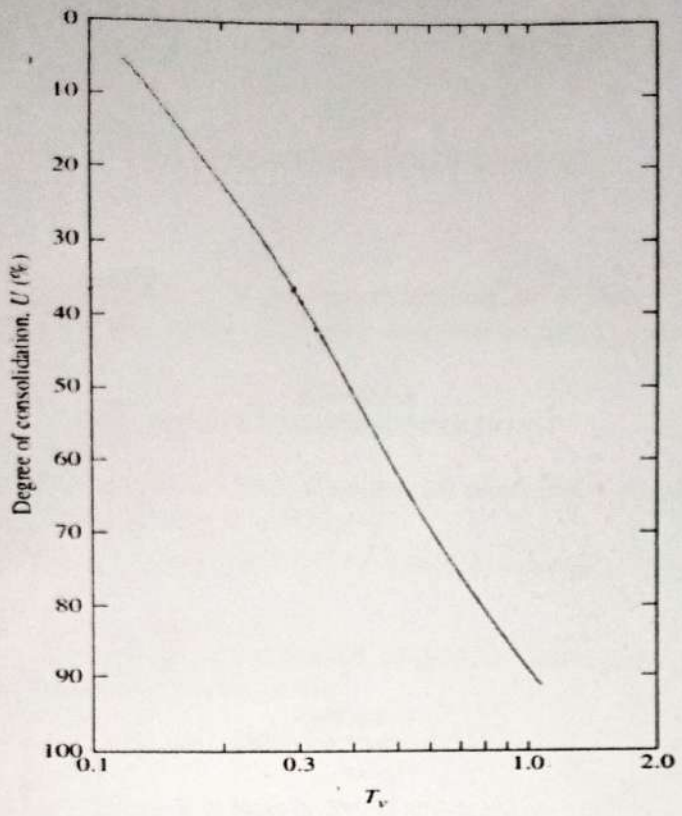
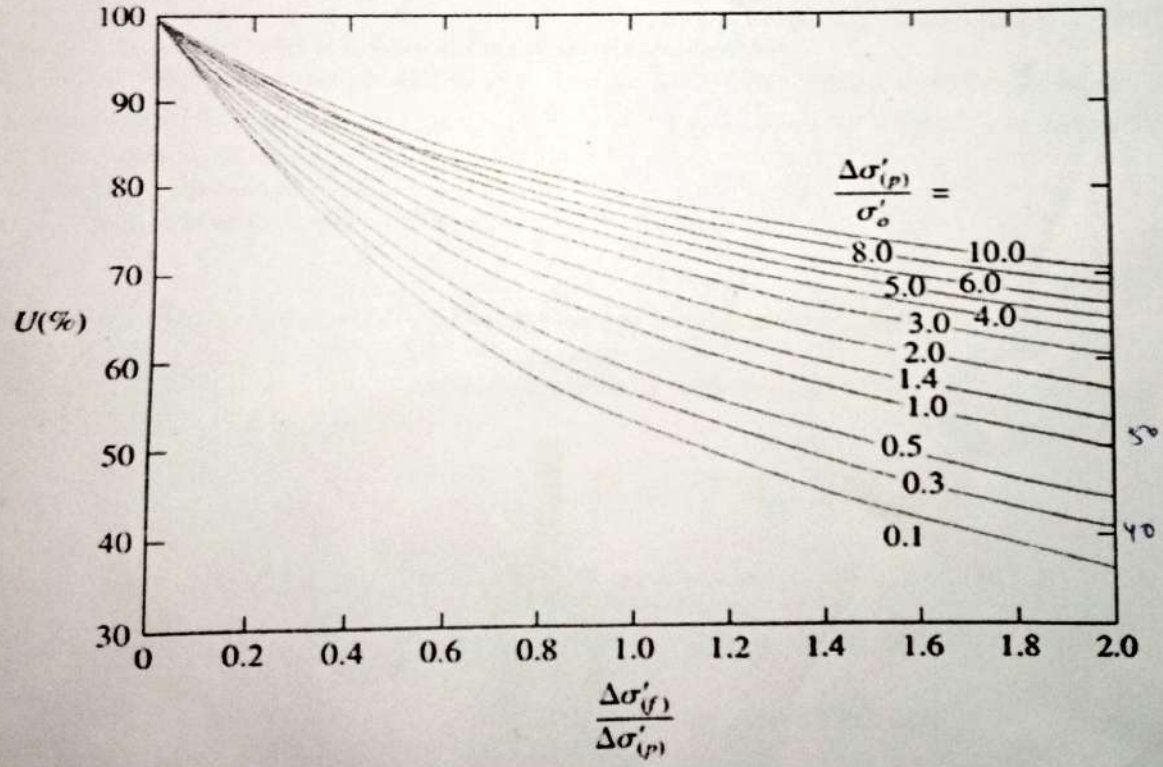

