

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Project management and Contract Administration

Course Code: LSCM 8001

Programme: MBA (Oil and Gas) / MBA (LSCM)

Time: 3 Hours

Semester: II

Max. Marks: 100

SECTION A

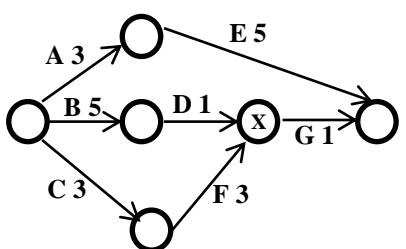
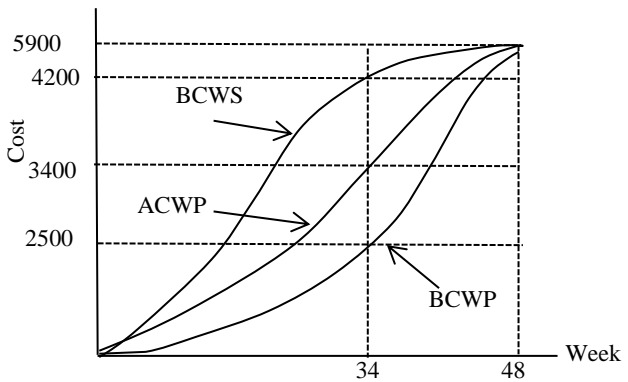
	Multiple choice questions	Marks	CO
	<p>1. Probability of a project being completed within its expected time of completion is</p> <ul style="list-style-type: none">a. 1.0b. 0c. 0.5d. Cannot say <p>2. Crash cost is</p> <ul style="list-style-type: none">a. Equal to normal costb. Greater than normal costc. Less than normal costd. Cannot say <p>3. A risk response aimed at reducing impact of risk is called</p> <ul style="list-style-type: none">a. transferringb. Mitigatingc. Avoidingd. Sharing <p>4. A task has been completed 30% against scheduled 50%. The budgeted cost of task is Rs 5000. Amount actually spent is Rs 2000. CPI is</p> <ul style="list-style-type: none">a. 0.6b. 1.0c. 1.25d. 0.75 <p>5. Estimation of overall project cost and cost of major components by senior managers is an activity involved in</p> <ul style="list-style-type: none">a. Top Down Budgetingb. Bottom up budgetingc. Work element costingd. All of above <p>6. Activities with no time duration are called:</p> <ul style="list-style-type: none">a. Reserve activitiesb. Dummy activitiesc. Zero slack activitiesd. Supervision activities	1X20=20	CO 1

7. The standard deviation of critical activities of a project are 3, 4, 5, 5 and 5 respectively, the standard deviation of project completion will be
- 24
 - 15
 - 10
 - 5.5
8. If NPV of a project A is greater than NPV of project B,
- Project A will have larger payback period
 - Project B will have larger payback period
 - Payback period of project A and B will be equal
 - Cannot say with certainty
9. Baseline S curve indicates relation between
- Time and actual period cost
 - Time and cumulative actual cost
 - Time and budgeted period cost
 - Time and cumulative budgeted cost
10. A project for installation of a new machine has ceased after commissioning of machine and handing over to production function. It is termination by
- Extinction
 - Starvation
 - Addition
 - Integration
11. Shifting the start time of a non-critical activity within its slack
- Increases project completion time
 - Decreases project completion time
 - Does not affect project completion time
 - Increases resource needs of activity
12. Which of the following is NOT true
- Management reserve is applied to whole project
 - Management reserve is applied to specific activities
 - Management reserve is for unanticipated risks
 - Management reserve is independent of budget reserve
13. The data of a project is as below
Work completed 40%; Work scheduled 65%; Baseline cost 2, 00,000;
Cost incurred 1, 10,000
Cost variance will be equal to
- 50,000
 - 30,000
 - 50,000
 - 30,000
14. If Baseline budget of a project is Rs24,000, BCWP is Rs12,000, ACWP is Rs10,000, and CPI is 1.2, then the cost that remains to finish the project is:
- Rs10,000
 - Rs12,000
 - Rs14,000
 - Cannot be determined

