Total No. of Questions : **08** Roll No. : 0701......................................

B.Tech SEVENTH SEMESTER EXAMINATION JUNE-2025

(Branch : Civil Engineering)

CE-7321 (OEL-II) PROJECT PLANNING AND MANAGEMENT

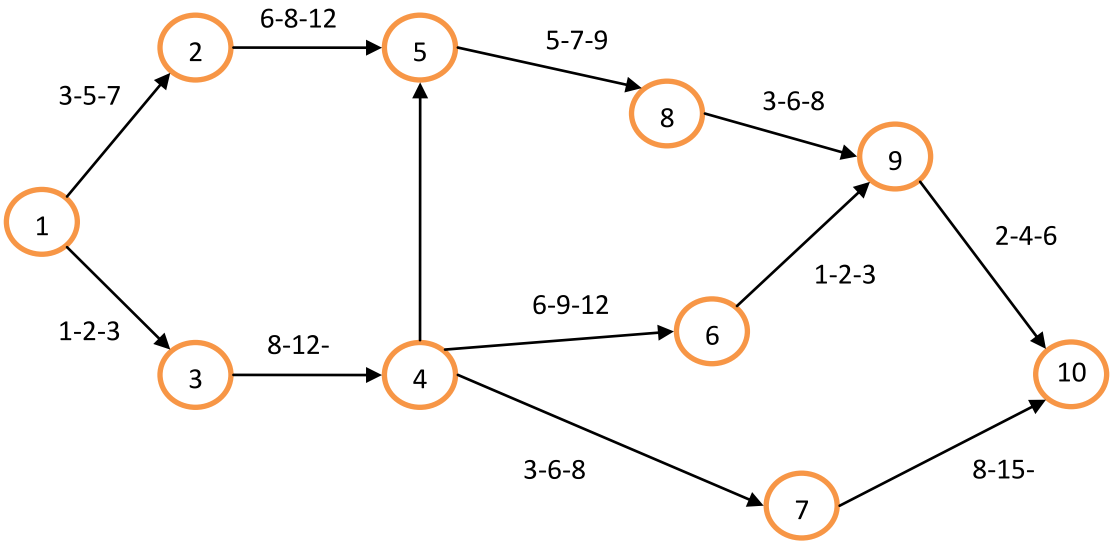
Time : Three Hours ***Maximum Marks : 70***
Min. Pass Marks : 22

Note : Attempt any five questions. Answer one complete question continuously.

1(a) Explain Slack, Float, Latest allowable time, Earliest expected time, Dummy activity and critical path. ***04***

(b) Compare CPM with PERT method. ***02***

(c) For the given network, determine the critical path and probability of finishing the project within 36days. ***08***



2(a) Explain the investment cost and operating cost of equipment. ***07***

(b) Explain various factors which affect the selection of construction equipment. ***07***

3(a) Write a short note on Earnest Money Deposit and Security Deposit. ***07***

(b) Describe any one earth excavating equipment in detail. ***07***

4(a) Write detailed specification for M-20 cement concrete. ***07***

(b) Write technical short notes on following : ***07***

(i) Various types of running bill (ii) Impress account.

5(a) What is the importance of safety in construction project? What measures you should take for safety in construction? ***07***

(b) Describe all types of tender in detail. ***07***

6(a) Write technical short note on : ***06***

(i) NIT (ii) NMR (iii) Arbitration.

(b) Explain various types of construction contact. Also give their merits and demerits. ***08***

7(a) Describe following types of organization structure on their brief introduction, chart, advantages and disadvantages : ***07***

(i) Functional organization
(ii) Line organization
(iii) Line and staff organization
(iv) Matrix Organization

(b) Describe following forms of business organization : ***07***

(i) Sole proprietorship
(ii) Partnership business
(iii) Joint stock company
(iv) Co-operative society
(v) Sate enterprise

8(a) Explain the provisions of the Minimum Wages Act 1945 (as amended in 1986). ***07***

(b) Describe in detail human relation with respect to construction management. ***07***

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Total No. of Questions : **08** Roll No. : 0701..