Degree of consolidation, U (%)
0
10
20
30
40
50
60
70
80
90
100
0.1
0.3
1.0
2.0
T_v


U(%)
100
90
80
70
60
50
40
30
0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
$\frac{\Delta\sigma'_{(f)}}{\Delta\sigma'_{(p)}}$
$\frac{\Delta\sigma'_{(p)}}{\sigma'_o}$ =
8.0
10.0
5.0
6.0
3.0
4.0
2.0
1.4
1.0
0.5
0.3
0.1
50
40

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2024
DESIGN OF STEEL STRUCTURE

Full Marks: 70 Times: 3 Hours

The figures in the margin indicate full marks.
Candidates are instructed to write the answers in their own words as far as practicable. Use of IS 800:2007 and SP 6/ Steel tables are allowed. Assume any other suitable data, if required.

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer *all* questions 5x2=10

1. What are the different mechanical properties exhibited by steel?
2. State the differences between a lap joint and a butt joint.
3. Name the different types of connection?
4. What are the different classifications of beam cross sections?
5. What do you mean by tension member?

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any *four* questions 4x15=60

6.(i) Draw a neat sketch of a bolt. 5
(ii) Two plates of size 75mm x 10 mm and 75mm x 20 mm is to transmit a factored load of 60 kN Design a lap joint between the two plates. Assuming M20 bolts of grade 4.6 and grade 410 plates. 10

7.(i) A tie member of a roof truss consists of 2 ISA 100mm x 75mm x 8 mm. The angles are connected to either side of a 10 mm gusset plates and the member is subjected to a working pull of 300 kN. Design the welded connection. Assume connections are made in the workshop. 10
(ii) What do you mean by welding? What is a fillet weld? 2+3

8.(i) Design a suitable angle section to carry a factored tensile force of 210 kN assuming a single row of M20 bolts. The yield strength andultimate strength of the material is 250 MPa and 410 MPa, respectively. The length of the member is 3 m. 12
(ii) What is block shear failure? 3

9. Design a laced column 8.5m long to carry a factored axial load of 1200 kN. The column is fixed at both the ends. Provide single lacing system with bolted connection. The column consists of two channels back to back. 15

10.(i) Write the design steps of a beam. 7
(ii) Determine the design bending strength of a beam ISMB 300 @44.2 kg/m. Assume that the factored shear force is less than the design shear strength. Use Fe 410 grade of steel. 8

11.(i) What are the different components of a plate girder? 5
(ii) Design a welded plate girder 20 m in span and laterally restrained throughout. It has to support a uniform load of 80 kN/m throughout the span exclusive of self-weight. Design the girder without intermediate transverse stiffeners. Assume the steel is of grade Fe 410. 10

12.(i) What are the codal provisions of the limiting vertical deflection of a gantry girder? 6
(ii) List the various steps involved in the design of a gantry girder. 9

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JGEC/B.TECH/CIVIL ENGINEERING/PC-CE603/2024-25
2024
WATER RESOURCES ENGINEERING

Full Marks: 70 Times: 3 Hours

The figures in the margin indicate full marks. Assume any necessary data, if required. Candidates are instructed to write the answers in their own words as far as practicable. Use graph paper where necessary.

