Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)

Munshi Nagar, Andheri (W) Mumbai – 400058

END SEMESTER EXAMINATIONS

MAY 2019

13/5/19

Program: M.Tech. Civil Engineering (Construction Management) **Duration:** 3 hr

Course Code: PC-MTCM201   **Maximum Points:** 100

Course Name: Project Monitoring and Control   **Semester:** II

Notes:

1. Solve five questions out of seven.
2. Assume suitable additional data if necessary and state them clearly.

Q.No.	Questions	Points	CO	BL	PI
Q.1.a	Productivity of labours working on a residential project is to be measured. Explain any two methods for measuring the productivity	10	1	2	1.4.1
Q.1.b	Describe in brief earned value concept.	10	1	2	1.4.1
Q.2.a	Assume you are a project planner for a highway project. Explain how will you perform the project monitoring.	10	1	2	1.4.1
Q.2.b	Explain the common causes and effect of schedule delays in the project	10	1	2	1.4.1
Q.3.a	Write a note on aspects of quality.	10	2	3	1.4.1
Q.3.b	What are the common types of accident on construction site and their common causes?	10	3	4	1.4.1
Q.4.a	You are a quality control engineer on a project. Explain how will you go about improving the quality process.	10	2	2	1.4.1
Q.4.b	Write a note on occupational health hazard.	10	3	3	1.4.1
Q.5.a	Discuss the various factors affecting the labour productivity	10	1	2	1.4.1
Q.5.b	Explain the various phases of quality during life cycle of the project	10	2	2	1.4.1
Q.6.a	Write a note on (i) Quality Control (ii) Quality Assurance and describe difference between the two.	10	2	3	1.4.1

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MAY 2019

Q.6.a	Write a note on (i) Quality Control (ii) Quality Assurance and describe difference between the two.	10	2	3	1.4.1
Q.6.b	What are the methods and objectives of cost codification	10	2	3	1.4.1
Q.7.a	You are the Program Manager managing the construction of a new airport. Five project managers are directly reporting to you. Each project manager is assigned a part of the total scope of works to be executed independently. The total duration allowed to complete all works is 24 months and the total approved budget is Rs.1,00,00,000. At the end of the first year, you should have completed Rs.60,00,000 worth of work but the project is only 50% complete. Actual costs reported by each project manager for the first year are: Project manager 1: Rs.200,000 Project manager 2: Rs.1,200,000 Project manager 3: Rs.1,800,000 Project manager 4: Rs.500,000 Project manager 5: Rs.900,000 Calculate Term / Value table below	10	1	3	1.4.1
Q.7.b	Explain S-Curve	10	3	2	1.4.1

Term	Value
Budget at Completion	
Planned Value	
Earned Value	
Actual Cost	
Cost Variance	
Schedule Variance	
Cost Performance Index	
Schedule Performance Index	
Estimate At Completion	
Estimate To Complete	
Variance At Completion	

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END SEMESTER EXAMINATIONS
MAY 2019

Program: M.Tech. Civil Engineering (Construction Management) Duration: 3 hr
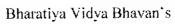
Course Code: PC-MTCM202   **Maximum Points: 100**

Course Name: Project Appraisal, Planning and Scheduling   Semester: II

Notes:

1. Solve five questions out of seven.

2. Assume suitable additional data if necessary and state them clearly.

Q.No.	Questions	Points	CO	BL	PI
Q.1.a	Explain in brief project appraisal process.	10	1	2	1.4.1
Q.1.b	Describe WBS and prepare a WBS for a residential project.	10	4	2	1.4.1
Q.2.a	Write a note on various phases involved in a job plan.	10	2	3	1.4.1
Q.2.b	What is risk analysis? Describe the quantitative risk analysis.	10	1	2	1.4.1
Q.3.a	What is life cycle costing? Describe the important features of life cycle costing.	10	3	2	1.4.1
Q.3.b	What is line of balance technique. Explain with an example showing the features of the technique.	10	3	2	1.4.1
Q.4.a	What are the methods of estimating project cost?	10	2	3	1.4.1
Q.4.b	A commercial building project is to be constructed by a company. Discuss the procedure for preparing the budget for this project.	10	2	3	1.4.1

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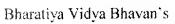
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END SEMESTER EXAMINATIONS

MAY 2019

Q.5.a	Explain the term (i) Direct cost and Indirect Cost (ii) Cost Slope	10	2	2	1.4.1
Q.5.b	Write a note on methods for determining company strength analysis.	10	1	3	1.4.1

Q.6.a — Data on small maintenance project is given as below

Activity	Depends on	Normal Time (Days)	Normal Cost (Rs.)	Crash Time (Days)	Crash Cost (Rs.)
A	-	2	10000	1	15000
B	-	8	15000	5	21000
C	A	4	20000	3	24000
D	B	1	7000	1	7000
E	B	2	8000	1	15000
F	C, D	5	10000	3	16000
G	E	6	12000	2	36000

Find the minimum possible time of the project and cost associated with this.

