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16/5/16

Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)
Munshi Nagar, Andheri (West), Mumbai – 400058.
End Semester Exam
May 2016

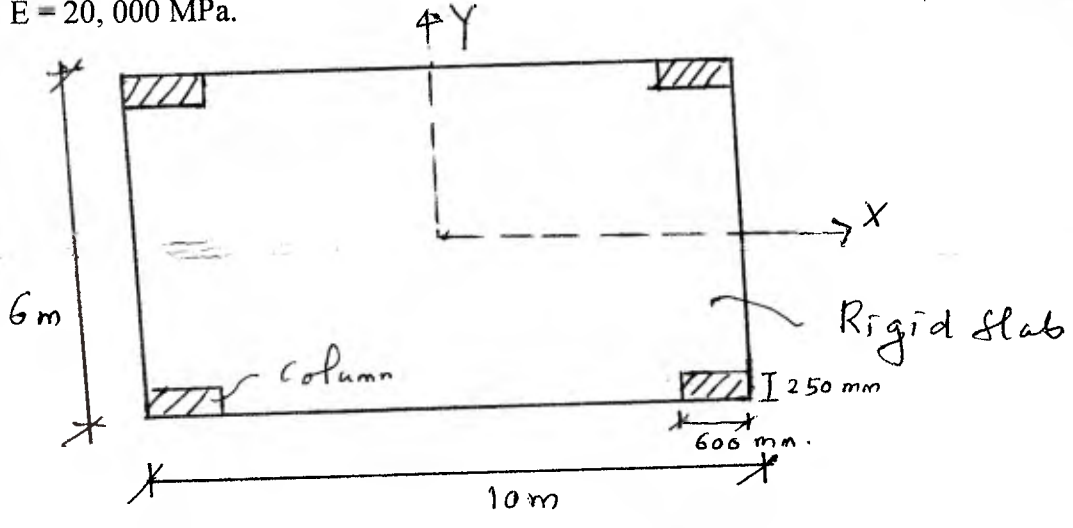
Max. Marks: 100 Duration: 3 Hours
Class: B.Tech. Semester: VIII Program: Civil Engineering
Name of the Course: Earthquake Engineering Course Code : CE457

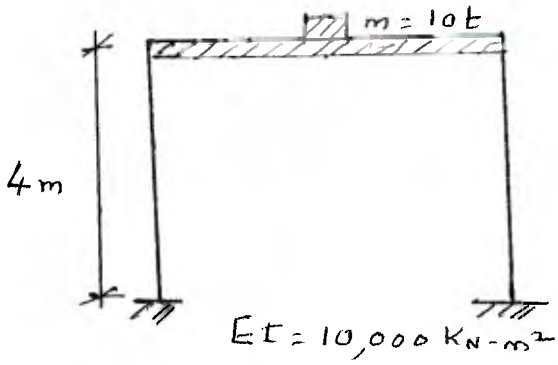
Master file.

Instructions:

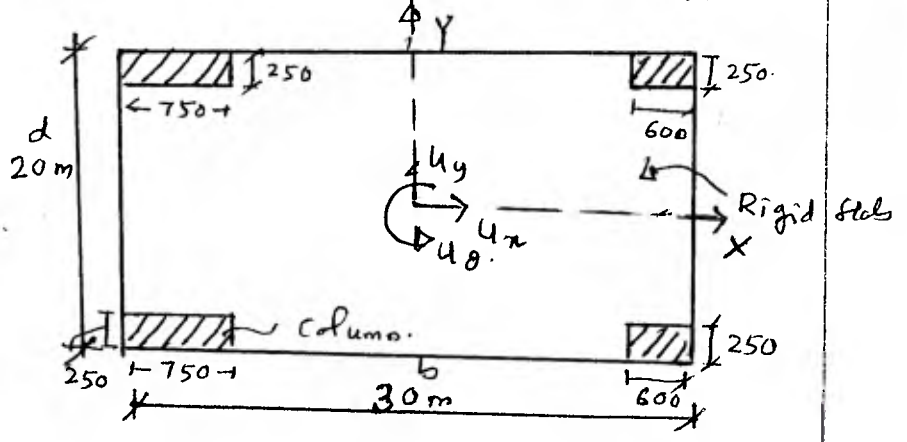
- Attempt any FIVE questions out of SEVEN questions.
- Answers to all sub questions should be grouped together.
- Figures to the right indicate full marks.
- Assume suitable data if necessary and state the same clearly.

Question No		Max. Marks	Course Outcome No.	Module No.
Q1 (a)	Answer the followings: (i) What is Random dynamic Load? Briefly explain how the analysis of structure to random of dynamic Load is done.	3	1	1
	(ii) What is an earthquake? How the earthquakes are classified based on their causes?	3	1	4
	(iii) Explain the different types of seismic waves and their characteristics	4	1	4
Q1(b)	(i) A single storey structure with rigid slab is supported on four corner columns as shown in figure. The height of structure is 6.0 m. In general what will be the degrees of freedom for this structure? And specify these dof. Calculate the natural frequency of the structure for excitation in X and Y direction separately.	4	1	2
	(ii) If the system is subjected to harmonic ground motion of amplitude 0.2g at frequency of 10 rad/sec in X direction only, calculate the maximum lateral displacement of slab in Y direction and maximum stress in each column $\zeta = 5\%$ and E = 20, 000 MPa.	3	1	2

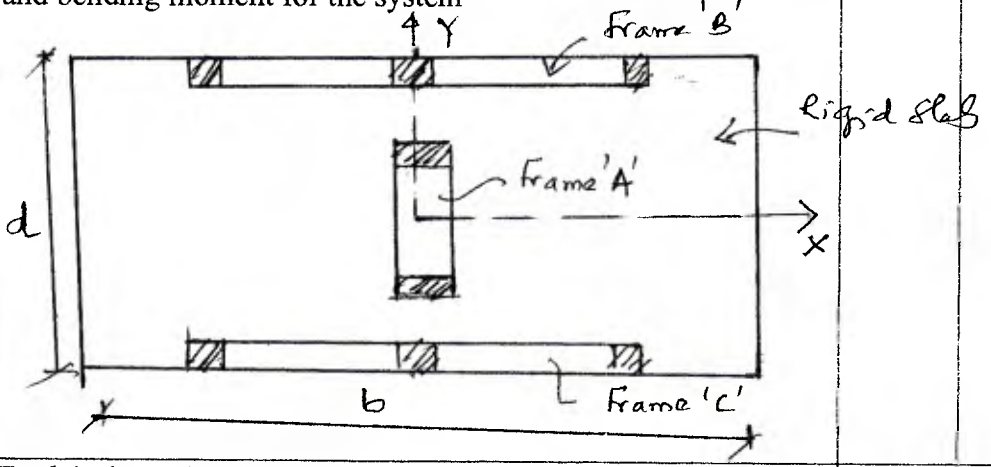


Q1 (c).	Explain the characteristics of ground motions	**3**	**2**	**4**
Q2 (a)	The mass m, stiffness k, and natural frequency ω of an undamped system are unknown. These properties are to be determined by harmonic excitation tests. At an excitation frequency of 4 Hz, the repose tends to increase without bound (i.e, a resonant condition). Next, a weight Δw = 50 N is attached to the mass m and the resonance test is repeated. This time resonance occurs at f = 3 Hz. Determine the mass and the stiffness of the system.	**4**	**1**	**2**
Q2 (b)	(i) A single story frame with rigid girder as shown in figure below is to be designed for ground motion, the response spectrum of which is shown in figure1. Determine the design value of lateral deformation and bending moments in the columns (ii) If the columns of the frame are hinged at base, determine the design values of lateral deformation and bending moments in columns. Comment on the influence of base fixity on the design deformation and bending moments 	**4** **4**	**2** **2**	**6** **6**
Q2 (c)	A two storey frame with free vibration characteristics as given below is subjected to a harmonic force with amplitude **100 KN** and at frequency of 20 rad/sec. at the 2nd floor level. Calculate maximum displacements of each storey. Take damping ratio =5%	**8**	**1**	**3**

