


Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2019

Course: Infrastructure Project Management & Control

Semester: VI

Program: BBA (FAS)

Time: 03 Hours

Course code: BBCF 137

Max. Marks: 100

Instructions: Use of calculator is allowed

SECTION A (Fill in the blanks)

		Marks	CO
Q 1	a) PMI stands for _____. b) A project is a series of _____ directed to accomplishment of a desired objective. c) The _____ duration path(s) in a project network is called as critical path(s). d) The _____ full _____ form _____ of _____ WACC _____ is _____. e) The first phase in project life cycle is _____. f) PERT stands for _____. g) _____ is the amount of time by which an activity can be delayed without increasing the project duration. h) In CPM, both activities and their time duration are _____. i) Activities are shown as _____ bars in Gantt Chart. j) The time phased _____ curve is also known as S curve.	2*10 = 20	CO1, CO2, CO3

SECTION B (Write short notes on any four)

Q 2	Project Management	5	CO1
Q 3	Environmental Impacts of Projects	5	CO2
Q 4	Cost Engineering	5	CO3
Q 5	Essential elements of Contract	5	CO4
Q 6	Network	5	CO3

SECTION-C (Answer any two questions)

Q 7	(a) Why project cost is estimated? What are problems associated with over and under estimation of cost? (b) Estimate the installation cost of a manufacturing unit to be constructed now of annual capacity 2000 tones at new location (location index = 225); given that the installation cost of an existing plant at a location (with location index = 175) of annual capacity 1200 tones was Rs. 100 Crores, which was constructed	15	CO3
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in 2010. [Cost index (2019) = 2200, Cost index (2010) = 1200]. Using (a) Investment per Annual ton Capacity Method (b) Six-tenth Factor Method

Q 8 Explain the various features and characteristics of a project. How they are different from operations? Also, give a schematic classification of projects. **15** **CO1**

Q 9 Consider the data of a project shown in the following table.

<i>Activity</i>	<i>Immediate predecessor(s)</i>	<i>Time (weeks)</i>	<i>Cost (Rs.)</i>
A	-	7	1800
B	-	9	3500
C	B	5	2500
D	A	8	4000
E	C	9	3000
F	B	11	3000

If the indirect cost per week is Rs. 350, find the total cost of the project.

15 **CO2**

SECTION-D (Read the following caselet and answer the questions followed)

Q 10 Rachel, the project manager of a large information systems project, arrives at her office early to get caught up with work before her co-workers and project team arrive. However, as she enters the office she meets Neil, one of her fellow project managers, who also wants to get an early start on the day. Neil has just completed a project overseas. They spend 10 minutes socializing and catching up on personal news.

It takes Rachel 10 minutes to get to her office and settle in. She then checks her voice mail and turns on her computer. She was at her client's site the day before until 7:30 P.M. and has not checked her e-mail or voice mail since 3:30 P.M. the previous day. There are 7 phone messages, 16 e-mails, and 4 notes left on her desk. She spends 15 minutes reviewing her schedule and "to do" lists for the day before responding to messages that require immediate attention. Rachel spends the next 25 minutes going over project reports and preparing for the weekly status meeting. Her boss, who just arrived at the office, interrupts her. They spend 20 minutes discussing the project. He shares a rumor that a team member is using stimulants on the job. She tells him that she has not seen anything suspicious but will keep an eye on the team member.

The 9:00 A.M. project status meeting starts 15 minutes late because two of the team members have to finish a job for a client. Several people go to the cafeteria to get coffee and doughnuts while others discuss last night's baseball game. The team members arrive, and the remaining 45 minutes of the progress review meeting surface project issues that have to be addressed and assigned for action. After the meeting Rachel goes down the hallway to meet with Victoria, another IS project manager. They spend 30 minutes reviewing project assignments since the two of them share personnel. Victoria's project is behind schedule and in need of help. They broker a deal that should get Victoria's project back on track. She returns to her office and makes several phone calls and returns several e-mails before walking downstairs to visit with members of her project team. Her intent is to follow up on an issue that had surfaced in the status report meeting.

10*3= 30 **CO1, CO4**

However, her simple, “Hi guys, how things are going?” elicits a stream of disgruntled responses from the “troops.” After listening patiently for over 20 minutes, she realizes that among other things several of the client’s managers are beginning to request features that were not in the original project scope statement. She tells her people that she will get on this right away.

Returning to her office she tries to call her counterpart John at the client firm but is told that he is not expected back from lunch for another hour. At this time, Eddie drops by and says, “How about lunch?” Eddie works in the finance office and they spend the next half hour in the company cafeteria gossiping about internal politics. She is surprised to hear that Jonah Johnson, the director of systems projects, may join another firm. Jonah has always been a powerful ally. She returns to her office, answers a few more -mails, and finally gets through to John. They spend 30 minutes going over the problem. The conversation ends with John promising to do some investigating and to get back to her as soon as possible.

Rachel puts a “Do not disturb” sign on her door, and lies down in her office. She listens to the third and fourth movement of Ravel’s string quartet in F on headphones. Rachel then takes the elevator down to the third floor and talks to the purchasing agent assigned to her project. They spend the next 30 minutes exploring ways of getting necessary equipment to the project site earlier than planned. She finally authorizes express delivery. When she returns to her office, her calendar reminds her that she is scheduled to participate in a conference call at 2:30. It takes 15 minutes for everyone to get online. During this time, Rachel catches up on some e-mail. The next hour is spent exchanging information about the technical requirements associated with a new version of a software package they are using on systems projects like hers. Rachel decides to stretch her legs and goes on a walk down the hallway where she engages in brief conversations with various co-workers. She goes out of her way to thank Chandra for his thoughtful analysis at the status report meeting. She returns to find that John has left a message for her to call him back ASAP. She contacts John, who informs her that, according to his people, her firm’s marketing rep had made certain promises about specific features her system would provide. He doesn’t know how this communication breakdown occurred, but his people are pretty upset over the situation. Rachel thanks John for the information and immediately takes the stairs to where the marketing group resides.