- | | | |
|---|--|--|
| <p>15. A project was originally scheduled for 20 months. If CPI is 1.25, then the new schedule date is:</p> <ul style="list-style-type: none">a. 16 monthsb. 20 monthsc. 25 monthsd. Cannot be determined <p>16. In which type of contract arrangement is the contractor at the most risk of absorbing all cost overruns?</p> <ul style="list-style-type: none">a. Cost plus percentage of costb. Fixed pricec. Cost-plus-incentive-feed. All of above <p>17. The budget of a project was over estimated. During its execution, most likely</p> <ul style="list-style-type: none">a. $CPI > 1$b. $SPI > 1$c. $CPI < 1$d. $SPI < 1$ <p>18. Which of the following is NOT used for Probabilistic time estimation?</p> <ul style="list-style-type: none">a. Optimistic estimateb. Most likely estimatec. Budget estimated. Pessimistic estimate <p>19. In a unit rate contract reimbursement arrangement, the price escalation of material will impact</p> <ul style="list-style-type: none">a. Project managerb. Contractorc. Both a and bd. None of a and b <p>20. Budget decrement may be used to mask project termination. This is project termination through</p> <ul style="list-style-type: none">a. Extinctionb. Starvationc. Additiond. Integration | | |
| | | |

SECTION B

Attempt any 4 questions

1	<p>Write short notes on following</p> <ol style="list-style-type: none"> Resource levelling Activity costing 	5	CO2
2	<p>The expected time of a project is 55 weeks. If the standard deviation of the project is 3 days, what is the probability of project completion within 57 weeks?</p>	5	CO3
3	<p>Explain the stages involved in project audit life cycle</p>	5	CO 2
4	<p>Consider the following network</p>  <p>Determine</p> <ul style="list-style-type: none"> • Critical path • Project completion time • If activity E is crashed by one day, what will be its impact? 	5	CO 3
5	<p>Consider the following cost curves</p>  <p>Comment on the project performance at the end of week 34</p>	5	CO 3
6	<p>What do you mean by project breakdown structure? How is it important for project planning?</p>	5	CO 2

