VIT
Vellore Institute of Technology

School of Information Technology and Engineering

Fall Semester 2022-2023 - Fresher (CAT- I)

Programme Name & Branch: MCA **Course Name & code:** ITA5001-Software Project Management

Class Number (s): VL2022230105088 **Slot:**C1 **Faculty Name (s):** Dr. Shynu P. G.

Exam Duration: 90 Min. **Maximum Marks:** 50

1. A public library is considering the implementation of a mobile application to help administer book loans at libraries. Identify the stakeholders in such a project. What might be the objectives of such a project and how might the success of the project be measured in practical terms? Explain the possible benefits that might be generated by this application. (10)
2. List the products created by the Step Wise planning process for the development of application in Q.1. Also, give the diagrammatic representation of the Step Wise Planning. (10)
3. A software package is to be designed and built to assist in software cost estimation, it will input certain parameters and produce initial cost estimates to be used at bidding time.
   (a)It has been suggested that a software prototype would be of value in these circumstances. Explain why this might be. (5)
   (b)Discuss how such prototyping could be controlled to ensure that it is conducted in an orderly and effective way and within a specified time span. (5)
4. Consider the project's cash flows given in the following table. (a) Find Net Profit (b) Calculate the payback period (c) Return on investment (ROI) (d) Net present value (interest rate=8.5%)
   (e) Compare the NPVs; Which project is the most beneficial to pursue? (10)

Year	Project-1	Project-2	Project-3
0	-1,00,000	-100,000	-120,000
1	-20,000	30,000	50,000
2	200,000	40,000	30,000
3	100,000	30,000	40,000
4	200,000	170,000	30,000
5	300,000	30,000	55,000

5. Construct a CPM network and find the critical path for project specification, whose estimated activity durations and precedence requirements are given below. Identify the critical activities.

Activity	Activity name	Duration in weeks	Precedence
A	Collect information needs	4	-
B	Analyse office operations	4	-
C	Define subsystems	3	A
D	Develop database	4	A
E	Identify constraints	2	B
F	Develop programs	12	C, D, E
G	Write manual	10	B
H	Integration testing	3	F
I	Implementation	5	F, G, H

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(Deemed to be University under section 3 of UGC Act, 1956)

School of Information Technology and Engineering

Fall Semester 2022-2023 - Fresher/ Ph.D course Work

Continuous Assessment Test – II

Programme Name & Branch: MCA **Course: ITA5001-Software Project Management**

Class Number (s): **VL2022230105088 Slot:C1** **Faculty Name (s): Dr. Shynu P. G.**

Exam Duration: 90 Min. **(Marks: 5 x 10)** **Maximum Marks: 50**

General instruction(s): Z Table is Allowed

1. Draw the Activity Diagram (AoN) for the below project details.

Activity	Depends on	Optimistic Time	Most Likely Time	Pessimistic Time
M	-	7	9	10
N	M	4	5	7
O	N	13	15	16
P	-	2	3	5
Q	M	6	8	9
R	Q	18	19	22
S	P	3	6	7
T	O,R,S	10	11	12

2. Refer to Q. No-1 and do the following.
(a)Calculate the earliest and latest start and end times and float associated with each activity. (b) Identify the critical path. (c) Demonstrate free float and inferring float by taking an example from the above.
3. (a) Draw up a PERT activity diagram for the project activities given in Q No-1. (b) Calculate the expected duration and standard deviation for each activity (c) Do the forward pass in the network (d) Illustrate how PERT helps here to find the probability of missing the target dates.
4. Discuss various categories of risks. Give examples. Explain the risk management process in software projects.
5. Draw up a resource table showing the number of each type of resource needed on each day of the project, assuming there is only one system designer. Also, suggest the best way of revising the plan to remove resource clashes.

Activity	Depends on	Duration	Resource Type
A	-	2	System Analyst
B	A	10	System Designer
C	A	2	System Designer
D	C	2	Software Coder
E	C	3	Software Coder
F	C	2	Software Coder
G	B,D,E,F	4	System Analyst

PTO (Z Table Provided)

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Final Assessment Test– Jan/Feb 2023

Course: **ITA5001 - Software Project Management**

Class NBR(s):**5088**

Slot: **C1**

Time: **Three Hours**

Max. Marks: **100**

KEEPING MOBILE PHONE/SMART WATCH, EVEN IN 'OFF' POSITION, IS TREATED AS EXAM MALPRACTICE

General Instructions :

Z tables allowed

Answer ALL Questions

(10 X 10 = 100 Marks)

1. Consider developing an online learning platform for a university.

   a) Identify the stakeholders in such a system. What might be the objectives of such a project, and how might the project's success be measured in practical terms? **[5]**

   b) Explain the possible benefits and drawbacks generated by this system. Draw a Product breakdown structure for identifying the project activities. **[5]**

2. Construct the CPM network (AoN) and find the critical path for the project specification, whose estimated activity durations and precedence requirements are given below. What is the significance of the critical path in project management? Explain briefly.

