

CBCS SCHEME

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15CV61

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Construction Management and Entrepreneurship

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What are the characteristics of management? (08 Marks)
b. What are the functions of management? (08 Marks)

OR

- 2 a. Define : i) Duration ii) Earliest start time iii) Earliest finish Time iv) Total float. (08 Marks)
b. Draw the network from the following activity and find critical path and total project duration Ref to table 1.

Activity	Predecessors	Duration (days)
A	-	10
B	-	9
C	A	9
D	A	8
E	B	7
F	B	11
G	D, E	5

(08 Marks)

Module-2

- 3 a. What are the factors affecting the labour output or productivity. (08 Marks)
b. Explain the basic concepts of Resource management. (08 Marks)

OR

- 4 a. Explain the classification of construction equipment. (08 Marks)
b. Explain the sketch excavator. (08 Marks)

Module-3

- 5 a. Explain the processes of project quality management. (08 Marks)
b. Explain TQM. (08 Marks)

OR

- 6 a. What are the safety precautions to prevent accidents? (08 Marks)
b. Explain workmen compensation Act and Indian factories Act. (08 Marks)

Module-4

- 7 a. What are the principles of engineering economy? (08 Marks)
b. Explain Time value of money. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 a. Write the Assumptions made in Break Even Analysis. What are the uses of Break Even Analysis? (08 Marks)
b. Explain Break Even Chart. (08 Marks)

Module-5

- 9 a. What are the functions of an Entrepreneur? (08 Marks)
b. What are the stages in Entrepreneurial process? (08 Marks)

OR

- 10 a. What are the advantages and disadvantages of becoming an entrepreneur? (08 Marks)
b. Discuss on MSME. (08 Marks)

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15CV62

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Design of Steel Structural Elements

Time: 3 hrs.

Max. Marks: 80

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use of IS800-2007 and steel tables are allowed.*

Module-1

- 1 a. Explain the advantages and disadvantages of steel structure. (08 Marks)
- b. Distinguish between Working stress design and Limit state design of steel structure. (08 Marks)

OR

- 2 a. Calculate the "Shape factor" for the Triangular section. (06 Marks)
- b. Analyse the continuous beam "ABC" subjected to working loads show in Fig.Q2(b) and determine the plastic moment. Use load factor is 1.5. (10 Marks)

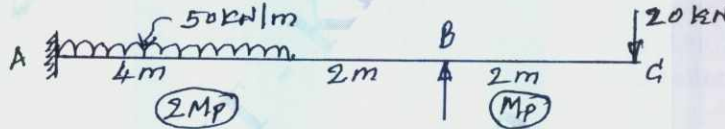


Fig.Q2(b)

Module-2

- 3 a. Explain with neat sketches of various 'Mode of failure' of bolts connection? (06 Marks)
- b. Determine the "bolt value" for a bolt M16 and property class 4.6. Used to connect lap joint as shown in Fig.Q3(b). Take ultimate Tensile Strength of plate 410 MPa. (10 Marks)

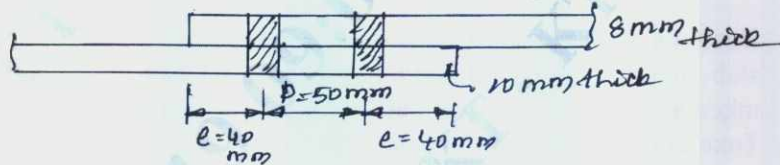


Fig.Q3(b)

OR

- 4 a. What are the advantages and disadvantages of welded connection? (06 Marks)
- b. Determine the bracket load that can resisted by the bracket shown in Fig.Q4(b) by fillet weld of size 8mm. (10 Marks)

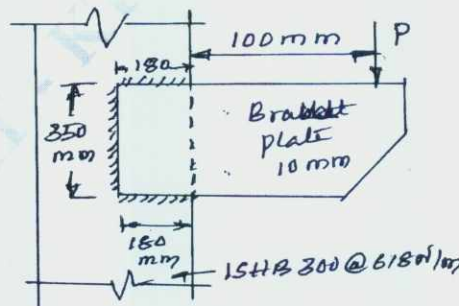


Fig.Q4(b)

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Module-3

- 5 a. Explain the behavior of compression member. (06 Marks)
 b. Determine the compressive strength of a strut of ISA 150×75×8 mm connected to a gusset plate when (i) with one bolt (ii) with more than two bolts (iii) Welded. (10 Marks)
 Assume angle is axially loaded. Take length of the member is 3m.

OR

- 6 Design a column section using double channels back to back to carry a factored load of 2000 kN. The height of the column is 5m with the column is hinged at both ends. Also design the column with lacing with bolted connection. (16 Marks)

Module-4

- 7 a. What is Lug Angle/ Explain in brief with a neat diagram. (04 Marks)
 b. Determine the tensile strength of a plate 160mm × 10mm connected with bolts of M18 in two lines. (12 Marks)

OR

- 8 Compression member ISHB 300@ 63 kg/m is carrying a load of 800 kN. Take M20 grade of concrete and 150 kN/m² SBC of soil. Design slab base and concrete base using welded or bolted connection. (16 Marks)

Module-5

- 9 a. What are the factors, which affects lateral stability? (04 Marks)
 b. Determine the design bending strength of a beam ISMB 300@ 434 N/m. Assume that the factored shear force is less than the design shear strength. Use Fe-410 grade of steel. (12 Marks)

OR

- 10 Design a suitable beam for a roof of dimension 7.5m × 12m consists of 100mm thick R.C. slab supported on steel beams spaced at 3m centre to centre. The floor finishing may be taken as 1 kN/m² and live load is 4 kN/m². The self weight of beam is assumed as 1 kN/m². Take limiting deflection as span/250. (16 Marks)

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15CV63

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Highway Engineering

Time: 3 hrs.