SECTION-C

Attempt any 2 questions

1.	<p>Consider following data of a project Determine total slack, Free slack and independent slack for all activities.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="text-align: center;">Activity</th> <th style="text-align: center;">Predecessor</th> <th style="text-align: center;">Activity time</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">A</td><td style="text-align: center;">--</td><td style="text-align: center;">3</td></tr> <tr><td style="text-align: center;">B</td><td style="text-align: center;">--</td><td style="text-align: center;">5</td></tr> <tr><td style="text-align: center;">C</td><td style="text-align: center;">--</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">D</td><td style="text-align: center;">C</td><td style="text-align: center;">3</td></tr> <tr><td style="text-align: center;">E</td><td style="text-align: center;">A, B</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">F</td><td style="text-align: center;">E, D</td><td style="text-align: center;">3</td></tr> <tr><td style="text-align: center;">G</td><td style="text-align: center;">D</td><td style="text-align: center;">2</td></tr> <tr><td style="text-align: center;">H</td><td style="text-align: center;">F, G</td><td style="text-align: center;">2</td></tr> </tbody> </table>	Activity	Predecessor	Activity time	A	--	3	B	--	5	C	--	7	D	C	3	E	A, B	7	F	E, D	3	G	D	2	H	F, G	2	15	CO2									
Activity	Predecessor	Activity time																																					
A	--	3																																					
B	--	5																																					
C	--	7																																					
D	C	3																																					
E	A, B	7																																					
F	E, D	3																																					
G	D	2																																					
H	F, G	2																																					
2.	<p>Consider the following project.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="text-align: center;">Activity</th> <th style="text-align: center;">Predecessor</th> <th style="text-align: center;">Normal time</th> <th style="text-align: center;">Crash time</th> <th style="text-align: center;">Normal cost</th> <th style="text-align: center;">Crash cost</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">A</td><td style="text-align: center;">-</td><td style="text-align: center;">8</td><td style="text-align: center;">6</td><td style="text-align: center;">2000</td><td style="text-align: center;">3000</td></tr> <tr><td style="text-align: center;">B</td><td style="text-align: center;">-</td><td style="text-align: center;">4</td><td style="text-align: center;">2</td><td style="text-align: center;">1500</td><td style="text-align: center;">3000</td></tr> <tr><td style="text-align: center;">C</td><td style="text-align: center;">-</td><td style="text-align: center;">12</td><td style="text-align: center;">7</td><td style="text-align: center;">1500</td><td style="text-align: center;">4000</td></tr> <tr><td style="text-align: center;">D</td><td style="text-align: center;">A</td><td style="text-align: center;">6</td><td style="text-align: center;">5</td><td style="text-align: center;">2500</td><td style="text-align: center;">3250</td></tr> <tr><td style="text-align: center;">E</td><td style="text-align: center;">B</td><td style="text-align: center;">7</td><td style="text-align: center;">4</td><td style="text-align: center;">1800</td><td style="text-align: center;">3600</td></tr> </tbody> </table> <p>Determine the normal time and cost of completion of the project? What is the minimum cost to crash the project by 3 weeks?</p>	Activity	Predecessor	Normal time	Crash time	Normal cost	Crash cost	A	-	8	6	2000	3000	B	-	4	2	1500	3000	C	-	12	7	1500	4000	D	A	6	5	2500	3250	E	B	7	4	1800	3600	15	CO3
Activity	Predecessor	Normal time	Crash time	Normal cost	Crash cost																																		
A	-	8	6	2000	3000																																		
B	-	4	2	1500	3000																																		
C	-	12	7	1500	4000																																		
D	A	6	5	2500	3250																																		
E	B	7	4	1800	3600																																		
	<table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="text-align: center;">Activity</th> <th style="text-align: center;">% Scheduled Completion</th> <th style="text-align: center;">Budgeted cost</th> <th style="text-align: center;">% Actual Completion</th> <th style="text-align: center;">Actual cost incurred</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">A</td><td style="text-align: center;">100</td><td style="text-align: center;">2000</td><td style="text-align: center;">100</td><td style="text-align: center;">2200</td></tr> <tr><td style="text-align: center;">B</td><td style="text-align: center;">100</td><td style="text-align: center;">3500</td><td style="text-align: center;">90</td><td style="text-align: center;">4000</td></tr> <tr><td style="text-align: center;">C</td><td style="text-align: center;">100</td><td style="text-align: center;">1500</td><td style="text-align: center;">90</td><td style="text-align: center;">1500</td></tr> <tr><td style="text-align: center;">D</td><td style="text-align: center;">60</td><td style="text-align: center;">3000</td><td style="text-align: center;">35</td><td style="text-align: center;">1500</td></tr> <tr><td style="text-align: center;">E</td><td style="text-align: center;">40</td><td style="text-align: center;">1000</td><td style="text-align: center;">0</td><td style="text-align: center;">500</td></tr> </tbody> </table> <p>For the above data collected during a mile stone of the project, calculate the CPI, SPI and critical ratio of the project</p>	Activity	% Scheduled Completion	Budgeted cost	% Actual Completion	Actual cost incurred	A	100	2000	100	2200	B	100	3500	90	4000	C	100	1500	90	1500	D	60	3000	35	1500	E	40	1000	0	500	15	CO 4						
Activity	% Scheduled Completion	Budgeted cost	% Actual Completion	Actual cost incurred																																			
A	100	2000	100	2200																																			
B	100	3500	90	4000																																			
C	100	1500	90	1500																																			
D	60	3000	35	1500																																			
E	40	1000	0	500																																			
	<p>What do you understand by a contract? Discuss various forms of reimbursement arrangements in contracts.</p>	15	CO 2																																				

SECTION D

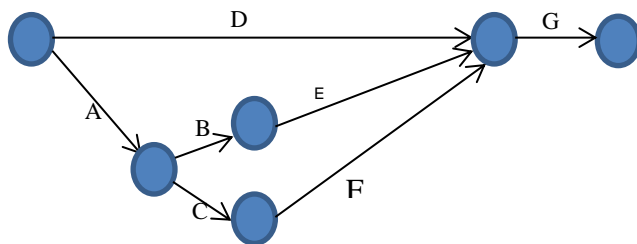
30 Marks

The managing director of Alpha solutions, Mr. Mehra, was pacing in his cabin with a grim face and Anil was sitting uncomfortably in a chair. Anuj was standing near the door in deep thoughts.

“Why you did not anticipate it before accepting the contract?” Mehra blurted out.

It was only a month back when an order was received from a reputed new client for a software development. It was an opportunity of long term association. Anil had prepared the list of activities and the Gantt chart for the project. The Gantt chart indicated that the project will take 15 weeks, as specifically desired by customer.