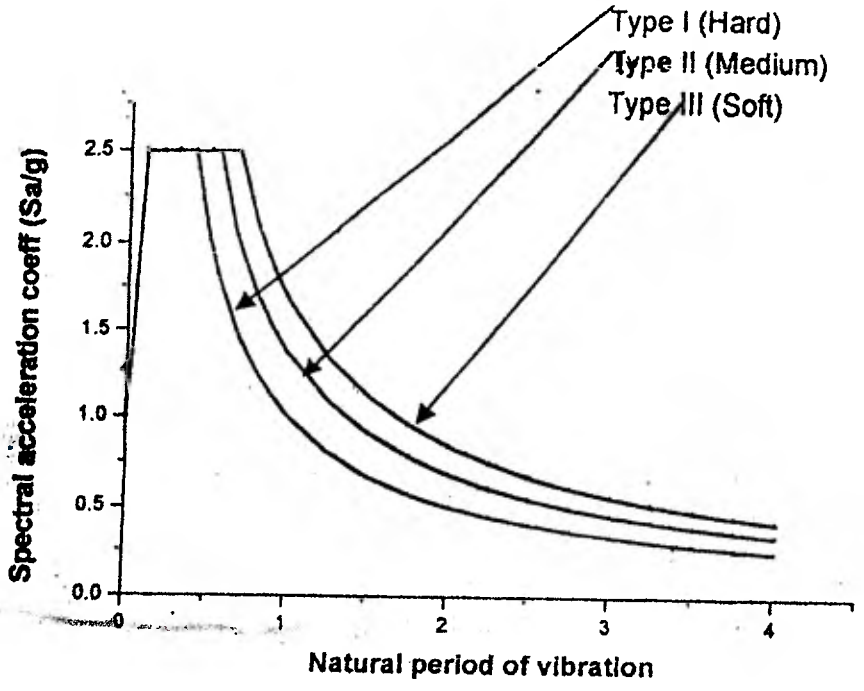
Floor No.	Mass (t)	Mode No.	ω, rad/sec	Mode Shapes	
				Φ_{i1}	Φ_{i2}
1	20	1	14.58	1.0	1.481
2	15	2	38.07	1.0	-0.822

Q3	The plan of one story building is as shown in figure. The structure consists of a roof idealized as a rigid diaphragm, supported on four corner columns as shown in figure. The roof weight is uniformly distributed and has magnitude 200 kg/m^2. The plan dimensions are b= 30 m d=20m. Height of columns is 8 m. E = 20,000 Mpa. (i) Derive the stiffness matrix and determine the natural frequencies and modes shapes of vibrations of the structure (ii) If the structure is subjected to ground motion $\ddot{u}_{gx}$ only in x direction. write down the equations of motion for the system (iii)As a special case, if all columns are of the same size, 250 mm x 600 mm, and if the system is subjected to the ground motion only in X direction, the response spectrum of which is shown in figure1. Determine the design value of lateral deformation, base shear and bending moment for the system.  	**20**	**1, 2**	**6**
Q4 (a)	What is response spectrum? Explain briefly, the response spectrum characteristics.	**5**	**2**	**5**
Q4 (b)	Explain the procedure to construct elastic response spectrum for estimated peak ground motion parameters	**6**	**2**	**5**
Q4 (c)	A two story frame has the following free vibration characteristics. The frame is to be designed for the ground motion characterized by the design spectrum given in the figure 1 but scaled to peak ground acceleration of **0.4g**. Calculate the design values of lateral deformation of floors.	**9**	**2**	**6**

Floor No.	Mass (t)	Mode No.	ω, rad/sec	Mode shapes	
				Φ_{i1}	Φ_{i2}
1	20	1	14.58	1.0	1.481
2	15	2	38.07	1.0	-0.822

Q5(a)	The plan of one storey building is as shown in figure. The structure consists of a roof idealized as a rigid diaphragm, supported on three frames A, B, and C as shown. The roof weight is uniformly distributed and has magnitude 200 Kg/m^2. The lateral stiffness are K_y = 20000 KN/m for frame A and K_x =25000 KN/m for frames B and C. The plan dimensions are b= 30 m d=20m. The height of building is 10m. (i) Derive the stiffness matrix and determine the natural frequencies and modes of vibrations of the structure (ii)If the structure is subjected to ground motion $\ddot{u}_{gx}$ only in X direction. write down the equations of motion for the system (iii) If the system is subjected to the ground motion only in X direction, the response spectrum of which is shown in figure1. Determine the design value of lateral deformation, base shear and bending moment for the system 	8	1, 2	2,6
Q5(b)	Explain how the magnitude and intensity of an earthquake are measured.	4	2	4
Q5(c)	State the limitation of Seismic Coefficient Method. As per IS 1893-2002, under what conditions the seismic coefficient method is permitted to use to calculate the earthquake forces.	3	3	7
Q5(d)	Briefly explain the Plate Tectonic Theory of an earthquake occurrence	5	2	4
Q6(a)	What is soft story? Explain the provisions of IS 1893-2002 for the design of RCC elements of soft story	3	3	7
Q6(b)	Explain the three requirements of displacement design of structure for earthquake load as per IS 1893-2002.	4	3	7
Q6(c)	As per IS 1893-2002, how many mode need to be considered in the earthquake force calculation by Response Spectrum Method	2	3	7
Q6(d)	Using response spectrum method, calculate the seismic force on each floor of the frame whose pre vibration properties are given below. Use the following additional data: Z=0.24, I =1.5, R=3.0 and ξ = 5%. Assume foundation strata as soft and use response spectrum given in figure 2.	11	3	7

	Story No.	Mass No.	Mass (t)	ω rad/sec	Mode shapes				
					Φ_{i1}	Φ_{i2}	Φ_{i3}		
	1	1	20	15.73	0.399	0.747	1.0		
	2	2	20	49.85	1.0	0.727	-0.471		
	3	3	20	77.82	-0.908	1.0	-0.192		
Q7(a)	What is shear Wall? Explain the advantages of shear walls.							**3**	**3**	**7**
Q7(b)	What is ductility of a structure? Explain the importance of ductility in seismic resistant structures.							**3**	**3**	**7**
Q7(c)	Explain the provisions of IS 13920 for (i)Beams: General provisions, longitudinal reinforcement and web reinforcement (ii) Shear Walls: General requirements and shear strength							**12**	**3**	**7**
Q7(d)	Briefly explain the earthquake design principle as per IS 1893-2002 (i.e. fail safe criteria)							**2**	**3**	**7**



