Gb 30/4/13 Guidance

Master file

M.E (const. Mgmt) Sub-Legal Aspects Construction Sem II 30/4/2013

BHARATIYA VIDYA BHAVAN'S

SARDAR PATEL COLLEGE OF ENGINEERING

[An Autonomous Institution Affiliated to University of Mumbai]

End Semester Examination

SEM/CLASS: **III/M.E Construction Management**

SUBJECT: **Legal Aspects in Construction**

TOTAL MARKS: 100

DURATION : 4 HOURS

N.B.: 1) Question No 1 is Compulsory.
2) Attempt any four questions out of remaining six.
3) Assume suitable data if necessary stating them clearly.

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1. Explain the following. (20)
A. Parties to contract.
B. Exculpatory clause in contract
C. Rules of interpretation of contract.
D. Alternate Dispute Resolution Methods

2. A. Explain principles of formation of contract? (08)
B. Discuss types of tender (06)
C. Force majeure clause in a contract (06)

3. A. State the pitfalls in construction & explain any three pitfalls. (08)
B. What is the effect of time essence clause in a contract? (06)
C. What are the types of delays? (08)

4. A. State the areas and sources of dispute which could give rise to claims. (08)
B. Explain various methods of Alternate Dispute Resolution in construction. (06)
C. Write a brief note on FIDIC contracts (06)

5. Distinguish between the following (20)
A. Mobilization advance and secured advance.
B. Tender validity period and defect liability period.
C. Breach of promise and breach of contract
D. Termination and rescinding clause in a contract.

6. Distinguish between the following (20)
A. Void & Voidable contract.
B. Extra items & price variation clause
C. Section 73 & 74 of Indian Contract Act.
D. Price variation and escalation clause in the contract.

7. Discuss the following aspects of Arbitration and Conciliation act 1996 (20)
A. Selection of arbitrator.
B. Arbitration proceedings.
C. Award of arbitrator
D. Provision for Conciliation

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RE - Examination

M.E(C) with Constn. mgt. Sem II

Sem / CLASS II / ME Construction Management

Subject :Legal Aspects in Construction

NB Question I is compulsory

Attempt any four questions out of the remaining Six

Assume suitable data if necessary., stating them clearly

Q I Explain the following (20)

A Null and Void contracts

B Competence to contract

C Duress and Undue influence

D Agent and Principal

QII A Define Tender, Discuss types of tenders (08)

B What are the Principles for the formation of a contract? (06)

C Explain force de Majeure in a contract. (06)

Q III A Explain the salient features of FIDIC Contracts (08)

B State the pitfalls in construction and explain any three of them (06)

C Explain the importance of Time element in Contracts (06)

QIV A Explain the impact of Delay on Construction Contracts (08)

B List out and explain the sources of Disputes which could give rise to Claims. (06)

C Explain various ways of Dispute Resolution (06)

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Q V A Explain various methods of alternative dispute resolution on construction contracts. (08)

B Explain the distinguishing features of Mobillsation Advance and secured Advance (06)

C Explain Tender validity period and defect liability period (06)

Q VI Distinguish between the following

A Price variation and escalation in Construction Contracts (20)

B Void and Voidable Contracts

C Features of Section 73 & 74 of Indian Contract Act

D Extra Items and price variation in construction Contracts .

Q VII Explain the following (20)

A Impact of Breach of Contract and Breach of Promise to the parties to a Contract.

B Provision for Conciliation

C Arbitration Proceedings

D Selection of Arbitrators for a Construction Project

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Master file

09/5/2013

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Bhavans Campus, Andheri (W), Mumbai – 58

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END SEM EXAMINATION

M. E. Civil (With Construction Management Subject) Sem - II

SUBJECT – Project Appraisal Planning and Scheduling

MARKS: 100

Q.1.

(a) Discuss the sources of risk faced by Road projects. How to manage such risk. (10)

(b) Discuss the overall change in scenario of the construction industry related to infrastructure development project in last five years. (10)

Q.2.

(a) Write short notes on (i) Resource Leveling (ii) Resource smoothening. (08)

(b) Discuss the steps for calculating the probability of meeting the project in scheduled time. (08)

Q.3.