Activity	Time (In weeks)	Predecessors
A	2	-
B	4	A
C	3	A
D	3	-
E	6	B
F	8	C
G	2	D, E, F



“The only resource we require is only one specialist for this type of software and that should pose no problem.” Anil had said.

When the project was being planned, Anil came through the problem. All the activities required the same specialist and he could work on only two activities at a time. There are periods when 3 activities are working together and that means some activities will have to wait. The project will take 17 weeks in place of 15 and the customer will be lost forever.

Anil had gone to Mehra with this new discovery to find the possibility of requesting customer for extending time limit.

“Can we hire additional specialist?” Mehra asked. In a dim voice Anil said “I am afraid, we cannot find one at this moment.”

“I really don’t know how to face the customer” Mehra said with a tense face.

At this point Anuj said “Sir I think we can deliver project within schedule even with one specialist”

“HOW” Mehra and Anil both said simultaneously turning their faces towards the door where Anuj was standing.

Anuj took a piece of paper from the table and explained his plan. Anil looked unbelievably at the plan and Mehra suddenly relaxed. “Anuj you really deserve a pat on shoulder” Mehra said smilingly patting his shoulder.

QUESTIONS

1. Prepare a resource load table of the project on the basis of given information
2. Can the project really be done in 15 days with one specialist?
3. Prepare plan for allocation of specialist to different activities to complete project in 15 days and plot your plan on a Gantt chart. (Assume that activities can be split)

30

CO 5

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Project management and Contract Administration

Course Code: LSCM 8001

Programme: MBA (Oil and Gas) / MBA (LSCM)

Time: 3 Hours

Semester: II

Max. Marks: 100

SECTION A

	Multiple choice questions	Marks	CO
	<p>21. The financial agreement between a contractor and project manager states "Actual cost + Rs 25,000/- subject to a maximum total of Rs 2, 50,000/-". This arrangement is called</p> <ol style="list-style-type: none">Lump sum contractsCost plus fixed feeCost plus with guaranteed maximumItem rate contracts <p>22. A project which has been indefinitely delayed is called</p> <ol style="list-style-type: none">Failed ProjectPrematurePerpetualFailed project <p>23. A risk response aimed at reducing impact of risk is called</p> <ol style="list-style-type: none">transferringMitigatingAvoidingSharing <p>24. A task has been completed 30% against scheduled 50%. The budgeted cost of task is Rs 5000. Amount actually spent is Rs 2000. CPI is</p> <ol style="list-style-type: none">0.61.01.250.75 <p>25. Estimation of overall project cost and cost of major components by senior managers is an activity involved in</p> <ol style="list-style-type: none">Top Down BudgetingBottom up budgetingWork element costingAll of above <p>26. Activities with no time duration are called:</p> <ol style="list-style-type: none">Reserve activitiesDummy activitiesZero slack activitiesSupervision activities	1X20=20	CO 1

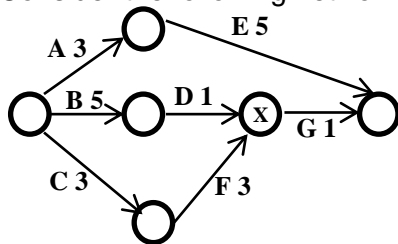
27. The standard deviation of critical activities of a project are 3, 4, 5, 5 and 5 respectively, the standard deviation of project completion will be
- 24
 - 15
 - 10
 - 5.5

28. If NPV of a project A is greater than NPV of project B,
- Project A will have larger payback period
 - Project B will have larger payback period
 - Payback period of project A and B will be equal
 - Cannot say with certainty

29. Baseline S curve indicates relation between
- Time and actual period cost
 - Time and cumulative actual cost
 - Time and budgeted period cost
 - Time and cumulative budgeted cost

30. A project for installation of a new machine has ceased after commissioning of machine and handing over to production function. It is termination by
- Extinction
 - Starvation
 - Addition
 - Integration