Response Spectrum as per IS 1893-2002 for 5 % Damping

Figure 2 Q no. 6 d

DISPLACEMENT RESPONSE SPECTRA
FOR EL-CENTRO EARTHQUAKE FOR 5% DAMPING PGA = 0.32g

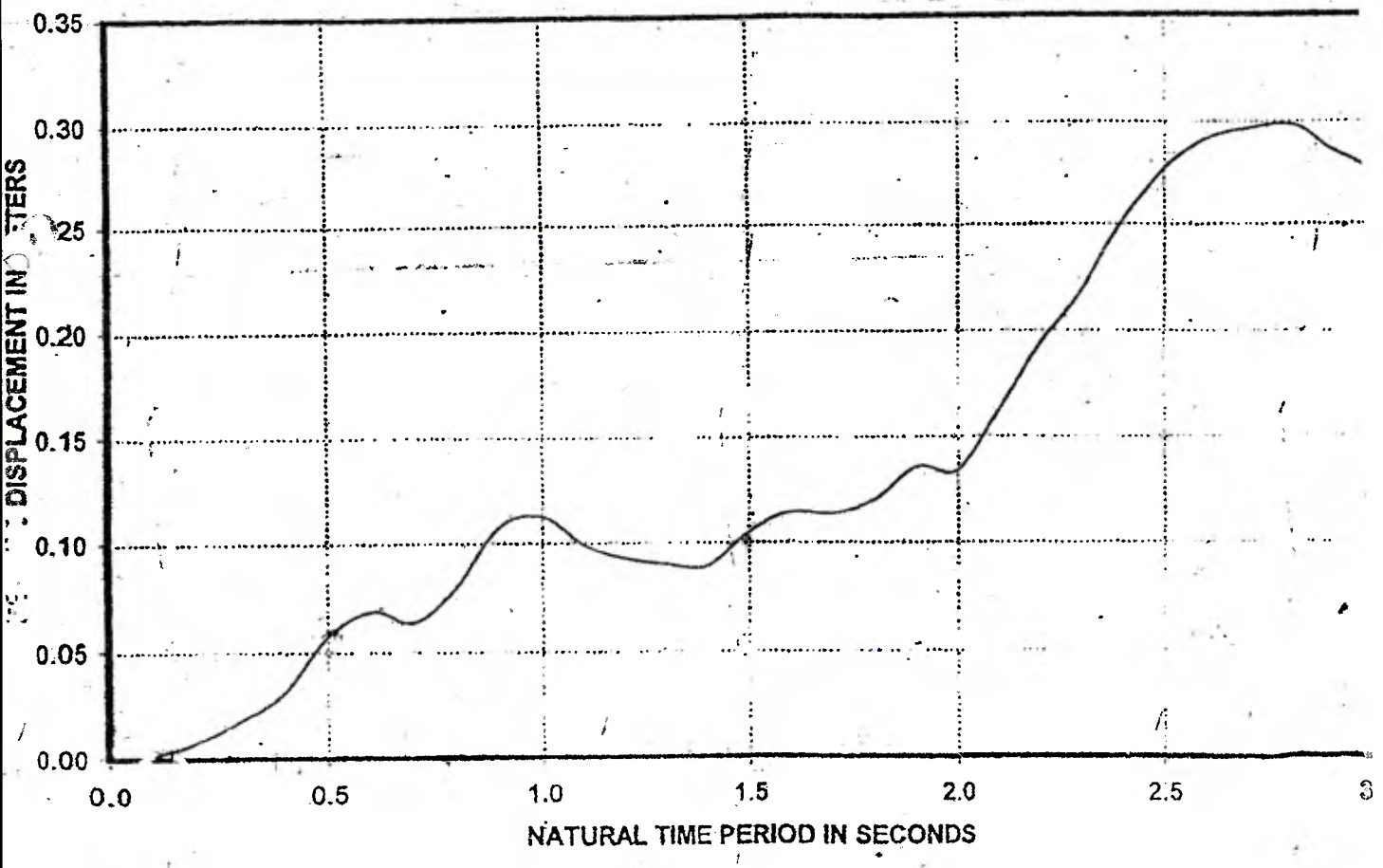


Figure 1 (Q.No. 2(b), Q.No 3 (iii), Q.No 4 (c) & Q.No 5 a (iii))

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End Semester Exam

May 2016

Q. P. Code:

Max. Marks: 100 Duration: 3 Hrs

Class:.B.Tech Semester: VIII Program: Civil Engineering

Name of the Course: Appraisal & Implementation of Infrastructure projects

Course Code : CE464

Master file.

Instructions:

1. **Attempt any five out of Seven questions.**
2. **Make suitable assumptions where necessary and state them clearly.**

Question No		Maximum Marks	CO Number	Module No.
Q1	A) With the help of various characteristics discuss how construction projects to be unique?	10	1	1
	B) Elaborate SWOT analysis in project appraisal.	10		
Q2	A) Briefly explain the Project Development Cycle in detail?	08	1	2
	B) What do you mean by Project Appraisal? Explain necessity of project appraisal?	06	1	
	C) What are the key issues should be addressed while appraising projects?	06	1	
Q3	A) Explain any two analytical & economical appraisal techniques for project appraisal?	08	1	2&5
	B) An initial investment in plant & machinery of ₹ 22000 is expected to generate cash flows of ₹ 2342, ₹ 2200, ₹ 3850, ₹ 5230 at the end of first, second, third & fourth year respectively. At the end of fourth year machines will be sold for ₹ 650 as salvage value. Calculate the net present value of the investment if the discount rate is 10.5%.	06	1	
	C) A company manufacturers a product that sells for 14 rupees per unit. Variable cost per unit is 10 rupees & fixed cost per period is 1400 rupees. Capacity per period is 11 units. 1) Graph the revenue & cost functions 2) Find the numbers of units sold & the revenue amount in rupees at breakeven point	06	1	
Q4	A) Discuss forecasting of demand for market appraisal	10	1	3
	B) Describe in detail Technical Appraisal.	10	1	

Q.5.	A) What is project risk analysis & management process in project appraisal?	06	2	5
	B) Explain project cost management process in project appraisal?	08	2	
	C) Write a short note on- Social cost benefit analysis.	06	2	
Q.6.	A) Explain factors affecting to project implementation plan? (Any 12)	06	3	6
	B) Discuss following project implementation techniques in detail (Background-Advantages-Disadvantages-Example) 1) BOT 2) BOOT	08	3	
	C) What do you mean by project implementation plan? Explain GANTT chart?	06	3	
Q.7	A) Enlist the different financial institutions & discuss their role.	10	3	7
	B) Discuss in detail different sources of finance.	10	3	

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END SEMESTER EXAMINATION

May 2016

Max. Marks: 100 Duration: 3 Hrs

Class: Final Year B. Tech Semester: VIII Program: Civil Engineering

Name of the Course: Construction Management Course Code : CE453

Instructions:

Master file.