(a) Discuss work breakdown structure for Highway project (08)

(b) The Predecessor event successor event and three time estimates are given in following table. Prepare a network; calculate the expected time, standard deviation and available slack. Also calculate the (a) probability of completing the project in 51 days, (b) Number of days required for 98 % probability of completing the project. (12)

Predecessor event	Successor event	t_0	t_l	t_p
10	20	5	12	17
10	30	9	11	12
10	60	8	10	13
20	40	9	11	13
20	50	5	8	9
30	60	14	18	22
40	80	14	17	21
50	70	21	25	30
60	70	8	13	17
70	80	6	9	12

Q.4.

(a) Explain the term (i) Direct cost and Indirect cost (ii) Cost slope (08)

(b) Prepare a job layout for construction of RMD plant of size 20 m x 30 m to be constructed in a plot size of 50 m x 60 m. consider the provision of entry and exit and all internal roads, offices, material testing lab, material storage unit etc. (12)

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Q.5.

(a) Discuss Fulkerson Rule with an Example (07)

(b) The following table shows data related to a small construction project. Draw a network and give node numbering using Fulkerson's rule. Identify the critical path and critical activities. Also find the total float, free float and Independent float. (13)

activity	Following activity	t_0	t_l	t_p
H	J,M	5	8	11
J	K	3	4	5
K	L	20	25	30
L	B	11	14	17
M	N,P,T	4	7	10
N	Z	3	5	7
P	R,S	4	6	8
R	Y	3	4	5
S	W	5	7	9
T	W	3	4	5
W	X	2	3	4
X	A	20	23	26
Y	A	15	18	21
Z	A	16	19	21
A	B	9	11	13
B	-	5	6	7

Q.6.

(a) What is Line Balance Technique. Give the suitable example which bring cut the various features of this technique. (10)

(b) Table shows the normal and crash duration and corresponding normal and crash cost. If the overhead cost is 2000 Rs. Per week. Determine optimum duration and minimum cost of the project. Also, draw a neat sketch showing direct cost, indirect cost and total cost of the project. (10)

activity	Normal time (week)	Normal cost	Crash time (week)	Crash cost
1 - 2	6	7,000	3	14,500
1 – 3	8	4,000	5	8,500
2 - 3	4	6,000	1	9,000
2 - 4	5	8,000	3	15,000
3 - 4	5	5,000	3	11,000

Q.7.

(a) Discuss the role of project manager in construction project and its qualities. (10)

(b) What is life cycle costing. Highlight the important features of life cycle costing. (10)

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Sub:- Project Appraisal Planning & Scheduling

Table 7.6
Standard Normal Distribution Function

Z(+)	*Probability* (P_r) (%)	Z (–)	*Probability* (P_r) (%)
0	50.0	0	50.0
+ 0.1	53.98	– 0.1	46.02
+ 0.2	57.93	– 0.2	42.07
+ 0.3	61.79	– 0.3	38.21
+ 0.4	65.54	– 0.4	34.46
+ 0.5	69.15	– 0.5	30.85
+ 0.6	72.57	– 0.6	27.43
+ 0.7	75.80	– 0.7	24.20
+ 0.8	78.81	– 0.8	21.19
+ 0.9	81.59	– 0.9	18.41
+ 1.0	84.13	– 1.0	15.87
+ 1.1	86.43	– 1.1	13.57
+ 1.2	88.49	– 1.2	11.51
+ 1.3	90.32	– 1.3	9.68
+ 1.4	91.92	– 1.4	8.08
+ 1.5	93.32	– 1.5	6.68
+ 1.6	94.52	– 1.6	5.48
+ 1.7	95.54	– 1.7	4.46
+ 1.8	96.41	– 1.8	3.59
+ 1.9	97.13	– 1.9	2.87
+ 2.0	97.72	– 2.0	2.28
+ 2.1	98.21	– 2.1	1.79
+ 2.2	98.61	– 2.2	1.39
+ 2.3	98.93	– 2.3	1.07
+ 2.4	99.18	– 2.4	0.82
+ 2.5	99.38	– 2.5	0.62
+ 2.6	99.53	– 2.6	0.47
+ 2.7	99.65	– 2.7	0.35
+ 2.8	99.74	– 2.8	0.26
+ 2.9	99.81	– 2.9	0.19
+ 3.0	99.87	– 3.0	0.13

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27-6-13

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27/6/13.

RE - EXAMINATION

M. E. Civil (With Construction Management Subject) Sem - II

MASTER.

SUBJECT – Project Appraisal Planning and Scheduling

MARKS: 100

Note: (i) solve any five Questions out of seven
(ii) Assume suitable data if required.

Q.1.