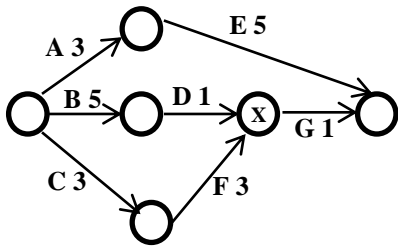
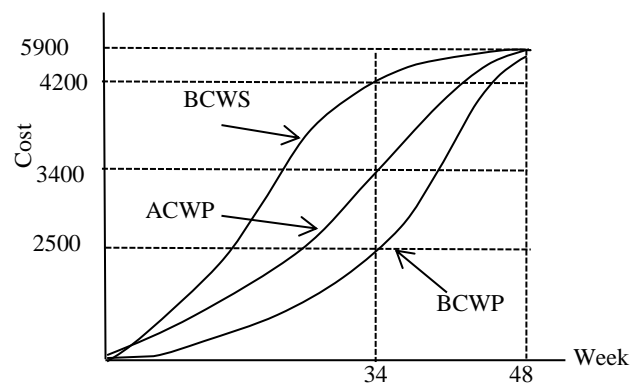
Consider the following network and answer questions from 11 to 15



31. Slack of activity E is
- 0
 - 1
 - 2
 - 3
32. If Activity E is crashed by 1 day,
- The project completion schedule will remain same
 - All activities will become critical
 - There will be 2 critical paths now
 - None of above
33. If activity is delayed by 2 days,
- The project completion schedule will remain same
 - The project completion schedule will increase by 1 day
 - The project completion schedule will increase by 2 days
 - There will be 2 critical paths now

34. Slack of activity B is
- 0
 - 1
 - 2
 - 3
35. Event X is a
- Simple event
 - Burst event
 - Merge event
 - Hybrid event
36. Which of the following is NOT true
- Management reserve is applied to whole project
 - Management reserve is applied to specific activities
 - Management reserve is for unanticipated risks
 - Management reserve is independent of budget reserve
37. The data of a project is as below
Work completed 40%; Work scheduled 65%; Baseline cost 2,00,000;
Cost incurred 1,10,000
Cost variance will be equal to
- 50,000
 - 30,000
 - 50,000
 - 30,000
38. If Baseline budget of a project is Rs24,000, BCWP is Rs12,000, ACWP is Rs10,000, and CPI is 1.2, then the cost that remains to finish the project is:
- Rs10,000
 - Rs12,000
 - Rs14,000
 - Cannot be determined
39. In which type of contract arrangement is the contractor at the most risk of absorbing all cost overruns?
- Cost plus percentage of cost
 - Fixed price
 - Cost-plus-incentive-fee
 - All of above
40. The budget of a project was over estimated. During its execution, most likely
- $CPI > 1$
 - $SPI > 1$
 - $CPI < 1$
 - $SPI < 1$

SECTION B
Attempt any 4 questions

1	<p>Write short notes on following</p> <p style="padding-left: 40px;">c. Resource Loading</p> <p style="padding-left: 40px;">d. Tendering procedure</p>	5	CO2
2	<p>The expected time of a project is 55 weeks. If the standard deviation of the project is 3 days, what is the probability of project completion within 57 weeks?</p>	5	CO3
3	<p>Explain the stages involved in project life cycle.</p>	5	CO 2
4	<p>Consider the following network</p>  <p>Determine</p> <ul style="list-style-type: none"> • Critical path • Total slack, Free slack and independent slack of activity D • If activity A is crashed by one day, what will be its impact? 	5	CO 3
5	<p>Consider the following cost curves</p>  <p>Comment on the project performance at the end of week 34</p>	5	CO 3
6	<p>What is a project? How is a project different from mass production system?</p> <p>What are the success criteria of projects?</p>	5	CO 2

SECTION-C

Attempt any 2 questions

1. Consider following data of a project
- Develop a network diagram for the project
 - Develop Gantt chart for the project
 - Develop Baseline budget curve (The activity cost is uniformly spread along activity life)

Activity	Predecessor	Activity time	Cost
A	--	3	3000
B	--	5	1500
C	--	7	2800
D	C	3	1200
E	A, B	7	2800
F	E, D	3	600
G	D	2	600
H	F, G	2	900

15

CO2

2. Consider the following project.

Activity	Predecessor	Normal time	Crash time	Normal cost	Crash cost
A	-	8	6	2000	3000
B	-	4	2	1500	3000
C	-	12	7	1500	4000
D	A	6	5	2500	3250
E	B	7	4	1800	3600

Determine the normal time and cost of completion of the project?
What is the maximum number of weeks by which project can be crashed?