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer ***all*** questions 5x2=10

1. If grain size of the particle is 6 cm, find out the value of Manning's rugosity coefficient by Strickler's formula. 2
2. A wide unlined channel carrying silt free water has a hydraulic mean depth of 2.5 m. The maximum tractive stress permissible on the side slope of the channel to prevent scour is 0.35 kg/m^2. What is the maximum bed slope that can be given to the channel. 2
3. Differentiate between intensive and extensive irrigation 2
4. Draw and state the name of GVF profile(s) in steep slope, where hydraulic jump is/are occurring. 2
5. Arrange these canal irrigation system components in descending order of their duty: branch canal, minor, distributary, field, main canal, water course. 2

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any ***four*** questions 15x4 = 60

6. i) A sandy loam soil holds water at 140 mm/m depth between field capacity and PWP. The root depth of the crop is 30 cm and the allowable depletion of water is 35%. The daily water use by the crop is 5 mm/day. The area to be irrigated is 60 ha and water can be diverted at 28 lps. The surface irrigation application efficiency is 40%. There are no rainfall and ground water contribution. Determine 2+1+1+2+2
   - i) Allowable depletion depth between irrigations.
   - ii) Frequency of irrigation.
   - iii) Net application depth of water.
   - iv) Volume of water required.
   - v) Time to irrigate 4 ha plot.

   ii) Design a lined canal to carry a discharge of 45 cumecs. The country slope is 1 in 8000. Assume suitable values of side slopes and good brick work in lining. 7

7. i) An irrigation channel is to be constructed in coarse alluvium gravel with D-75 size of 4.5cm. The channel has to carry 3.2 cumecs of discharge and the longitudinal slope of 0.012. The banks of the channel will be protected by grass against scouring. Find the minimum width of the channel. 7

   ii) The rate of flow of water through a circular channel of diameter 0.62 m is 160 lit/s. Find the slope of the bed of the channel for maximum velocity. Take C=60. 7

   iii) For modular jump, what will be the Froude number range? 1

8. i) Two rivers Teesta and Mahananda run parallel to each other and fully penetrate the unconfined aquifer situated on a horizontal impervious base. The rivers are 4.2 km apart and the aquifer has a hydraulic conductivity of 1.55 m/day. In a year, the average water surface elevations of the rivers Teesta and Mahananda, measured above the horizontal impermeable bed, are 12.5 m and 9.5 m, respectively. If the region between the rivers received an annual net infiltration of 23 cm in that year, estimate 3+2+2

a. the location of groundwater table divide and

b. the average daily groundwater discharge into the rivers Teesta and Mahananda from the aquifer between them.

ii) The CCA for a distributary is 10000 hectares. The intensity of irrigation for wheat is 45% and for rice is 20%. If the total requirement of the two crops are 35.6 cm and 120 cm and their periods of growth are 185 days and 145 days respectively; 3.5+3.5

a. Determine the outlet discharge factor from average demand considerations;

b. The peak discharge, assuming the kor water depth for two crops are 12.8 cm and 18 cm; and their kor periods are 4.1 weeks and 2.3 weeks respectively.

iii) What is perched aquifer? 1

9. i) A 40 cm well in an unconfined aquifer of saturated thickness of 48 m yields 1000 lit/min under a drawdown of 3.3 m at the pumping well. 3+2

a. What will be the discharge under a drawdown of 5 m?

b. What will be the discharge in a 25 cm well under a drawdown of 3.3 m?

Assume the radius of influence to remain constant at 560 m in both cases.

ii) In a recuperation test of a 3.5 m dia. open well water level changed from elevation 116.4 m to 117.8 m in 135 minutes. If the water table elevation is 119.5 m, determine 4+1

a. The specific capacity per unit well area of the aquifer and

b. Discharge in the well under a safe drawdown of 2.57 m.

iii) State whether the following flows are steady or unsteady and uniform or non-uniform: 3

a. River flow around a bridge pier.

b. Flow in a long, prismatic irrigation canal.

c. Movement of water around a boat in a lake.