1) **Attempt any five questions.**
2) **Neat diagrams must be drawn wherever necessary.**
3) **Figure to the right side indicate full marks.**
4) **Use of Scientific calculator is allowed.**
5) **Assume suitable data if necessary and state it clearly.**

Q.No			Marks	Course Outcome Number	Module No.
1	a	Discuss the role of different agencies in project management.	5	CO1	1
	b	Distinguish between Arbitration and Litigation.	5	CO3	7
	c	Explain the importance of ABC analysis in materials management?	10	CO1	5
2	a	Explain clearly the following statement "CPM is deterministic and activity oriented network while PERT is a probabilistic and event oriented network	8	CO1	3
	b	(a) Discuss the various hazards associated with construction industry.	6	CO2	6
	c	What are the factors considered in equipment planning?	6	CO1	5
3	a	Explain the salient features of Workman's compensation act 1923.	8	CO1	7
	b	Explain in detail time cost trade off for time optimization.	8	CO1	5
	c	Discuss in brief LOB technique	4	CO1	4

Q.No			Marks	Course Outcome Number	Module No
4	a	Discuss the process for pretender and pre construction planning of High Rise Building.	6	CO1	2
	b	A Civil engineering firm has to bid for the construction of a dam. The activities and their time estimates are given below:	14	CO1	3

Activity	t_o	t_m	t_p
1-2	14	17	25
2-3	14	18	21
2-4	13	15	18
2-8	16	19	28
3-4(dummy)	0	0	0
3-5	15	18	27
4-6	13	17	21
5-7(dummy)	0	0	0
5-9	14	18	20
6-7(dummy)	0	0	0
6-8(dummy)	0	0	0
7-9	16	20	41
8-9	14	16	22

		The policy of the firm with respect to submitting bids is to the minimum amount that will provide a 95% of probability of at best breaking-even. The fixed costs for the project are 8 lakhs and the variable costs are 9000/- per day spent working on the project. The duration is in days and costs are in rupees. What amount should the firm bid under this policy? At 95% probability value normal variate is 1.65. Perform the calculations on the duration etc, upto two decimal places.			
5	a	Discuss the concept of 'quality' for construction industry. How do you ensure construction quality during life cycle of a construction project?	8	CO2	6
	b	What are the different functions of materials management?	7	CO1	5
	c	Highlight the significance of cash flow diagrams in construction project.	5	CO1	5

Q.No			Marks	Course Outcome Number	Module No
6	a	Differentiate AOA and AON Network.	6	CO1	3
	b	The utility data for a network are given below. Determine the total float, free float, Independent float and interfering float and identify the critical path	14	CO1	3

Activity	0-1	1-2	1-3	2-4	2-5	3-4	3-6	4-7	5-7	6-7
Duration	2	8	10	6	3	3	7	5	2	8

7	a	You are appointed as a project manager for a metro project. Suggest suitable structure of construction organisation.	6	CO1	2
	b	Discuss time and cost overrun of a construction project. Explain the important causes and adverse effects of the same.	10	CO1	6
	c	Discuss resources leveling and smoothening	4	CO1	4

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Munshi Nagar, Andheri (West), Mumbai – 400058.

Re-Exam
May- 2016

Max. Marks: 100
Duration: 4 hr
Class: Btech
Name of the course: Design and drawing of RC structures.

Q.P. Code: CE 451
Course Code : CE 451
Sem-VIII
Program: Civil Engineering

Master file.

Instructions:

1) Attempt five of the following.
2) Use of IS 456:2000 is permitted.
3) Figures to right indicate full marks.
4) Assume suitable data if necessary and state the same clearly.

Question No		Maximum Marks	Course Outcome Number
Q1	A reinforced cantilever RW is supporting backfill of height 5 m above ground level with density of soil =18 kN/m^3,Angle of repose=30°,S.B.C of soil=150 kN/m^2 and coefficient of friction between concrete and soil =0.55.Design the **heel and toe** of the wall only showing all stability checks. Draw reinforcement details also. Use M20 & Fe 415.	20	1,2,3,4
Q2	The staircase room for a four storeyed framed structureof a residential building is of size 3 m X 5.4m between centre of columns.The columns are of size 230 mm x 230mm.The width of beam and supporting wall is 230 mm.The floor to floor height is 3m.Live load on stairs is 3 kN/m^2 and finish is 1 kN/m^2.Use M-20 ,Fe-415.Design a suitable dog-legged stairs and draw details of reinforcement.	20	1,2,3,4
Q3	The layout of the columns of the building is shown in figure 1.The outer column are 400x400mm in size and carry load of 700kN each.The inner column are 500x500mm in size and carry a load of 1100kN each.Consider SBC of soil as 100kN/m^2.Use M20 and Fe-415 Design only **slab and main beam** of the raft foundation. Show reinforcemenrt details also.	20	1,2,3,4
Q4	Design rectangular water tank open at top resting on ground having size of 3 mx7mx3m high.Adopt M20 and Fe-415.Using approximate method design **short walls** of the tank. Draw reinforcement det ails.	20	1,2,3,4

Q5	Design circular tank using IS code method with fixed base resting on ground for capacity of $400m^3$.Height of tank is restricted to 5m.Use M-20 and Fe-415. Draw reinforcement details.	20	1,2,3,4
Q6	For the floor system shown in figure 2,design slab S2-S3-S2. Take live load $=2kN/m^2$. Use M25 and Fe-500.Draw reinforcement details	20	1,2,3,4
Q7	For the floor system shown in figure 2,design beam B2-B3-B4 .Take live load $=2kN/m^2$.Floor to floor height as 3.5m,wall thickness =230mm.Take full wall height on B2-B3-B4 height .Use M25 and Fe-500.Draw reinforcement details..	20	1,2,3,4