(a) Write short notes on (10)

(i) Difference between CPM and PERT

(ii) Formulation of Total Float and Free Float

(b) Explain the term (i) Direct cost and Indirect cost (ii) Cost slope (10)

Q.2.

(a) Discuss the sources of risk faced by BOT projects. How to manage such risk. (10)

(b) Following table shows the data related to a small construction project. Draw a network and give node numbering using Fulkerson's Rule; identify the critical path and critical activities. Also calculate total float, free float and independent float for the network. (10)

Activity	Predecessor activity	Duration		
		t_0	t_m	t_p
K	-	5	8	11
L	-	3	4	5
M	K	20	25	30
N	K	11	14	17
P	L	4	7	10
R	L	3	5	7
S	M	4	6	8
T	M	3	4	5
V	N,P	5	7	9
X	R	3	4	5
Y	S	2	3	4
Z	T	20	23	26
A	V,X	15	18	21
B	Y,Z	16	19	21
C	A,B	9	11	13

M.E(C) with Const mgt. Term II 22/6/13 Project Appraisal Planning & Scheduling.

Q.3.

(a) Salient features of Indian construction Industry. (07)

(b) Use of Computers in Managing Construction projects. (07)

(c) Discuss various scheduling techniques. (06)

Q. 4.

(a) The construction company has an opportunity to submit a bid for construction of a new apartment building. From specification provided by the developer the event under consideration, corresponding successor event and three time estimates are given in the following table. Prepare a event oriented network diagram. Also determine (10)

(i) Expected time, variance and Std. Deviation

(ii) Critical path, variance and Std. Deviation along the critical path

(iii) Slack available with each event

Predessor event	Successor event	Normal duration (weeks)		
		t_o	t_l	t_p
1	2	1	3	5
	3	3	6	15
2	3	2	5	14
	4	5	7	9
	5	6	9	18
3	8	3	12	15
	4	2	4	12
4	5	1	2	3
	6	4	6	8
5	7	1	2.5	7
6	7	0	0	0
	8	3	4	5
7	9	1	8	9
8	10	0	0	0
	11	1	9	11
9	10	1	3	5
	11	4	9	20
10	11	3	4.5	9

(b) With reference to data given in Q.(4) (a) Calculate the completion time duration for which the company should to provide 95 % probability of completing the project in time. (10)

Q.5.

(a) What is life cycle costing. Highlight the important features of life cycle costing. (10)

(b) What is Line Balance Technique. Give the suitable example which bring cut the various features of this technique. (10)

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Q.6. M.E(C) with contro. mgt. Sem II 25/6/13. Project Appraisal Planning & Scheduling.

(a) What do you mean by generation of project ideas. (10)

(b) A project has a following cash flow stream:

Sr. No.	Year	Cash Flow (Rs.)
1	0	1,000,000
2	1	2,00,000
3	2	2,00,000
4	3	3,00,000
5	4	3,00,000
6	5	3,50,000

The cost of capital 'r' is 10 percent. Calculate the net present value. (10)

Q.7.

(a) Discuss various phases of project management. (10)

(b) Table shows the normal and crash duration and corresponding normal and crash cost. If the overhead cost is 2000 Rs. Per week. Determine optimum duration and minimum cost of the project. Also, draw a neat sketch showing direct cost, indirect cost and total cost of the project. (10)

activity	Normal time (week)	Normal cost	Crash time (week)	Crash cost
1 - 2	6	6800	3	14,000
1 – 3	8	4200	5	9,000
2 - 3	4	5900	1	9,000
2 - 4	5	8100	3	16,000
3 - 4	5	4900	3	12,000

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M.E (sem II), Sub - Mgmt of Construction Resources

03/5/13

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Semester/class ME Semester 2 Total Marks 100

Subject Management of Construction Resources Duration : 4 Hours

Note: attempt any 5 questions. Each question carries 20 marks.

Date : 03/05/13

Q 1 (a) Define Materials Management. Explain the scope of Material Management. (10)

(b) Explain the relevant organisation for effective materials Management. (10)

Q2 (a) Highlight the need and scope for Materials Research. (10)

(b) Explain the purpose and importance of ABC Analysis as a selective materials control policy. (10)

Q 3 (a) Define codification .Explain the advantages and need for codification. (10)

(b)Briefly explain the legal aspects in buying. (10)

Q 4 (a)Explain EOQ as an effective inventory control Model. (10)

(b) Explain the factors affecting owning and operating aspects of Construction equipments. (10)

Q 5 Calculate Owning and operating rate for a 2 ½ CYD Diesel Operated Power Shovel. (20)

(a) Cost of Machine Rs. 20 Lakhs.(b) three shift working with 20 hours per day and 300 working days in a year © life of the machine 15000 hours (d)Major Repairs 100 % of depreciation. (e)Fuel 20. litre of HS Diesel (f)Lubricants 30 % of fuel cost. (g) 3 operators @ rs 350 per month;3 greasers @ 150 per month

Assume suitable data where necessary.