iv) Write down the basic assumptions of Dupuit for unconfined flow. 2

10. i) The specific energy for a 7.5 m wide rectangular channel is to be 4.8 m. If the rate of flow of water through the channel is 25 m^3/s, find the alternate depths of flow. 5

ii) The depth of flow of water at a certain section of a rectangular channel of 3.5 m wide, is 0.4 m. The discharge through the channel is 3.4 m^3/s. Determine whether a hydraulic jump will occur, and if so, find its height and loss of energy per kg of water. 2+2+2

iii) Write down the basic assumptions of GVF. 2

iv) Define very high saline low sodium water with proper ranges. 2

11. i) A rectangular channel of 4.2 m width has a Manning's coefficient of 0.024. For a discharge of 6.3 m^3/s in this channel, identify and neatly draw the possible GVF profiles produced in the following break in grades. 4+4

a) $S_{01} = 0.0004$ to $S_{02} = 0.017$

b) $S_{01} = 0.0045$ to $S_{02} = 0.0003$

ii) Find the slope of the free surface in a rectangular channel of width 20.5 m, having depth of flow 4.8 m. The discharge through the channel is 49.5 m^3/s. The bed of the channel is having a slope of 1 in 4200. Take Chezy's constant C = 60. 7

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2024
CONSTRUCTION ENGINEERING AND MANAGEMENT

Full Marks: 70 Times: 3 Hours

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Candidates are instructed to write the answers in their own words as far as practicable.

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer ***all*** questions 5x2=10

1. Define shuttering and scaffolding. 2
2. What is slip form construction? 2
3. What is set back or Building Line? 2
4. Define floor area ratio. 2
5. What is arbitration? 2

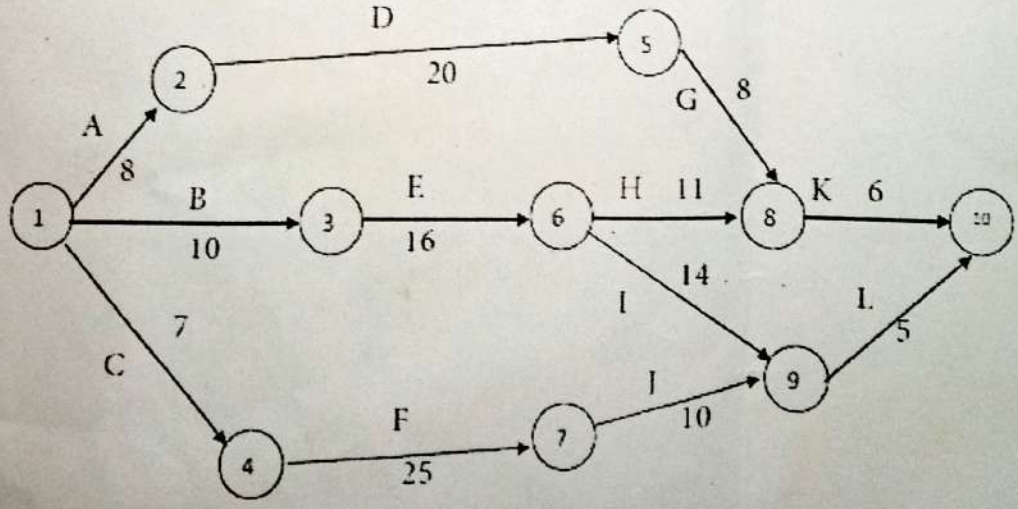
GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any ***five*** questions 12x5 =60

6. a) Describe briefly the basic principles in planning a building 5
   b) Write the objectives of building Bye-laws. 2
   c) Mention functional requirements of good stair planning. 5

7. a) Who are the owner, consultant and contractor in a construction Project? What are the duties and responsibilities of a consultant? 6
   b) Write short notes on i) Earnest Money Deposit (EMD) ii) Muster Roll 6

8. a) With reference to CPM define the terms - Critical path, Total slack and free float 3
   b) Find out the completion time and the critical activities for the following project: 4



c) Draw the network diagram and determine the critical path for the following project:

Activity	Time estimate (Weeks)
1- 2	5
1- 3	6
1- 4	3
2 -5	5
3 -6	7
3 -7	10
4 -7	4
5 -8	2
6 -8	5
7 -9	6
8 -9	4