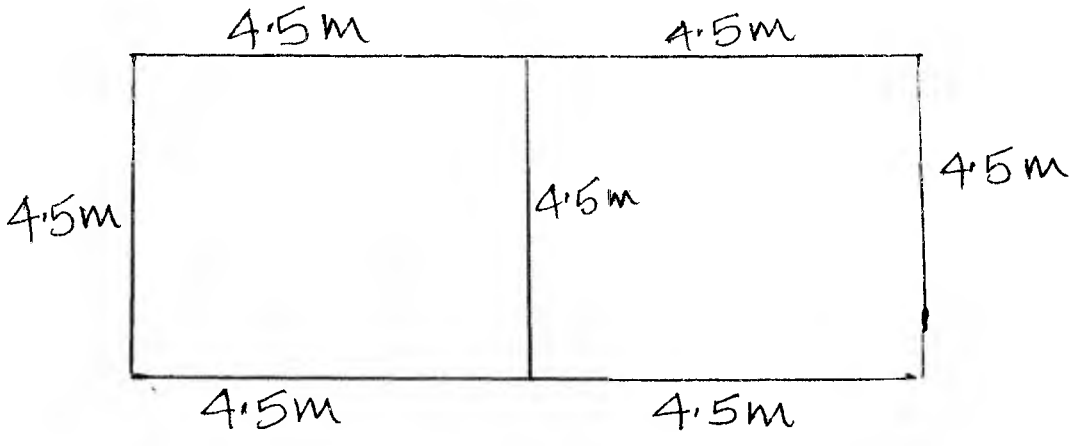


Fig-1

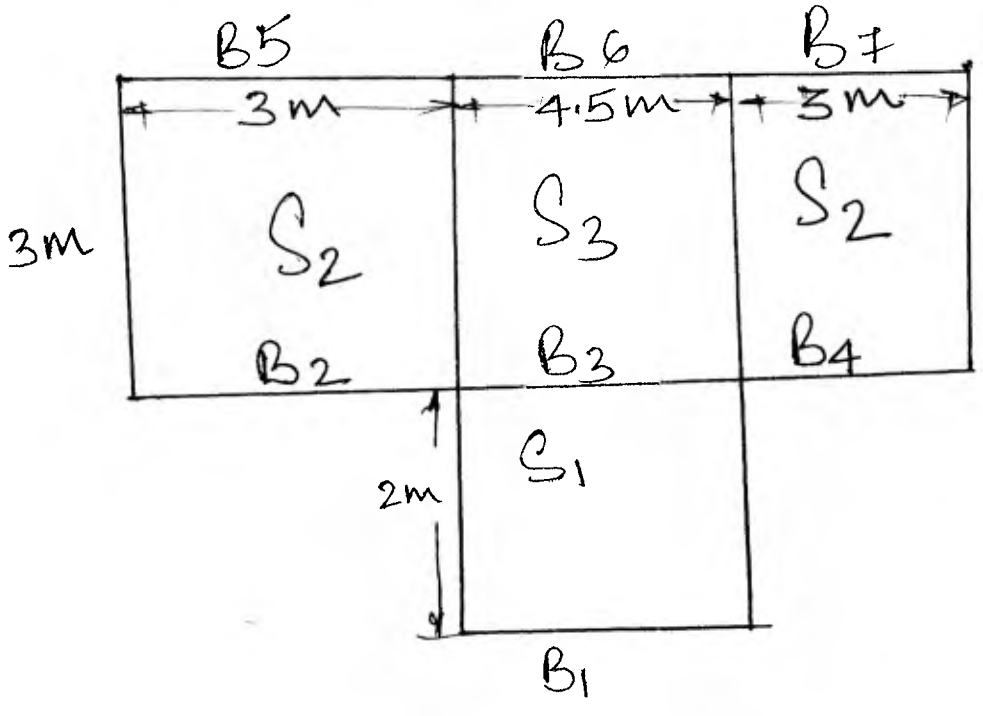
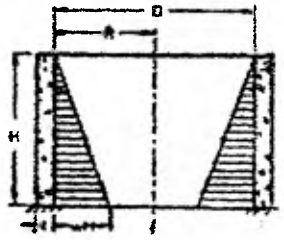


TABLE 9 TENSION IN CIRCULAR RING WALL, FIXED BASE, FREE TOP AND SUBJECT TO TRIANGULAR LOAD

(*Clause* 3.1.1)

T = Coefficient × wHR kg/m



$\frac{H^2}{Dt}$	Coefficients at Point									
	0·0H	0·1H	0·2H	0·3H	0·4H	0·5H	0·6H	0·7H	0·8H	0·9H
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
0·4	+0·149	+0·134	+0·120	+0·101	+0·082	+0·066	+0·049	+0·029	+0·014	+0·004
0·8	+0·263	+0·239	+0·215	+0·109	+0·160	+0·130	+0·096	+0·063	+0·034	+0·010
1·2	+0·283	+0·271	+0·254	+0·234	+0·209	+0·180	+0·142	+0·099	+0·054	+0·016
1·6	+0·265	+0·268	+0·268	+0·266	+0·250	+0·226	+0 185	+0·134	+0·075	+0·023
2·0	+0·234	+0·251	+0·273	+0·285	+0·285	+0·274	+0·232	+0·172	+0·104	+0·031
3·0	+0·134	+0·203	+0·267	+0·322	+0·357	+0·362	+0·330	+0·262	+0·157	+0·052
4·0	+0·067	+0·164	+0·256	+0·339	+0·403	+0·429	+0·409	+0·334	+0·210	+0·073
5·0	+0·025	+0·137	+0·245	+0·346	+0·428	+0·477	+0·469	+0·398	+0·259	+0·092
6·0	+0·018	+0·119	+0·234	+0·344	+0·441	+0·504	+0·514	+0·447	+0·301	+0·112
8·0	−0·001	+0·104	+0·218	+0·335	+0·443	+0·534	+0·575	+0·530	+0·381	+0·151
10·0	−0·001	+0·098	+0·208	+0·323	+0·437	+0·542	+0·608	+0·589	+0·440	+0·179
12·0	−0·005	+0·097	+0·202	+0·312	+0·429	+0·543	+0·628	+0·633	+0·494	+0·211
14·0	−0·002	+0·098	+0·200	+0·306	+0·420	+0·539	+0·639	+0·666	+0·541	+0·241
16·0	0·000	+0·099	+0·199	+0·304	+0·412	+0·531	+0·641	+0·687	+0·582	+0·265

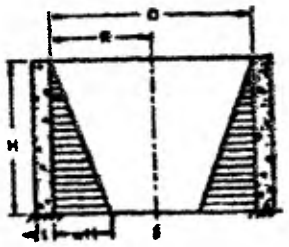
NOTE 1 — w = Density of the liquid.

NOTE 2 — Positive sign indicates tension.

TABLE 16 MOMENTS IN CYLINDRICAL WALL, FIXED BASE, FREE TOP AND SUBJECT TO TRIANGULAR LOAD

(*Clause* 3.1.1)

Moment = Coefficient × wH^3 kgm/m



$\frac{H^2}{Dt}$	Coefficients at Point									
	0·1*H*	0·2*H*	0·3*H*	0·4*H*	0·5*H*	0·6*H*	0·7*H*	0·8*H*	0·9*H*	1·0*H*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
0·4	+0·0005	+0·0014	+0·0021	+0·0007	−0·0042	−0·0150	−0·0302	−0·0529	−0·0816	−0·1205
0·8	+0·0011	+0·0037	+0·0063	+0·0080	+0·0070	+0·0023	−0·0068	−0·0024	−0·0465	−0·0795
1·2	+0·0012	+0·0042	+0·0077	+0·0103	+0·0112	+0·0090	+0·0022	−0·0108	−0·0311	−0·0602
1·6	+0·0011	+0·0041	+0·0075	+0·0107	+0·0121	+0·0111	+0·0058	−0·0051	−0·0232	−0·0505
2·0	+0·0010	+0·0035	+0·0068	+0·0099	+0·0120	+0·0115	+0·0075	−0·0021	−0·0185	−0·0436
3·0	+0·0006	+0·0024	+0·0047	+0·0071	+0·0090	+0·0097	+0·0077	+0·0012	−0·0119	−0·0333
4·0	+0·0003	+0·0015	+0·0028	+0·0047	+0·0066	+0·0077	+0·0069	+0·0023	−0·0080	−0·0268
5·0	+0·0002	+0·0008	+0·0016	+0·0029	+0·0046	+0·0059	+0·0059	+0·0028	−0·0058	−0·0222
6·0	+0·0001	+0·0003	+0·0008	+0·0019	+0·0032	+0·0046	+0·0051	+0·0029	−0·0041	−0·0187
8·0	0·0000	+0·0001	+0·0002	+0·0008	+0·0016	+0·0028	+0·0038	+0·0029	−0·0022	−0·0146
10·0	0·0000	0·0000	+0·0001	+0·0004	+0·0007	+0·0019	+0·0029	+0·0028	−0·0012	−0·0122
12·0	0·0000	−0·0001	+0·0001	+0·0002	+0·0003	+0·0013	+0·0023	+0·0026	−0·0005	−0·0104
14·0	0·0000	0·0000	0·0000	0·0000	+0·0001	+0·0008	+0·0019	+0·0023	−0·0001	−0·0090
16·0	0·0000	0·0000	−0·0001	−0·0002	−0·0001	+0·0004	+0·0013	+0·0019	+0·0001	−0·0079

NOTE 1 — w = Density of the liquid.