Activity	Activity name	Duration in weeks	Precedence
1	Collect information needs	5	-
2	Analyze office operations	3	-
3	Define subsystems	4	1
4	Develop database	4	1
5	Identify constraints	3	2
6	Develop programs	12	3, 4, 5
7	Write manual	10	2
8	Integration testing	3	6
9	Implementation	5	7, 8

3. Consider the project's cash flows given in the following table.

Year	Project-1	Project-2	Project-3
0	-150,000	-130,000	-120,000
1	-20,000	30,000	50,000
2	200,000	170,000	40,000
3	10,000	10,000	30,000
4	20,000	70,000	40,000
5	100,000	30,000	55,000

a) Find Net Profit [2]

b) Calculate the payback period [2]

c) Return on investment (ROI) [2]

d) Net present value (interest rate=7.5%) [2]

e) Compare the NPVs; which project is the most beneficial to pursue. [2]

4. The scope and deliverables of software projects are changed frequently. This has severe implications for the projects. As a project manager, how can you minimize their impact on the project? Explain with examples.

5. Draw the Gantt chart for the project based on the details in Q. No-2. Draw a slip chart that emphasizes the relative position of each activity. Also, explain how it is useful for monitoring the project's progress.

6. a) Draw up a PERT activity diagram. Calculate the expected duration and standard deviation for each activity. [5]

b) Do the forward pass in the network. Illustrate how PERT helps find the probability of missing the target dates. [5]

Activity	Depends on	Optimistic Time	Most Likely Time	Pessimistic Time
M	-	8	9	10
N	M	4	5	6
O	N	14	15	16
P	-	2	4	5
Q	M	6	8	9
R	Q	18	20	22
S	P	3	6	7
T	O,R,S	10	12	15

7. a) As an HR manager in the software industry, discuss different approaches you may adopt to recruit your organization's employees. [5]

b) As a project leader in a software company, how can you encourage effective group working and decision-making by giving purposeful Leadership? Demonstrate your points based on organizational behavior theory with some relevant examples. [5]

8. You want to develop software for managing your online business. Suggest different types of contracts for the same and justify which type you prefer more.

9. Give the diagrammatic representation of the StepWise planning. Explain the product flow diagram (PFD) for the development of the system given in Q.1.

10. Draw up a resource table showing the number of each type of resource needed on each day of the project, assuming there is only one system designer. Also, suggest the best way of revising the plan to remove resource clashes.

Activity	Depends on	Duration	Resource Type
A	-	2	System Analyst
B		9	System Designer
C	A	2	System Designer
D	B	2	Software Coder
E	C	3	Software Coder
F	C	2	Software Coder
G	B,D,E,F	4	System Analyst

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Z Table

|z|	x.x0	x.x1	x.x2	x.x3	x.x4	x.x5	x.x6	x.x7	x.x8	x.x9
3	0.00135									
2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.002	0.0019
2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.003	0.0029	0.0028	0.0027	0.0026
2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.004	0.0039	0.0038	0.0037	0.0036
2.5	0.0062	0.006	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
2.4	0.0082	0.008	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.011
2.1	0.0179	0.0174	0.017	0.0166	0.0162	0.0158	0.0154	0.015	0.0146	0.0143
2	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.025	0.0244	0.0239	0.0233
1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
1.5	0.0668	0.0655	0.0643	0.063	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.102	0.1003	0.0985
1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.123	0.121	0.119	0.117
1	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.166	0.1635	0.1611
0.8	0.2119	0.209	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
0.7	0.242	0.2389	0.2358	0.2327	0.2297	0.2266	0.2236	0.2206	0.2177	0.2148
0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
0.5	0.3085	0.305	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.281	0.2776
0.4	0.3446	0.3409	0.3372	0.3336	0.33	0.3264	0.3228	0.3192	0.3156	0.3121
0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.352	0.3483
0.2	0.4207	0.4168	0.4129	0.409	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
0	0.5	0.496	0.492	0.488	0.484	0.4801	0.4761	0.4721	0.4681	0.4641