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with contn. mgt.

M.E (sem II), Mgmt of Construction Resources 03/5/13

Q 6. (a) Explain Factories Act and Contract Labour Act. (10)

(b)Explain the salient features of Workmen's Compensation Act. (10)

Q7 Write short notes on (any 4) (20)

(1) Recruitment procedure

(2) Storage and obsolescence cost.

(3) Depreciation.

(4) Kodak and Brisch system of codification.

(5) Techniques for materials research (6)Impact of over stocking and under stocking.

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M.E (sem II) Sub - Project Monitoring & Control

07/5/13

Bharatiya Vidya Bhavan's
Sardar Patel College of Engineering
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Semester/ Class ME Semester 2 Total Marks 100
Subject Project Monitoring and Control Duration 4 hours

Note :Attempt any 5 Questions. Each Question carries 20 Marks

Date: 07/05/13

Q 1 (a) Define Project Control. Explain the strategies for effective Project Control. (10)

(b)Explain the importance of Project Feasibility study. (10)

Q 2(a) Explain the need and importance of effective Progress Reporting System. (10)

(b) Explain the causes and consequences of Cost Over runs. (10)

Q3 (a)Explain the causes and consequences of unsafe practices in construction projects. (10)

(b) Discuss Budget Estimate as a scope document. (10)

Q 4 (a) Explain the important objectives of project control. (10)

(b) Explain various stages in Construction management. (10)

Q5 (a) Explain the various factors affecting labour productivity (10)

(b)Briefly discuss Integrated Approach to manage project Control . (10)

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M.E Sem II, Sub - Project Monitoring & Control, 7/5/13

Q 6 (a)Explain the importance of Quality Control as a step for effective project planning and control. (10)

(b) Explain important quality control Techniques. (10)

Q7 Write short Notes on any 4. (20)

(1)Progress Reporting system.

(2)project status meetings.

(3) S Curve.

(4)Safety training.

(5) Estimating & Cost control.

(6) Budget and cost control.

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End Semester Examination-April-May 2013

Academic Year: 2012-2013

Class/Sem: M.E. Civil Engineering with Construction Management, Sem. II (Full Time)

Subject: Elective-II: Value Engineering

Max. Marks: 100

Duration: 4 hours

- Solve **any five questions** out of seven.
- Answer to all sub questions should be grouped together.
- **Figure** to right indicates full marks.
- Assume suitable data wherever necessary and state it **clearly**.

Q. No.1. (a) Define Value Engineering. Discuss the significance of value engineering in construction engineering projects. (10)

(b) What are the various value engineering job plan phases? Explain in brief importance of each. (10)

Q. No.2. (a) Differentiate between: Value analysis, Value management, Value Control and Value assurance. (10)

(b) Highlight some issues distinguishing conventional management and total quality management. (10)

Q. No.3. (a) What are the various factors contributing to the value in civil engineering projects? (10)

(b) Do you think mere reduction in cost contributes to value in a project? Discuss in brief. Suggest some suitable measures for reduction of unnecessary cost in construction projects. (10)

Q. No.4. (a) What is the importance of value analysis commandments? Discuss TEN commandments in value engineering. (10)

(b) Discuss in brief benefits of value engineering in improvement of organizational performance. (10)

Q. No.5. (a) Briefly discuss the time value. Explain with suitable example present worth analysis. (10)

(b) What is life cycle costing? Why and how to use life cycle costing in construction industry? (10)

Q. No.6. (a) Write short notes on (*any two*): (10)

(i) Benefit-Cost ratio method.

(ii) Rate-of-Return method.

(iii) Sensitivity analysis.

(b) Explain following statement: 'Value Engineering does not necessarily mean a new department but a new organized activity of an organization" also explain any value engineering model. (10)

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M·E Sem II, Civil with Construction Mgmt, sub- Value Engg

Q. No.7. (a) What are the various principles of value engineering? Explain in brief each one of those principles. (10)

(b) How value is determined by two major considerations of performance and cost? Also differentiate between: Use value, Esteem value, Exchange value, Cost value. (10)

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