9. a) Write down the functions of the following machinery and discuss their specific uses i) Power shovel ii) Bulldozer — 6
   b) Name one equipment used for compacting the earth .Write the specific uses — 3
   c) Write down the steps for construction of isolated footing. — 3

10. a) Name the different types of cement available in the market. Write down special qualities of three of these cements and mention their field application — 8
    b) Justify the statement "Concrete Mix should be designed before use". — 4

11. a) Describe the procedure for opening a tender .What are the formalities to be performed before accepting a tender. — 8
    b) What do you understand by the term "Risk Allocation"? In this connection explain the term 'Force Majeure'. — 4

12. a) What is a security bond? What is its purpose? Why is it so important for any construction project? — 5
    b) Name different types of contract. Explain two types of contracts briefly. Mention different contract documents in a contract. — 7

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2024

ENGINEERING ECONOMICS, ESTIMATION & COSTING

Full Marks: 70 Times: 3 Hours

The figures in the margin indicate full marks.
Candidates are instructed to write the answers in their own words as far as practicable.
Please provide one (01) mm graph paper along with the answer script

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer ***all*** questions 5x2=10

1. What are the factors on which valuation of land depends? 2
2. Write down the time limits for tender notice. 2
3. What is free haul and over haul distance? 2
4. Briefly describe the concept of life cycle costing in engineering economics. 2
5. List out the different methods adopted for approximate estimation? 2

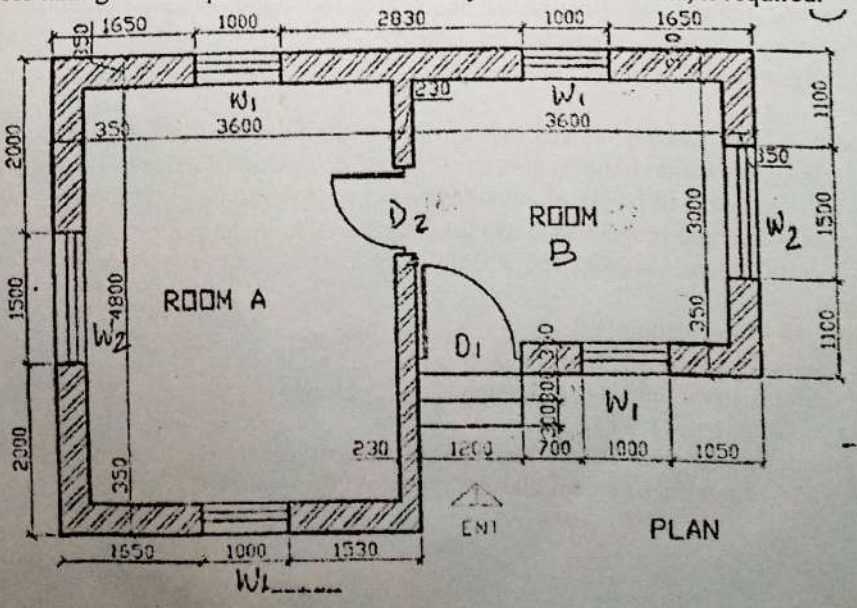
GROUP-B
[LONG ANSWER TYPE QUESTIONS]

