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Department of Computer Engineering

(Affiliated to University of Mumbai)

Seat No.

7281020

Subject Name	Project Management		Date of Exam	10 /06/2021
Subject Code	52756.		Semester	VIII
Invigilator Signature	Total No. of Pages	09	Student Signature	<u>Aminawati</u>

Q2: Solve any four out of six.

A. What are the knowledge areas & process groups in project Management as per PMI.

→ Knowledge Areas:

- Integration: It's about bringing together everything that you know about that you are managing your project holistically & not in individual process chunks.
- Scope: It's all about making sure that everyone is clear about what the project is for & what it includes.
- Time: It relates how you manage the time, people are spending on their project tasks.
- Cost: It's all about handling the project finances.
- Quality: It's about quality control and management activities on project so that the results meet customer expectations.
- Procurement: It's about what you need to buy, to ongoing through the tendering & purchasing process.
- Human Resources: It's about managing the people on the team including giving them extra skills to do their jobs.
- Communication: The project Managers monitors all the incoming & outgoing communications.
- Risk management: It involves identifying risks & understanding how to assess risks on your project

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<u>Stakeholder Management:</u> It's about identifying stakeholders & understanding their needs.			
<u>Process groups:</u>			
<ul style="list-style-type: none"> • <u>Initiating:</u> Involves processes, skills and activities to effectively define the beginning of a project. • <u>Planning:</u> To define scope of project, set strategic plan in place to maximise workflow & begin to assemble priority lists. • <u>Executing:</u> Managing teams effectively while orchestrating & managing expectations & reaching benchmarks goals. • <u>Monitoring & controlling:</u> Processes required to track, review & regulate the progress of the performance of the project. • <u>Closing:</u> To bring the project to a successful close. 			
<p>E. Explain importance of ethics in a project</p> <p>→ In project management, ethics play a significant role in day-to-day interactions and behaviour.</p> <p>- Ethics enables stakeholders, employees, vendors & taxpayers to sleep at night knowing Project Management Professionals (PMP's) are held to strict & high standards when they make decisions on the behalf to execute on projects.</p> <p>- Ethics play an important role in these primary ways.</p> <ul style="list-style-type: none"> - It elevates the profession & raises future standards. - It increases the faith & trusts others better. - It imprints on individual moral mindsets & behaviour. - It improves business relationships at all levels. - It promotes fair decision making. - It reduces project risks. - It provides a greater chance of success. 			

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- It reduces anxiety & stress & ultimately improves in projects.

D. Determining the net present value for a project that costs ₹ 2,40,000/- would yield after tax cash flows as follows. Assume that the cost of capital is 10%.

Year	Cash Flow in Rs.	Comment on feasibility of project based on NPV.
1	₹ 25,000	
2	₹ 18,000	
3	₹ 80,000	
4	₹ 1,00,000.	

→

$$PV_1 = \frac{25000}{(1+0.1)^1} = 22,727.27$$

$$PV_2 = \frac{18000}{(1+0.1)^2} = 61983.47$$

$$PV_3 = \frac{80000}{(1+0.1)^3} = 60105.18$$

$$PV_4 = \frac{100000}{(1+0.1)^4} = 68301.34$$

Year	Cash flow [Rs]	Present Value
1	₹ 25,000	22,727.27
2	₹ 18,000	61983.47
3	₹ 80,000	60105.18
4	₹ 100,000	68301.34

$$\text{Total Present Value} = ₹ 13,118$$

NPV = Total Present Value - Actual worth of the project.

$$= ₹ 13,118 - ₹ 2,40,000 = - ₹ 26,882$$

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$$\therefore NPV = -26,882$$

The project is not feasible as the net present value is negative. This will result in the loss if project is selected.

F. what are the different ways of closing the project.

→ The fundamental ways of closing or terminating the projects are as follows.

(i) Termination by extinction:

- The project may be stopped because it has either been successful or unsuccessful

e.g.: completion of a software & its launch, completion of a new residential tower.

- unsuccessful projects are the ones that have been stopped due various reasons like efficient behaviour, cost, performance etc.

e.g.: - A building which is not structurally stable & has not been certified.

(ii) Termination by addition:

- This is where a project is made more or less an external, but a full-fledged addition to the parent organization.

- e.g. A new department in college would be built as an extension of the existing facilities to operate at a substantial independence from the other segment of the institution.

(iii) Termination by Integration:

- This is the most common way of dealing with successful projects and the most complex ones.