Max. Marks: 80

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Assume any missing data suitably.*

Module-1

- 1 a. Explain the various characteristics of Road Transport. (04 Marks)
b. What are the objectives of IRC and Central Road Research Institute [CRR] (08 Marks)
c. What are the advantages and disadvantages of airways? (04 Marks)

OR

- 2 a. Explain the saturation system of Road Planning. (04 Marks)
b. Write a short note on KSHIP and its projects. (04 Marks)
c. Four new road links A, B, C & D are to be constructed during a 5 year plan period. Suggest the order of priority for phasing the road construction programme based on maximum utility approach. Assume utility units of 0.5, 1.0, 2.0 and 4.0 for the population ranges and 2, 2 and 5 units per 1000 tonnes of agricultural, raw material and industrial products from the following data:

Road link	Length km	No. of villages with Pop ⁿ range				Productivity served		
		<500	501-1000	1001-2000	>2000	Agricultural	Raw materials	Industrial Product
A	75	30	15	10	3	8000	3000	1000
B	35	20	08	06	3	5000	1000	1600
C	40	15	06	05	5	6000	2000	3200
D	50	40	04	03	2	3000	7000	500

(08 Marks)

Module-2

- 3 a. What are the main objectives of preliminary survey and steps followed in the preliminary survey by conventional method [Name the steps]. (06 Marks)
b. Briefly explain the map study is the alignment of a highway project. (04 Marks)
c. Define camber. Discuss the factors on which the amount of camber to be provided depends. Specify, the recommended ranges of camber for different types of pavement surfaces. (06 Marks)

OR

- 4 a. Explain the PIEV theory with a neat diagram. (06 Marks)
b. Calculate the minimum sight distance required to avoid a head on collision of two cars approaching from the opposite directions at 90 and 60 kmph. Assume a reaction time of 2.5 seconds, coefficient of friction 0.7 and brake efficiency of 50% in either case. (06 Marks)
c. Explain briefly the steps of superelevation design. (04 Marks)

Module-3

- 5 a. Distinguish between Bitumen and Tar. (04 Marks)
 b. Explain the various properties of Road aggregates. (06 Marks)
 c. Define the modulus of subgrade reaction. With the sketch explain the plate load test for determining the k value. (06 Marks)

OR

- 6 a. Explain ESWL. How is it determined for dual wheel assembly? (04 Marks)
 b. Explain the steps involved in the design of slab thickness of rigid pavement as per IRC 58:2002. (06 Marks)
 c. The properties of the subgrade soil are given below:
 Passing 75 micron IS sieve = 80%
 Liquid limit = 58%
 Plasticity index = 25%
 Classify the soil by HRB system with group index value. (06 Marks)

Module-4

- 7 a. Write down the construction steps for wet mix macadam base course. (06 Marks)
 b. Explain in detail the requirements specifications of materials and the construction steps / methods for Bituminous Concrete [BC] layer. (06 Marks)
 c. Briefly explain the Rothfuch's method of proportioning of materials. (04 Marks)

OR

- 8 a. Explain in brief the construction of cement concrete pavements. (08 Marks)
 b. Explain in brief the specifications of materials for WBM pavement. (08 Marks)

Module-5

- 9 a. What are the requirements of highway drainage system? (04 Marks)
 b. Explain briefly the design of filter material used in subsurface drains. (08 Marks)
 c. Explain the cross drainage structures in brief. (04 Marks)

OR

- 10 a. Explain in brief any three methods of economic evaluation of highway projects. (06 Marks)
 b. Explain in brief the various factors affecting the vehicle operation cost. (06 Marks)
 c. Explain BOOT with respect to highway financing. (04 Marks)

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15CV661

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020

Water Resources Management

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain Hydrologic cycle, with a neat sketch. (08 Marks)
b. Explain briefly Indian Water Resources. (08 Marks)

OR

- 2 a. What is meant by Water scarcity? Discuss reasons for water scarcity problems. (08 Marks)
b. Explain different types of aquifers. Also explain the different water bearing formations. (08 Marks)

Module-2

- 3 a. State the necessity of Water Resources Planning and Management. (08 Marks)
b. Explain system components used in Water Resource Planning. (08 Marks)

OR

- 4 a. Discuss Planning and Management aspects. (08 Marks)
b. Explain approaches used in Water Resource Planning. (04 Marks)
c. Explain Post Planning and Management Issues. (04 Marks)

Module-3

- 5 a. Define IWRM. Mention Dublin principles of IWRM. (08 Marks)
b. Explain process of Implementation of IWRM. (08 Marks)

OR

- 6 a. Explain Legislative and Organizational Frame work in IWRM. (08 Marks)
b. Discuss types and forms of Private Sector involvement in IWRM. (08 Marks)

Module-4

- 7 a. What is meant by Water Governance? State the need of Water Governance. (08 Marks)
b. Mention the necessity of National Water Law. (08 Marks)

OR

- 8 a. Explain salient features of National Water Policy 2012. (08 Marks)
b. Explain Irrigation Management Transfer policies and activities. (08 Marks)

Module-5

- 9 a. Explain briefly any two Rain water Harvesting Techniques. (08 Marks)
b. Explain Micro – Catchments Rain water Harvesting. (08 Marks)

OR

- 10 a. Explain design steps for percolation Tank in RWH. (08 Marks)
b. List and explain the factors influencing Yield from a catchment. (08 Marks)

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