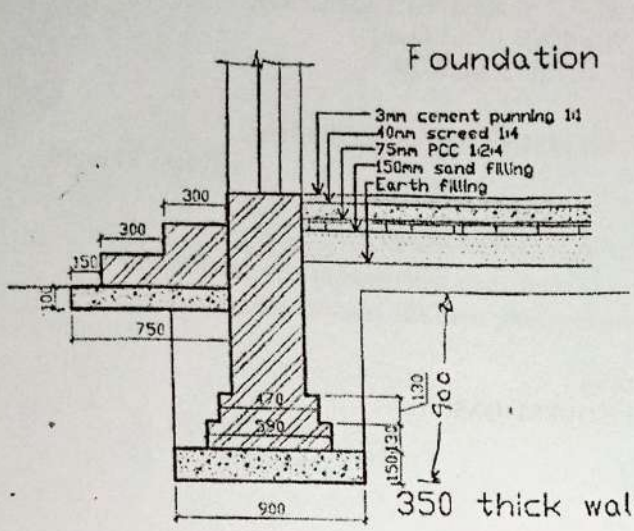
Answer any ***four*** questions 4x15=60

6. i) The cost of a newly constructed building at Jalpaiguri town is Rs.150,00,000, the life of the building is 75 years. Determine the depreciation in the 30th year of life by straight line method, constant % method, and sinking fund method at the 8% compound interest. Consider scarp value of the building is 10% of its construction cost. Also calculate the book value of the building at 30th year. 7
   ii) Which method is more accurate for calculation of earthwork and why? 2
   iii) What is break-even point? Draw a break-even chart and show its components. 1+3
   iv) What are the data required for detailed estimate? 2

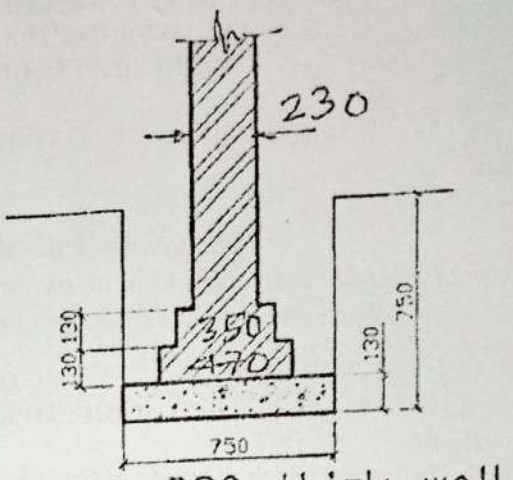
7. i) What are the objects of passing Minimum Wages Act? When the act came into force to whole India? 2+1
   ii) What is MEP engineering? 2
   iii) Prepare a detailed estimate to find the quantities of the following items for the figure shown below. 10
   a) Earthwork in excavation and filling,
   b) P.C.C. (1:3:6) in foundation and steps,
   c) Brickwork (1:6) in foundation, and
   d) R.C.C. (1:1.5:3) of roof slab.

   Use any method for taking out the quantities and assume any other suitable data, if required.





350 thick wall



230 thick wall

8. i) With schematic diagram show the flow diagram of arbitration process. What is liquidated damage? 3+2

ii) Reduced levels of ground along the centre line of a proposed road from Chainage 0 to 200 m are given below. The formation level at the 40 m chainage is 102.75m. The formation of road from chainage 0 to 80 m has rising gradient of 1 in 40. The formation level has falling slope of 1 in 100 from chainage 80 to 200 m. the formation width of the road at top is 12 m and the side slopes of banking are 2:1. 10

Draw longitudinal section of the road and a typical cross-section and prepare an estimate of the earthwork for the road at the rate of ₹ 119.27 per m^3.

Chainage	0	20	40	60	80	100	120	140	160	180	200
R.L. Ground	101.5	100.9	101.5	102.0	102.85	101.65	101.95	100.7	101.25	99.9	100.6
R.L. of formation			102.75								
Gradient	Rising gradient 1 in 40					Falling gradient 1 in 100					

9. i) A building has been constructed in Jalpaiguri municipality area on a plot costing ₹7325000. The construction cost of the building is ₹38370000 and the estimated life of the building is 80 years. The owner desires to have 8% return on the construction and 6% return on the land cost. Assuming the annual repair to be 0.5% of the construction cost, municipal taxes and other outgoings at 30% of the gross rent and the annual installments of the sinking fund for a life of 80 years of the building at 3% may be taken as 1 paisa per rupee. Work out the reasonable monthly rent for this property. 6

ii) What is direct tax and indirect tax? What are the direct taxes and indirect taxes imposed in India? 2+2