NOTE 2 — Positive sign indicates tension on the outside.

TABLE 11 SHEAR AT BASE OF CYLINDRICAL WALL

(*Clauses* 3.1.1, 3.1.2 *and* 3.1.3)

$$v = \text{Coefficient} \times \begin{cases} wH^2 \text{ kg (triangular)} \\ pH \text{ kg (rectangular)} \\ M/H \text{ kg (moment at base)} \end{cases}$$

$\frac{H^2}{Di}$	Triangular Load Fixed Base	Rectangular Load Fixed Base	Triangular or Rectangular Load Hinged Base	Moment at Edge
0·4	+0·436	+0·755	+0·245	−1·58
0·8	+0·374	+0·552	+0·234	−1·75
1·2	+0·339	+0·460	+0·220	−2·00
1·6	+0·317	+0·407	+0·204	−2·28
2·0	+0·299	+0·370	+0·189	−2·57
3·0	+0·262	+0·310	+0·158	−3·18
4·0	+0·236	+0·271	+0·137	−3·68
5·0	+0·213	+0·243	+0·121	−4·10
6·0	+0·197	+0·222	+0·110	−4·49
8·0	+0·174	+0·193	+0·096	−5·18
10·0	+0·158	+0·172	+0·087	−5·81
12·0	+0·145	+0·158	+0·079	−6·38
14·0	+0·135	+0·147	+0·073	−6·88
16·0	+0·127	+0·137	+0·068	−7·36

NOTE 1 — w = Density of the liquid.

NOTE 2 — Positive sign indicates shear acting inward.

(1)

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21/6/2016

Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)
Munshi Nagar, Andheri (West), Mumbai – 400058.
End Semester Re-Exam
June- 2016

Max. Marks: 100 Duration: 4 hours
Class: B.Tech Civil Semester: VIII Program: Civil Engineering
Name of the Course: Quantity Survey, Estimation & Valuation Course Code : CE452

Instructions:

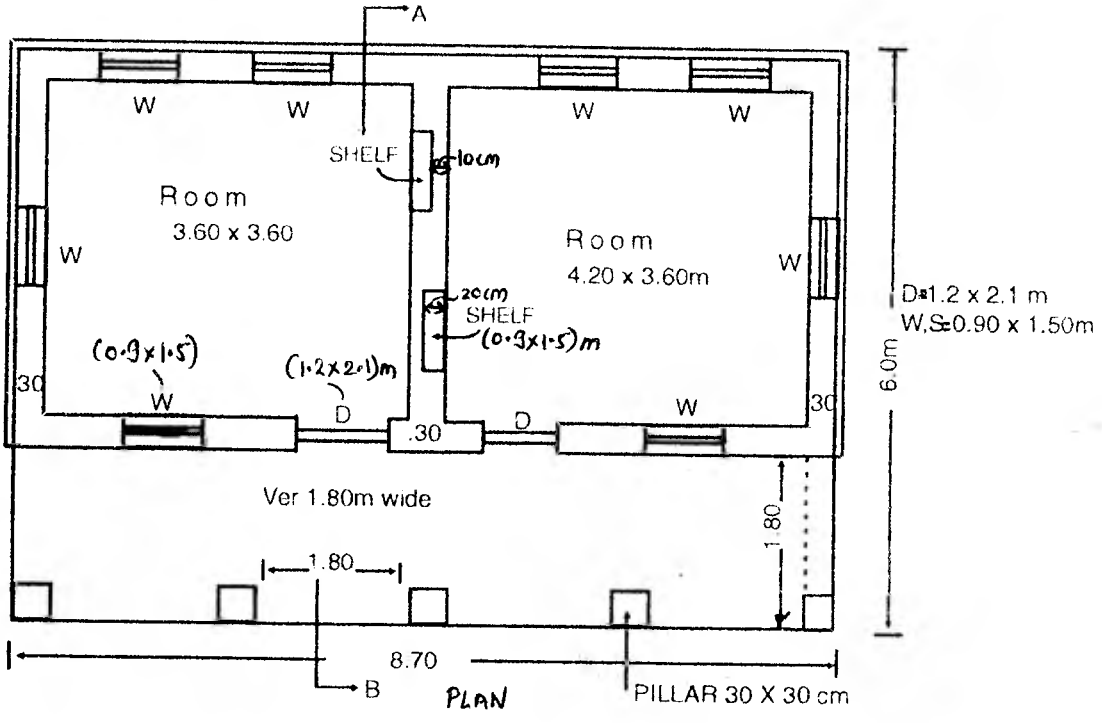
1. Make suitable assumptions where necessary and state them clearly.
2. Figure to right indicate full marks.
3. **Q1 compulsory,** Solve any four from remaining six questions Master file.

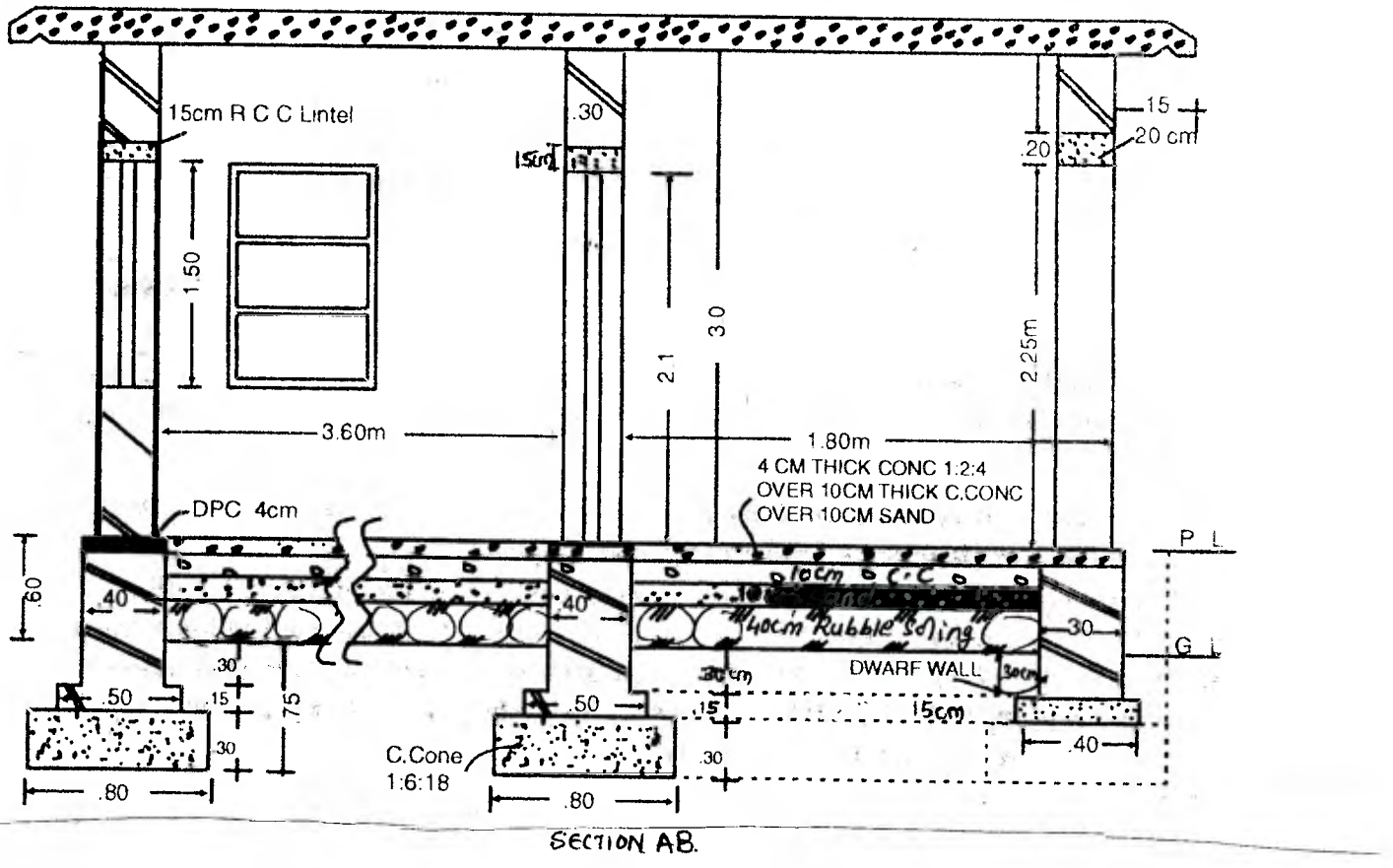
Question No			Marks	C.O. No.	Mod No.
Q1	A	It is proposed to construct a load bearing structure as shown in **Fig no. 1.** The specification for construction are as follow. **Foundation and plinth**: 1st class brick work in 1:4 mortar over 30cm thick C.C work 1:6:18 **D.P.C**: 4cm thick 1:2:4 cement concrete with water proofing compound. **Flooring**:4cm thick concrete flooring over 10 cm thick cement concrete over 10 cm thick sand laid over 40cm thick rubble soling. **Brick Work in super structure**: 1st class brick work in 1:4 mortar. **Finishing:** Inside plaster – 12mm thick 1:6 cement sand plastering. Outside Plaster – 16mm thick 1:4 cement sand plastering. Ceiling plastering – 6mm thick 1:4 cement sand plastering. **Roofing**: 15cm R.C.C slab. **R.C.C work**: Lintel, Chajja and Roof slab in 1:2:4 cement concrete.	**20**	1	2
		Find the Quantity of following item a) Earth work in excavation b) Brick work in super structure c) External plastering. d) Plinth filling.			
Q2	A	Explain in detail revised estimate and supplementary estimate	**5**	1	1
	B	State the method of preparing approximate estimates for the following civil engineering projects. i) Highway ii) Water Supply Scheme iii) Bridges iv) Dams v) School	**10**		
	C	Define the following terms: i) scrap value , ii) speculative value , iii) capitalized value, iv) monopoly value	**5**	4	7