She asks to see Mary, a senior marketing manager. She waits 10 minutes before being invited into her office. After a heated discussion, she leaves 40 minutes later with Mary agreeing to talk to her people about what was promised and what was not promised.

She goes downstairs to her people to give them an update on what is happening. They spend 30 minutes reviewing the impact the client’s requests could have on the project schedule. She also shares with them the schedule changes she and Victoria had agreed to. After she says good night to her team, she heads upstairs to her boss’s office and spends 20 minutes updating him on key events of the day. She returns to her office and spends 30 minutes reviewing e-mails and project documents. She logs on to the MS project schedule of her project and spends the next 30 minutes working with “what-if” scenarios. She reviews tomorrow’s schedule and writes some personal reminders before starting off on her 30-minute commute home.

Questions:

- (a) **List the people/persons Rachel met throughout the day and purpose.**
- (b) **How effectively do you think Rachel spent her day?**
- (c) **What does the case tell you about what it is like to be a project manager?**

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SECTION A (Fill in the blanks)

		Marks	CO
Q 1	k) Triple constraints in project management are: Scope, Time & _____. l) _____ is a methodology developed for evaluating investment projects from the point of view of the society/economy. m) The longest path in the project network is called _____. n) The full form of WBS is _____. o) The most hectic phase in project life cycle is _____. p) TCM stands for _____. q) If IRR is more than cutoff rate/hurdle rate, then project is _____. r) In CPM network diagram, the activities are shown as _____. s) The _____ are shown as horizontal bars in Gantt Chart. t) The two ingredients of project cost estimates are _____ & unit prices.	2*10 = 20	CO1, CO2, CO3

SECTION B (Write short notes on any four)

Q 2	Project Life Cycle	5	CO1
Q 3	Break even Analysis	5	CO2
Q 4	Authority, Responsibility & Accountability	5	CO3
Q 5	Liquidated damages	5	CO4
Q 6	Essential Elements of contract	5	CO3

SECTION-C (Answer any two questions)

Q 7	Consider the following project: <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">ACTIVITY ID</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> <th>J</th> <th>K</th> <th>L</th> <th>M</th> </tr> </thead> <tbody> <tr> <td>PRECEDENCE ACTIVITY</td> <td>-</td> <td>A</td> <td>A</td> <td>B, C</td> <td>D</td> <td>E</td> <td>B</td> <td>D</td> <td>F, G, H</td> <td>H</td> <td>K</td> <td>J, L</td> </tr> <tr> <td>DURATION (WEEKS)</td> <td>4</td> <td>3</td> <td>1</td> <td>2</td> <td>2</td> <td>8</td> <td>1</td> <td>2</td> <td>6</td> <td>4</td> <td>1</td> <td>2</td> </tr> </tbody> </table> <p>(i) Draw the project network diagram. (ii) Identify the critical path and minimum time required to complete the project. (iii) Also, calculate the slack time available with each activity.</p>	ACTIVITY ID	A	B	C	D	E	F	G	H	J	K	L	M	PRECEDENCE ACTIVITY	-	A	A	B, C	D	E	B	D	F, G, H	H	K	J, L	DURATION (WEEKS)	4	3	1	2	2	8	1	2	6	4	1	2	15	CO3
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Q 8	Explain Task Force Organization, Matrix Organization and Totally Projectized Organization, with respect to organizations, which executes project.	15	CO4
Q 9	<p>(c) Why project cost estimation is required and different cost estimates prepared? If the cost is under estimated or overestimated, then how it will affect the project success?</p> <p>(d) Estimate the construction cost of a road to be constructed now of 20 Km. at new location (location index = 275); given that the construction cost of an existing road at a location (with location index = 150) of 12 Km. was Rs. 12 Crores, which was constructed in 2012. [Cost index (2019) = 2400, Cost index (2012) = 1400].</p>	15	CO3

SECTION-D (Read the following caselet and answer the questions followed)

Q 10	<p>The capital investment of Rs. 1,80,00,000 for a project is sourced from following different sources:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Source</th> <th>Amount (Rs.)</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Equity capital</td> <td>60,00,000</td> <td>15%</td> </tr> <tr> <td>Preference Capital</td> <td>30,00,000</td> <td>14%</td> </tr> <tr> <td>Debentures</td> <td>30,00,000</td> <td>12%</td> </tr> </tbody> </table> <p>Remaining capital requirement are met through term loans secured at 8% interest rate. The projected annual cash inflows during the project life:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Cash Inflow</td> <td>25,00,000</td> <td>50,00,000</td> <td>75,00,000</td> <td>50,00,000</td> <td>25,00,000</td> </tr> </tbody> </table> <p>The salvage value at the end of project life is Rs. 25,00,000; which will be available at the end of sixth year only.</p> <p>There is an available opportunity of using intermediate cash inflows into another project which has an IRR of 15%. Calculate the Net Present Value (NPV) and Modified NPV (MNPV) for the project. Hence, comment on the financial feasibility of the project under different conditions.</p>	Source	Amount (Rs.)	Cost	Equity capital	60,00,000	15%	Preference Capital	30,00,000	14%	Debentures	30,00,000	12%	Year	1	2	3	4	5	Cash Inflow	25,00,000	50,00,000	75,00,000	50,00,000	25,00,000	10*3=30	CO2, CO4
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