- The old of the project becomes a part & parcel of the operating system.

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of parent or client and embeds itself in the day to day operations. This requires thorough integration with primary operations at various levels distributing the Ops among the existing functions.

(iv) Termination by Starvation:

- As the term suggests the financial, human & material resources needed to execute the project are curtailed or withheld.
- The project is effectively dead and merely on minimal life-support system for ~~legal~~ legal reasons. Project Termination by murder is an interesting variation where the incomplete project is terminated without warning.

Q3 Solve any Two out of Three

Aa. A consulting project has an actual cost of ₹5,000, scheduled cost ₹35,000 & value of completed work is ₹40,000. Find the schedule & cost variance. Also find SPI & CPI.

→ Given:

$$\text{Actual cost (AC)} = ₹5,000. \text{ Rs}$$

$$\text{Planned value (PV)} = ₹35,000 \text{ Rs.}$$

$$\text{Earned value (EV)} = ₹40,000.$$

To find:

= (i) Scheduled variance (SV)

(ii) Cost variance (CV)

(iii) Schedule performance Index (SPI)

(iv) Cost Performance Index (CPI).

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(i)	$SV = EV - PV$ $= 40000 - 35000$ <u>$SV = 5000$</u>		
(ii)	$CV = EV - AC$ $= 40000 - 45000$ <u>$CV = -5000$</u>		
(iii)	$SPI = EV/PV = 40000 / 35000 = \underline{\underline{1.142}}$		
(iv)	$CPI = EV/AC = 40000 / 45000 = \underline{\underline{0.888}}$		
b.	What is a Contract? Explain different types of contracts. → Contract is an agreement b/w two parties in general. In Project Management - it's a formal agreement b/w a buyer & seller. The agreement is made to procure goods & services required for the agreed project. - Most of the contractual relationships are broadly classified as follows. 1. <u>Fixed-Price-Contract</u> : - On this type contract involves fixed price for a defined product or service or the result to be supplied or provide. - Such types of contracts are recommended when the scope of service is completely defined. - Divided into 3 subtypes: a) <u>Fixed Price</u> : - The prices of goods & services are set & never subjected to change unless the		

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Scope is changed & agreed mutually. This is <u>Fixed price Incentive fee (FPIF)</u>			
<ul style="list-style-type: none"> In this the price ceiling is set & the seller needs to perform & fulfill the contract requirement within that price. All costs above are responsibility of seller. 			
(C). <u>Fixed price with Economic Price Adjustments (FPEPA)</u> .			
<ul style="list-style-type: none"> This is suitable for cross country contracts. This gives an option to make adjustments in the predefined final payment as agreed to in the contract due to changed conditions such as inflation rates. 			
<h2>2) Cost- Reimbursable Contracts.</h2>			
<ul style="list-style-type: none"> This type of contract involves cost reimbursement for cost incurred during completion of the job. It is along with a predefined fee setti representing seller profit. 			
<ul style="list-style-type: none"> Recommended if scope of work is expected to change during contract period. 			
<ul style="list-style-type: none"> It includes 			
<p>(a). <u>Cost plus fixed-fee (CPFF)</u> : In this seller gets all allowable and agreed cost, and a fixed fee payment which is calculated as percentage of initial estimated cost.</p>			
<p>(b) <u>Cost plus Incentive fee (CPIF)</u></p>			
<ul style="list-style-type: none"> Seller gets all cost incurred while performing work agreed in contract. 			
<ul style="list-style-type: none"> Based on final cost, both buyer & seller share expense. 			
<ul style="list-style-type: none"> It is based on a pre-negotiated cost sharing formula. 			
<p>(c). <u>Cost Plus Award-fee (CPAF)</u>.</p>			
<ul style="list-style-type: none"> In this type the seller gets his /her legitimate reimbursements. 			
<ul style="list-style-type: none"> A majority of fee is received upon meeting some performance pre-mentioned in contract. 			

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- Solely depending on seller's performance.

3. Time & material contracts (T&M)

- hybrid contract combining features of fixed as well as cost reimbursable contracts.