Q3	A	Define tender and explain balance and unbalanced tender with suitable example	**10**	3	6
	B	Define contract and explain in detail essentials of contract	**10**		
Q4	A	Explain the term i) lead and lift for earthwork ii) Dewatering and Backfilling	**10**	2	4
	B	Prepare material statement for item 'b' and 'c' of Q1.A	**10**	2	3
Q5	A	State different method of valuation of land and explain comparative method in detail.	**10**		
	B	Determine the capitalized value of property from the following data i) Gross income from the property- Rs. 30000/- ii) Year of construction- 1963 iii) Life of property 50 years iv) Owner desires to have a net return of 8% from investment v) Rate of interest on sinking fund is 5% vi) Municipal taxes = 24% of gross income vii) Annual repair charges = 3% of gross income viii) Maintenance, insurance and other charges = 3% of gross income.	**5**	4	7
	C	Explain the procedure of finding annual standard rent of the property.	**5**		
Q6	A	Prepare bar bending schedule for the RCC column and footing as shown in **Fig No.2.**	**10**	1	2
	B	Prepare rate analysis for RCC work shown in **Fig No. 2** using M20 concrete (1:1.5:3) including reinforcement, centering and shuttering. Labor data given in **table.no.1**	**10**	1	2
Q7	A	Work out the quantities of earthwork for a length of 300m road and prepare abstract of cost of earthwork and turfing on the side slopes with the following data. Formation width of road: 12m Side slope in embankment: 2:1 Earthwork in embankment: Rs. 30/ cum Turfing on side slope: Rs. 15/sqm	**15**	1	1

Chainage	**0**	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**
R.L of Ground	**106.4**	**104.9**	**105.35**	106.2	107.40	**106.60**	**104.50**	**107.60**	**107.40**	**107.70**	**108.20**
R.L Formation	**105**										
Gradient	Rising gradient 1 in 200										

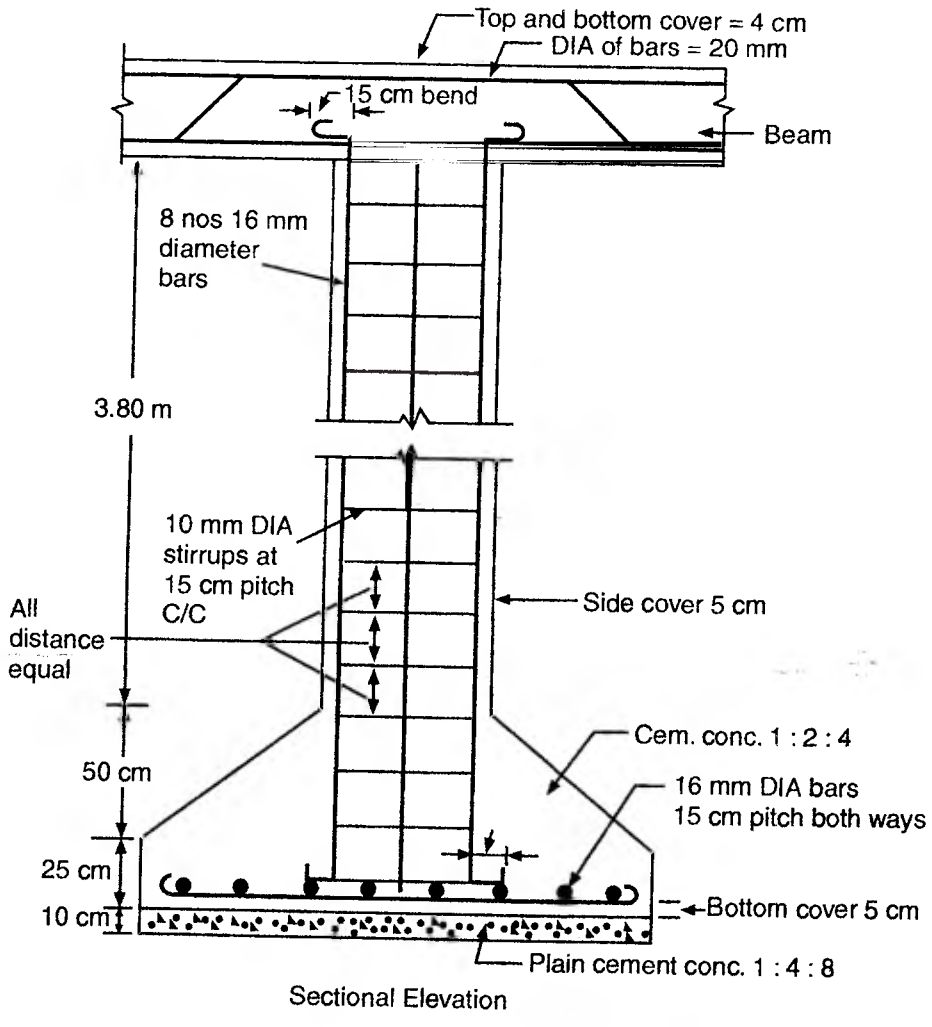
	C	Draw mass haul diagram of Q7.A and shade the area that will cost money to haul, if free haul distance is 70m, cost of borrow is Rs.50/cum and cost of overhaul Rs.25/cum.station.	**5**	2	2





SECTION AB.