B.Tech SEVENTH SEMESTER EXAMINATION JUNE-2025

(Branch : Civil Engineering)

CE-7341 (EL-IV) ADVANCE STEEL DESIGN

Time : Three Hours ***Maximum Marks : 70***
Min. Pass Marks : 22

Note : Attempt any five questions. Use of relevant IS codes, steel tables and special publication is permitted. Assume any missing data, if needed and state it clearly.

1(a) Design for Chennai a self supporting steel chimney (only stack portion) of height 45 m above foundation. The diameter of the cylindrical part of chimney is 3.0 m. The thickness of firebrick work lining is 80mm and lining is supported by stack throughout the height. The topography at the site is almost flat, and the location is of terrain category 3. Divide the entire section of chimney into three parts only. ***11***

(b) A tubular column, hinged at both ends has the outside diameter of tube 127mm and is of heavy gauge (i.e. @16.2 kg/m). The length of column is 3.3 m. Determine the safe load the column can carry if the column is of IS:1161 grade Y_{st} 240 steel. ***03***

2(a) Design a circular steel silo of 14 m height and 3.5 m internal diameter to store wheat. ***11***

(b) Write a short note on design of stiffeners of bridge. ***03***

3(a) Design a rectangular steel bunker of 10m length and 4m width supported on eight columns (four along each long side) to store cement of bulk density 15.00 kN/m^3. And angle of internal friction is 35^o, Height of vertical portion and Hopper = 4m. ***11***

(b) Explain the design principle of Stringers and Cross girders of through type Railway bridge. ***03***

4(a) Design the stays and any one top tier (longitudinal) beam of an elevated pressed steel tank of size 5.0m×5.0m×1.25m. The tank is open on the top. ***11***

(b) Discuss the Factor methods for analysis of building frames subjected to lateral loads. ***03***

5(a) Design an elevated cylindrical tank with hemispherical bottom for 6.0m height and 3.5m diameter. The tank has conical roof. ***06***

(b) The span of knee braced roof trusses over an industrial building 30 m long is 15 m. The spacing of roof trusses is 3 m. The pitch of roof is 1 in 4. The asbestos cement corrugated sheets are used for roof covering. The basic wind pressure is 1.50 kN/m^2 and there is no snowfall. The height of eaves above ground level is 8 m. Propose a suitable type of roof truss. Determine the load at various panel points due to dead load, live load and the wind load. ***08***

6(a) Design a gantry girder for a mill building to carry an electric overhead travelling crane, having the following data : ***11***

- Crane capacity : 300 kN
- Weight of crane excluding crab : 180 kN
- Weight of crab : 75 kN
- Span of crane between rails : 20 m
- Minimum hook approach : 1.2 m
- Wheel Base : 4.0 m
- Span of gantry girder : 12 m
- Mass of rail section : 30 kg/m
- Height of rail section : 80 mm

Take fy = 250 N/mm^2 and E= 2*10^5 N/mm^2

6(b) Two members of a tubular truss, consisting of a principal rafter and a tension member meet at an inclination of 45^o. The principal rafter carries a compression of 200 kN and the tension member carries a force of 50kN. Design the member, using tubes of IS:1161 grade Y_{st} 240 steel. ***03***

7(a) Explain with sketch the major components of industrial building. ***03***

(b) A pratt truss girder through bridge for single broad gauge track has an effective span of 30 m. The truss girder has 6 panels of 5 m each, The cross girders are spaced 5 m apart while the stringers are spaced 2 m between centre lines. The sleepers are spaced 45 cm from centre to centre and has size of 2.8m × 250mm × 200mm, made of timber weighing 7.5 kN/m^3. The weight of stock and check rails may be taken as 0.6 and 0.4 kN per meter run. The center to centre spacing of main girders is 6 m. Design for central panel the top chord member, bottom chord member, verticals and diagonals. Also, design the joint. Take the height of girder between c.g. of chord as 6.5 m. ***11***

8(a) Design the central section of Deck type plate girder railway bridge for single track B G main line loading for the following data : ***11***

- Effective span : 24 m
- Spacing of plate girders : 1.2 m C/C
- Weight of stock rails : 600 N/m
- Weight of guard rails : 400 N/m
- Weight of Fastenings etc. : 200 N/m
- Timber sleepers : 250mm × 250mm × 2.0m @ 0.4m C/C
- Density of timber : 7.5 kN/m^3

Take permissible stresses as per Railway Steel Bridge Code.