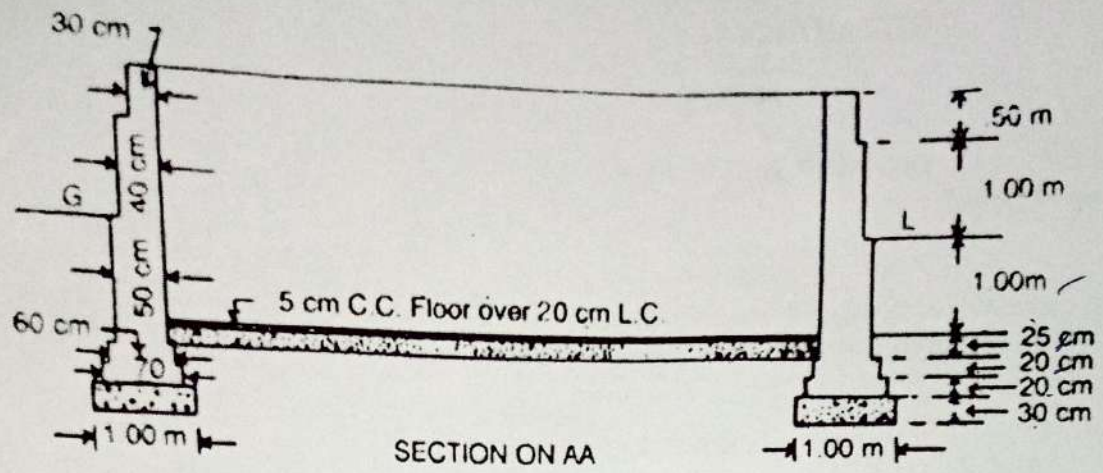
iii) In what circumstances can the lowest tender be rejected? 3

iv) How to fix up rate per unit of an item? 2

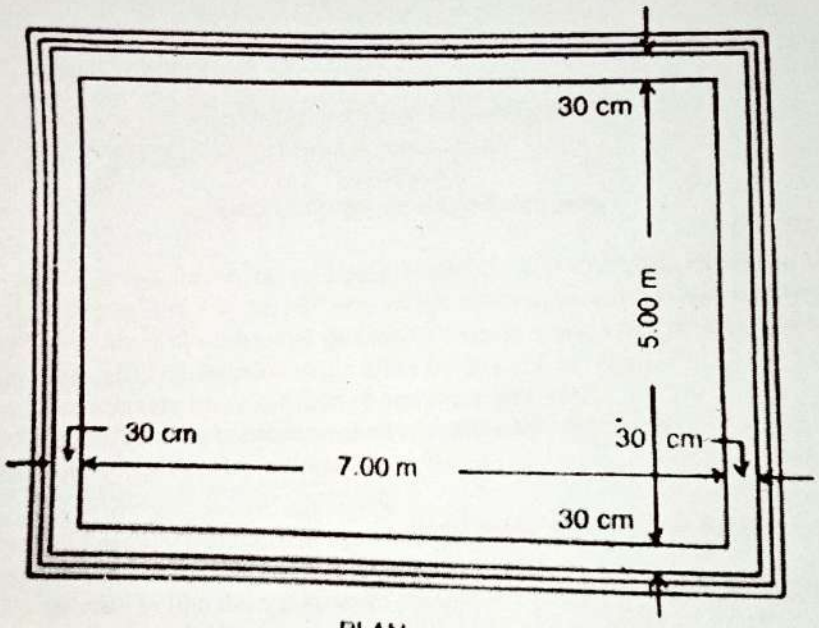
10. i) Write down the unit of measurements and unit of rate for the following items: a) Cutting of opening in existing brickwork, b) Expansion joints in concrete, c) Door & window shutters of different types. 3

ii) The internal length, breadth and height of an underground water tank are given. Taking out the quantities of different item of works and prepare abstract cost estimate of an underground water tank from the given drawings and specifications. Consider the P.W.D. schedule rates or local market rates. The general specifications are: 12

a) Cement concrete in foundation (1:2:4)
b) Masonry 1st class brickwork in cement mortar (1:4)
c) 5 cm thick artificial stone flooring i.e. cement concrete (1:2:4)
d) 20 cm thick lime concrete (1:4:8)
e) Floor and wall finishing inside 20mm thick cement plaster (1:3) finished smooth with neat cement
f) Top and outside- 12mm thick cement plaster (1:4) upto 20cm below G.L.