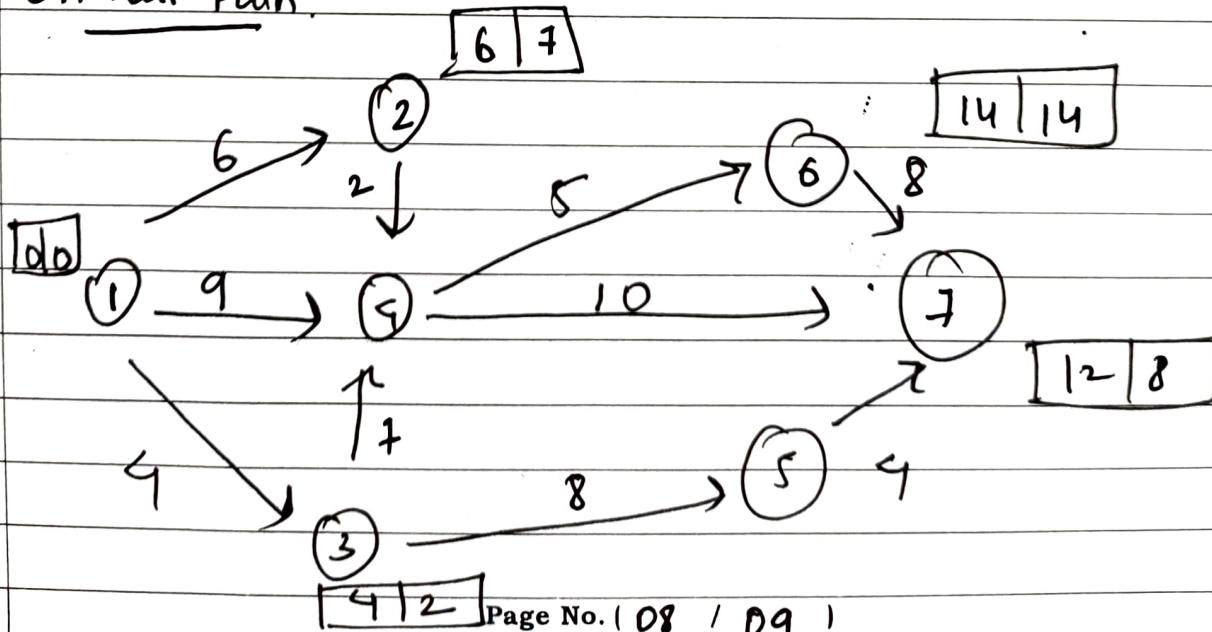
- often used when contractual requirements is not known.

- suitable for acquisition / hiring of experts, project staff required for a particular period.

($t_0 + t_m + t_p/6$)

B. Activity	Activity Time	t_0	t_m	t_p	t_e	σ^2
SDP: 1-2	A	4	6	8	6	0.444
= 1-3	B	2	3	10	4	1.777
1-4	C	6	8	16	9	2.777
2-4	D	1	2	3	2	0.111
3-4	E	6	7	8	7	0.111
3-5	F	6	7	19	8	1.777
4-6	G	3	5	7	5	0.444
4-7	H	4	11	12	10	1.777
5-7	I	2	4	6	4	0.444
6-7	J	2	9	16	8	1.777

Critical Path:



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(b) From the diagram the critical path is
1-4, 4-6, 6-7 with the duration of 22 days.

(c) The probability of completing project in 19 days is given by,

$$Z_0 = \left(\frac{T_s - T_c}{\sqrt{\sum \sigma^2 \text{ in critical path}}} \right)$$

$$= \left[\frac{19 - 22}{\sqrt{2.777 + 0.444 + 1.777}} \right]$$

$$= \left[\frac{-3}{\sqrt{5}} \right] = \underline{-1.3416 \text{ days}}$$

$$\begin{aligned} \text{We know } P(Z \leq z_0) &= 0.5 - 4(1.3416) \\ &= 0.5 - 0.4099 \\ &= 0.0901 = 9.01\% \end{aligned}$$

Thus, the probability of completing the R&D project in 19 days is 9.01%.

∴ Probability of completing the project in 19 days is less than 20%, we find the probability of completing it in 24 days.

$$z_0 = \frac{T_s - T_c}{\sqrt{\sum \sigma^2 \text{ in critical path}}}$$

$$= \frac{24 - 22}{\sqrt{5}} = \frac{2}{\sqrt{5}} = \underline{0.8944}$$

$$\begin{aligned} P(Z \leq z_0) &= 0.5 + 4(0.8944) = 0.5 + (0.3133) \\ &= 0.5 + 0.3133 \\ &= 0.8133 \\ &= 81.33\% \end{aligned}$$