(b) Write a short note on Breech Opening in Chimney ***03***

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Total No. of Questions : **08** Roll No. : 0701.......................................

B.Tech SEVENTH SEMESTER EXAMINATION JUNE-2025

(Branch : Civil Engineering)

CE-7351 ADVANCE SOIL MECHANICS

Time : Three Hours *Maximum Marks : 70*
Min. Pass Marks : 22

Note : Attempt any five questions.

1(a)	Discuss the important characteristics of general shear failure.	*07*
(b)	Describe the procedure to estimate settlement of group pile.	*07*
2(a)	Discuss the procedure to incorporate water table effects in the calculation of bearing capacity of soil according to Terzaghi' theory. List the methods to estimate total settlement of foundation and what are the permissible limits of total settlement?	*07*
(b)	A circular plate of diameter 1.05 m was placed on sand surface of density16.5 kN/m^3 and loaded to failure. The failure load was found to give a pressure of 1500 kN/m^2. Determine the value of bearing capacity factor N_γ. Assume shape factor = 0.6.	*07*
3(a)	Discuss the procedure to stabilize loose soil from mechanical stabilization technique.	*07*
(b)	Discuss the relationships between SPT value, degree of internal friction and bearing capacity of soil.	*07*
4(a)	A footing of size 4.0 m × 4.0 m is founded at a depth of 2.0 m below ground surface in dense sand. The water table is at the base level of footing. The average corrected SPT values is 16. Calculate safe bearing pressure by modified Tang method.	*07*
(b)	What is under reamed pile and how it is defer from single vertical pile as per design criteria?	*07*
5(a)	What are the differences between Caissons and well foundation?	*07*
(b)	Discuss the procedure to perform plate load test in field. What are the limitations of the field plate load test?	*07*
6(a)	Discuss the meaning and function of CNS layer.	*07*
(b)	What is the meaning of vibration isolation? List the different types of isolation systems.	*07*
7(a)	Draw pressure distribution diagram for cantilever sheet pile embedded in sandy soil and water table at much below the ground.	*07*
(b)	What is Borelog? Where it is used and applicable?	*07*
8(a)	What are meaning of damping and natural frequency in machine foundation? List the relation between these terms if any.	*07*
(b)	Discuss the soil parameters which effects during collection of soil samples by disturbed and undisturbed technique.	*07*

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Total No. of Questions : **08** Roll No. : 0701.......................................

B.Tech SEVENTH SEMESTER EXAMINATION JUNE-2025

(Branch : Civil Engineering)

CE-7361 (EL-VI) ADVANCE TRANSPORTATION ENGINEERING

Time : Three Hours *Maximum Marks : 70*
Min. Pass Marks : 22

Note : Attempt any five questions. Each question carries equal marks.

1(a) Define traffic volume study and various methods of presentation of traffic volume data.
(b) Explain object and uses of speed and delay study.

2(a) Explain different Road User's characteristics affecting their performance.
(b) Enumerate various methods of speed and delay study and explain floating car method in details.

3(a) Explain parking characteristics, parking space inventory and parking demand.
(b) Discuss parallel parking and angular parking

4(a) Write a note on clearance interval and problems on single isolated traffic signal.
(b) Explain the simple design of pedestrian and traffic signals on a cross road by approximate method.

5(a) How light is distributed by various methods?
(b) Discuss the effect of height and projection of Lamp on length of shadow through neat sketches. Explain other factors affecting lighting of road.

6(a) Explain : (i) Lumen, (ii) Steradian, (iii) Illumination, (iv) Luminosity.
(b) Discus various fundamental factors of night vision.

7(a) What are freeways? Discuss the advantages of freeways over expressways.
(b) Discuss the problems and remedial measures of mass transportation.

8(a) Explain the importance of 3E's in reduction of accident rates.
(b) Explain the various steps involved in traffic accident studies with focus on condition diagram and collision diagram.

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