15

CO3

Activity	% Scheduled Completion	Budgeted cost	% Actual Completion	Actual cost incurred
A	100	2000	100	2200
B	100	3500	90	4000
C	100	1500	90	1500
D	60	3000	35	1500
E	40	1000	0	500

For the above data collected during a mile stone of the project, calculate the CPI, SPI and critical ratio of the project

15

CO 4

What is the importance of audit of a project? Explain the project audit life cycle.

15

CO 2

SECTION D
30 Marks

Anil, chief project manager, was sitting in his office at 10 in the morning, glancing through some reports relating to a software development project, when someone knocked at his door. Anil looked up to see a person holding some files. "I am Ranjan, operations manager at Mohit industries." Anil waved him to come in and offered a seat and then looked at him, waiting to hear purpose of his visit.

"I am here to investigate into our project and would like to talk to your people and look at some records. It may also be useful if I am able to see the progress of software physically."

"I don't have any prior information about your visit. You should have at least sent a mail so I could plan accordingly" Anil said with an irritated expression. "Now at this moment I am really busy with some important work and cannot afford to leave it in between"

"I am afraid, you will have to cooperate. Here is permission from Mr. Mehra for the same." Ranjan said with a straight face.

Anil did not hide his mixed expressions of anger, helplessness and frustration.

He called MD, Mr. Mehra "Sir, here I have gentleman asking for an audit. He has your authority letter for the same. Shall I stop my work on resource planning for earlier project? You wanted that report today. Don't blame me for delay later. And otherwise also I don't understand such visits without advance communication"

"Anil, I also got the message in the morning only and I did convey what you are saying, to management of Mohit Industries. Cooperate this time, henceforth it won't happen unscheduled. Regarding that report I will wait for another one day." Mr. Mehra said.

"As you say sir, but I will have to involve others from my team also for this audit."

Anil picked up the intercom and dialed the number of Anuj. "Anuj come here to my office and ask Deeksha also to join." Deeksha is the senior programmer in the company and has been with company for last 6 years.

While Anuj and Deeksha reached his cabin, Anil had ordered coffee and snacks for all.

30

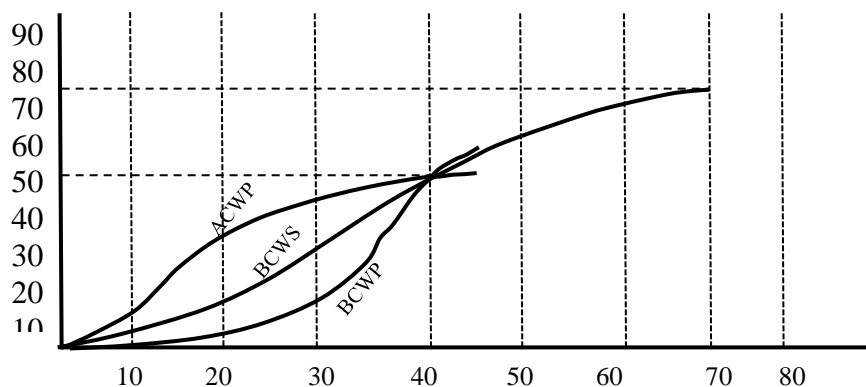
CO 5

“Yes Ranjan, what would you like to investigate?” Anil asked stressing on the word “investigate” and gesturing all to have coffee.

“I would like to see the progress of our project CRP 1022. My objective is to be satisfied with the quality of the product. Can you bring some records of the progress of that project?”

I have all records here on my computer. We monitor all our projects on a continual basis and we have highest level of commitment for quality of our work.” Anil said.

“Please look at this” Anil said indicating his LED screen. This is the status of your order CRP 1022. The delivery time agreed was 75 days. Can you see that we have planned for 70 days? And if you look at the progress curves, you will notice that we may even achieve it in less than 70 days.” Anil said in a proud tone.



Ranjan was looking closely at the graph while listening to Anil.

“When did you place orders for the required hardware for our project?”

“I think 15 days back and a few days back we received hardware also”

Anil said.

“I would like to see the purchase orders for hardware and the incoming inspection report of hardware too.”

Anil looked at Deeksha, who sheepishly said that hardware was not inspected or tested as we wanted to complete this project on time.

Ranjan was looking at purchase order for hardware and said “This is not the hardware with right specification and brand as we discussed. It seems to be of lower specifications than decided in our contract”

Questions

1. Discuss the approach of Ranjan as an auditor
2. What made Ranjan ask about hardware purchase