(Q.6.a: 10 | 2 | 3 | 1.4.1)

Q.6.b — A subcontractor needs to install flooring in two areas:
1. Area 1: This area has old vinyl tile that must be removed and replaced with new vinyl tile.
2. Area 2: This area has a concrete slab that needs to be topped with ceramic tile.
This simple project is broken into the activities shown in the following table, along with the logic, the duration, and the required number of laborers for each activity.

Activity	Activity Description	IPA	Duration (Days)	Labours
A	Purchase & Deliver Materials	-	5	2
B	Remove Old Vinyl Tile	-	7	4
C	Install Ceramic Tile	A	3	3
D	Install New Vinyl Tile	A, B	5	3
E	Clean Up & Inspect	C, D	2	2

(Q.6.b: 10 | 4 | 3 | 1.4.1)

Do the following:

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END SEMESTER EXAMINATIONS

MAY 2019

1. Draw the precedence network and perform the CPM calculations. 2. Allocate the required resources and then level them so that the subcontractor does not use more than six laborers at any time. 3. Find ways to improve the labor usage profile. For the sake of simplicity, assume that any laborer can perform any task.				

A project consists of seven activities with the following time estimates. Find the probability that the project will be completed in 30 weeks or less.

Activity	Predecessor Activity	Optimistic time estimate (to days)	Most likely time estimate (tm days)	Pessimistic time estimate (tp days)
A	-	2	5	8
B	A	2	3	4
C	A	6	8	10
D	A	2	4	6
E	B	2	6	10
F	C	6	7	8
G	D, E, F	6	8	10

Q.7.a   10   4   3   1.4.1

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06
0.0	0.5000	0.5040	0.5080	0.5120	0.5159	0.5199	0.5239
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279

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END SEMESTER EXAMINATIONS

MAY 2019

Q.7.b	EBC company is planning to undertake another project requiring initial investment of Rs. 4,00,000 and is expected to generate Rs. 1,00,000 in year 1, Rs. 2,00,000 in year 2, Rs. 1,80,000 in year 3, Rs. 1,20,000 in year 4 and Rs. 1,00,000 in year 5. Calculate (i) Average rate of return of the project (ii) Net present value if discount rate is 10% (iii) Payback period (iv) Discounted payback period with 5% discount rate.	10	1	3	1.4.1

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End Semester Examination, May- 2019

Q. P. Code:

Max. Marks: 100

Duration: 3 hour

Class: M.Tech (Civil)   Semester: II   Program: M.Tech (Civil) Construction Management

Name of the Course: Program Elective –IV (**Management of Construction Resources**)

Course Code : **PEC-MTCM 211**

Instructions:

1. *Attempt any five questions out of Seven*
2. Draw neat diagrams
3. Assume suitable data if necessary and state them clearly

	Descriptions	Points	CO	BL	PI
Q1	(a) Explain the salient features of mechanization of project site.	10	1	1	1.3.1
	(b) You are the Project Manager of a construction Company. Explain the causes and consequences of Escalation of cost in a project in Navi Mumbai.	10	2	3	2.3.2
Q2	(a) What is the need and importance of materials management for construction projects? Discuss in brief the importance of A-B-C analysis.	10	1	2	2.3.2
	(b) Determine the EOQ for an item from the following: Annual demand= 450000, ordering cost = Rs. 150/-, Unit price of Item = Rs. 50/- . (Note: assume suitable value of carrying cost with justification).	05	03	2	2.1.2
	(c) What are the points to be considered in manpower planning?	05	02	2	2.3.1
Q3	a) Discuss the factors to be considered in the selection of construction equipment.	10	3	2	2.3.2
	b) Explain the salient features of workmen's compensation Act-1923.	10	1	3	1.3.1