Fig No.1



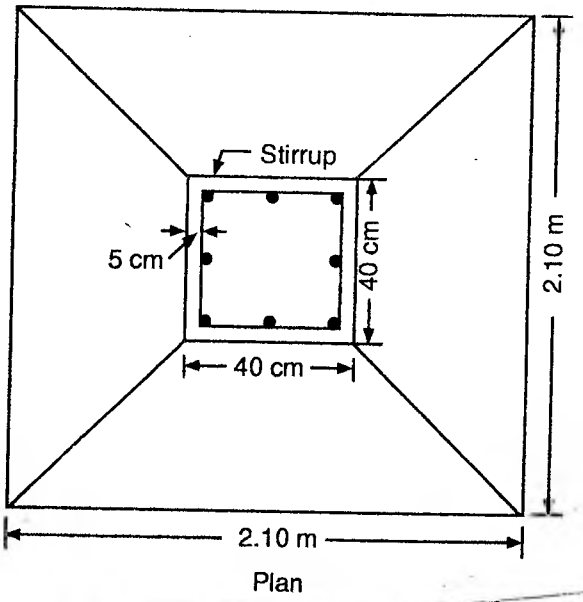


Fig No. 2.

Table No. 1	
Labour	**Work Per Day**
head mason	20cum
mason	1.25cum
mazdoor	0.7cum
Bisti	5cum
Bar bender	1.2cum
Carpenter	1 cum

Lib Section 22/6/2016

Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)

Munshi Nagar, Andheri (West), Mumbai – 400058.

RE-EXAMINATION

June 2016

Max. Marks: 100 Duration: 3 Hrs

Class: Final Year B. Tech Semester: VIII Program: Civil Engineering

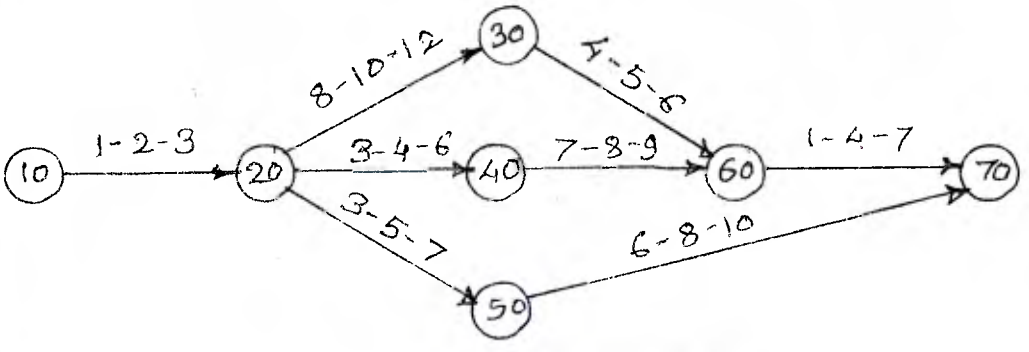
Name of the Course: Construction Management Course Code : CE453

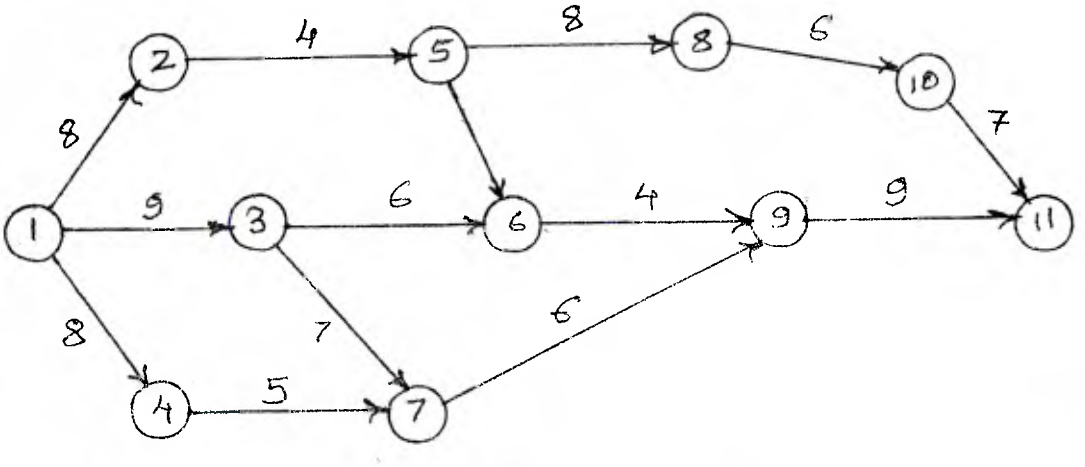
Master file.

Instructions:

1) **Attempt any five questions.**
2) **Neat diagrams must be drawn wherever necessary.**
3) **Figure to the right side indicate full marks.**
4) **Use of Scientific calculator is allowed.**
5) **Assume suitable data if necessary and state it clearly.**

Q.No			Marks	Course Outcome Number	Module No.
1	a	Discuss the role of Project Management Consultant.	6	CO1	1
	b	Explain pretender and Preconstruction Planning	7	CO1	2
	c	Explain the importance of Network analysis in Project management.	7	CO1	3
2	a	Explain the importance of Work Breakdown Structure in construction and Draw WBS for Pumping Station	8	CO1	2
	b	Elaborate the purpose of Resource scheduling and Describe in detail vertical production method.	6	CO2	4
	c	Describe the factors to be considered in equipment selection and planning?	6	CO1	5
3	a	Explain the salient features of Minimum Wages Act.	6	CO3	7
	b	Explain in detail Resource leveling and scheduling.	8	CO1	5
	c	Discuss the classification of Cost	6	CO1	5

Q.No			Marks	Course Outcome Number	Module No
4	a	Discuss organization structure for typical building construction site.	6	CO1	5
	b	Determine the float of each activity and identify the critical path if the scheduled completion time for the project is 20 weeks. Also identify the sub critical path and slacks for events	10	CO1	3
					
	c	Differentiate CPM and PERT	4	CO1	3

Q.No			Marks	Course Outcome Number	Module No
5	a	Explain safety precautions to be taken during High Rise Building	8	CO2	6
	b	Calculate the activity times and floats of the activities of the network given below.	12	CO1	3
					

Q.No			Marks	Course Outcome Number	Module No
6	a	Discuss the quality control measures to be taken during construction of High rise Building	8	CO2	3
	b	Discuss the Provisions of Workman's Compensation Act.	6	CO3	7
	c	Elaborate causes of time and cost overruns in Road construction projects.	6	CO1	6

Q.No			Marks	Course Outcome Number	Module No
7	a	Discuss the quality control measures to be taken during construction of High rise Building	6	CO2	6
	b	Explain the importance of Material management. Discuss the functions of materials management with respect Road Construction Site	10	CO1	3
	c	Differentiate Resources leveling and Resources Smoothening	4	CO1	4