SECTION ON AA



PLAN

11. i) Prepare a preliminary estimate of a building project with total plinth area of all buildings 2150.sq.m for obtaining the administrative approval from the government. Given the following data: 7
    a) Plinth area rate is ₹4570/- per sq.m.,
    b) Cost of water supply @7.5% of cost of building,
    c) Cost of sanitary and electrical installation each @7.5% of cost of building,
    d) Cost of architectural features @1% of building cost,
    e) Cost of road and lawn @5% of cost of building,
    f) Cost of P.S. and contingencies @ 4% of building cost.

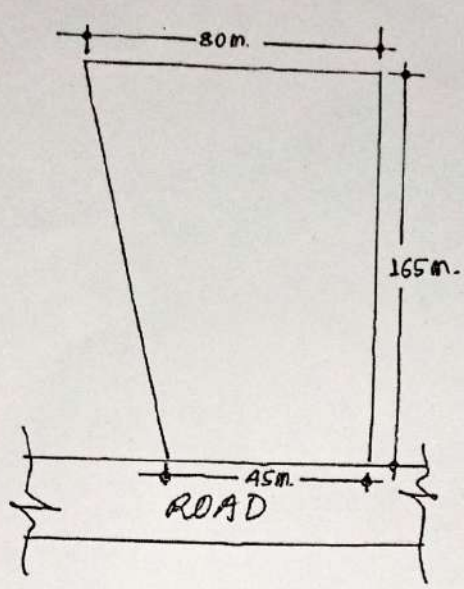
    Determine the total cost of the building project.

    ii) Define specification. What is the necessity of specification? 2+3

    iii) Why and when the earnest money deposit is collected? 3

12. i) What are the forms of imperfect competition? 2

    ii) A property shown in figure below is proposed to be developed on a south facing plot of land on a 24 feet wide road in Jalpaiguri, having a frontage of 45m and a depth of 165m. The depth of front belt may be taken as 22m with the value fixed at ₹3500 per sq.m. for the front belt land. Determine the value of the land by belting method of valuation. 6



iii) Work out the data cost for following items of works (rates of materials: cement- ₹415/50 kg bag, sand- ₹1050/m^3, stone chips- ₹2550/m^3 and bricks- ₹11/each) 7

a) R.C.C. 1:1:2- 115 m^3

b) 1st class brickwork- 67.5 m^3

JALPAIGURI GOVERNMENT ENGINEERING COLLEGE
[A GOVERNMENT AUTONOMOUS COLLEGE]
JGEC/B.TECH/CE/OE-CE601A/2023-24
2024

SOFT SKILLS AND INTERPERSONAL COMMUNICATION

Full Marks: 70 Times: 3 Hours

The figures in the margin indicate full marks.
Candidates are instructed to write the answers in their own words as far as practicable.

Nissim Ezekiel

GROUP-A
[OBJECTIVE TYPE QUESTIONS]

Answer ***all*** questions 5x2=10

1. Fill in the blank with a preposition: The shop doesn't have toys we are looking _____. 2
2. Change the voice: They closed the shop early. 2
3. Where are the palanquin bearers carrying the bride? 2
4. What did the astrologer advise Guru Nayak to do? 2
5. Where did the scorpion shelter itself against the rain? 2

GROUP-B
[LONG ANSWER TYPE QUESTIONS]

Answer any ***four*** questions 4x15=60

6. Comment on the themes of the poem Night of the Scorpion. 15

7. Briefly describe the setting of the story An Astrologer's Day. Comment on the ending of the story. Briefly explain the working analysis of mankind's trouble that the astrologer had. 5+5+5

8. Sketch the character of the Astrologer in the story An Astrologer's Day. 15

9. What is the central idea of the poem Palanquin Bearers. 15

10. You are currently an employee of ABC organization who wants to submit his/her resignation. Write a letter to the manager stating the reasons behind your decision and provide all details. 15

11. Write a complaint letter to the librarian of the district library regarding delay in the release of your security money deposit after the surrender of your library card. 15

12. Justify the appropriateness of the title of the poem Night of the Scorpion and describe the character of the father of the speaker in the poem. 7.5+7.5

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enquiries