Q4	a) Highlight the features of Labour welfare fund.	10	3	3	2.3.2
	b) Write a note on equipment Management	04	1	1	1.3.1
	c) Explain the term collective bargaining	06	2	2	2.3.1
Q5	a) Explain in detail trade union act- 1926.	10	1	2	2.1.2
	b) Explain the sources of short term and long term finance for Civil Engineering Project. Explain the features of each.	10	2	1	1.3.1
Q6	a) As a Personnel Manager how do you propose to improve the performance of your site personnel?	10	1	2	2.3.1
	b) How computers can be useful in providing required information to a Material manager for effective Inventory project control?	10	3	1	1.3.1
Q7	a) Highlight the importance of record keeping in equipment management.	10	3	2	2.3.2
	b) Write short note on (i) Vendor Analysis (ii) Obsolescence and replacement of equipment.	05 05	2 1	1 1	2.3.1 1.4.1

End Semester Exam May-2019

Program: M. Tech TE/MD/PEP/CM

Course Code: THAU4/MDAU4/AUMTPX201/CMAU2

Course Name: Stress management by yoga

Duration: 3 Hour

Maximum Points: 100

Semester: II

Notes:

1. Question number ONE is compulsory and solve any four out of remaining six.

Q.No.	Questions	Points	CO	BL	PI
1.	"Integral yoga for integrated personality" Explain?	20	1	1	1.2.1
2.	How yoga helps in education?	20	2	2	1.2.1
3.	How yoga helps in healthy lifestyle?	20	2	2	1.3.1
4.	Health is the key of blissful living, Explain	20	1	1	1.2.1
5	45 minutes of yoga a day keeps the tension away?	20	1	1	1.3.1
6	How yoga helps the executives in corporate sector?	20	2	2	1.3.1
7	Explain how yoga helps in modern living	20	1	2	1.3.1

End Semester Examinations, May 2019

Program: M.Tech (Construction Management)   **Duration: 3 HOUR**

Course Code: PEC-MTCM 201   **Maximum Points: 100**

Course Name: Program Elective-III   **Semester: II**

(Legal Aspects of Construction)

Notes:

i.   Attempt any five questions out of seven.
ii.   Draw neat sketches/diagrams wherever required
iii. Assume suitable data if necessary and state them clearly
iv. Figure on right indicate maximum marks for the given question, course outcomes attained and Blooms level and performance indicators

Q.No.	Questions	Points	CO	BL	PI
1	Discuss in details the following: (a) A contract for construction of 3 buildings each of 20 floors is awarded to M/s XYZ. The duration of contract is 24 months. The Employer after 8 months informs contractor that scope is curtailed to two buildings and each of building of 15 floors. Discuss in detail the rights of contractor under the contract and losses if any he can claim from the Employer. Write in a letter format.	10	1	L3	5.4.1
	(b) Explain in detail causes and sources of Disputes in construction contract.	10	2	L2	2.3.1
2	(a) Enlist different types of Alternate dispute resolution methods. Explain any two in details.	10	4	L2	2.1.2
	(b) Write about the following doctrines: (i) Waiver and (ii) Election	10	1	L3	1.3.1
3	(a) Explain in brief types of Bank guarantees and law relating to encashment of the same.	10	2	L3	2.1.2
	(b) Explain the salient features of Minimum wages Act.	10	4	L3	3.4.1

4	(a) Read the following case and answer: A enters into contract with **B** for construction of road. The contract time limit is 12 months but is extended to 36 months. A levy liquidated damages after completion of work, while **B** submits his claim for delay damages. Discuss entitlement of both **A** and **B** under the contract and law.	10	3	L3	2.4.2
	(b) Discuss in details FIDIC contract.	10	4	L3	1.3.1
5	(a) Highlight the importance of record keeping in contract administration.	10	1	L3	2.3.2
	(b) Write explanatory notes on the following: (i) Liquidated damages (ii) Difference of Site Investigation and Site Inspection Clause	10	3	L2	1.3.1
6	(a) Explain the Implied and Express terms of contract	06	4	L2	2.3.1
	(b) Discuss the qualities of good Arbitrator	04	2	L3	1.3.2
	(c) What do you understand from word free consent?	05	3	L1	3.4.1
	(d) Explain Item Rate Contract and Cost Plus Contract	05	1	L2	2.3.1
7	(a) Explain in details following terms: (i) Notice (ii) Estoppel	10	3	L3	2.4.2
	(b) Explain in detail the process of arbitration	10	2	L2	1.3.1