UNIVERSITY OF RUHUNA

FACULTY OF MANAGEMENT AND FINANCE

No. of Pages : 04
No. of Questions: 04
Total Marks :70

BACHELOR OF BUSINESS ADMINISTRATION HONOURS DEGREE

3000 LEVEL FIRST SEMESTER END EXAMINATION – AUG/SEP 2023

Three Hours

ENT 31233 – Project Management Academic Year 2022/2023

Instructions: Answer all questions.

Question 01.

i. Describe the concept of "uniqueness" as a characteristic of a project. Provide an example to illustrate your explanation.

(02 marks)

ii. Explain the concept of a work breakdown structure (WBS) in project management.

(02 marks)

iii. One critical aspect of project management is understanding and managing constraints. Discuss how three primary types of project constraints influence the project outcomes.

(04 marks)

iv. Discuss the significance of understanding the technical and socio-cultural dimensions of the project management process.

(04 marks)

(Total 12 marks)

Question 02.

i. Define a Project Network Diagram and explain its significance in project management.

(04 marks)

ii. Why would you use "dummy activity" in project network diagrams?

(02 marks)

iii. The following information has been gathered for the "Infrastructure Development Project".

Activity	Predecessor(s)	Optimistic time (a)	Most likely time (m)	Pessimistic time (b)
A	-	7	8.5	10
B	A	12	14	19
C	A	9	11.5	17
D	B , C	5	6	7
E	A	3	4	5
F	E	4	5	6
G	D	12	16.5	18
H	F, G	2	3	4

a. Calculate the weighted average activity time and the standard deviation of each activity.

(08 marks)

b. Create a project network diagram using the Activity-On-Arrow (AOA) method.

(05 marks)

c. Identify the critical path.

(01 mark)

d. Develop a Gantt chart for the above project.

(04 marks)

e. What is the expected duration of the project?

(01 mark)

f. Calculate the early start time (ES), early finish time (EF), late start time (LS), late finish time (LF), and total slack (TS) of non-critical activities.

(05 marks)

g. Find the probability of completing the project in 50 days.

(04 marks)

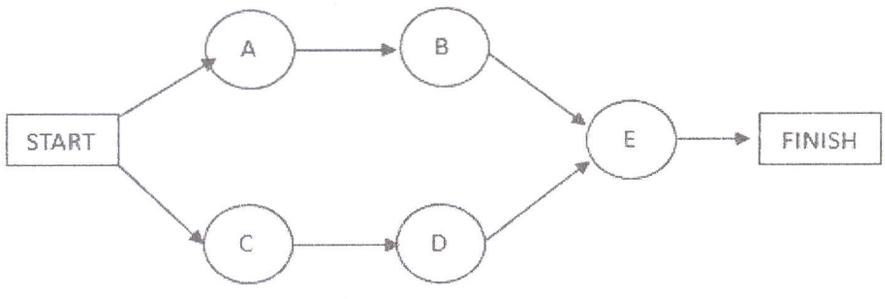
(Total 34 marks)

Question 03.

i. Assume you are managing a construction project with a tight deadline. The project involves several tasks that require different types of skilled labor. Explain how you would approach resource allocation to ensure that the project is completed on time and within budget.

(04 marks)

ii. A project comprises several activities, each contributing to the overall completion of the building. The project manager has developed a project network diagram that outlines the sequence of activities. Additionally, he has compiled a detailed table that specifies the normal and crash durations, along with the corresponding costs for each activity.



Activity	Time (days)		Cost (Rs. '000)	
	Normal	Crash	Normal	Crash
A	7	4	500	800
B	3	2	200	350
C	6	4	500	900
D	3	1	200	500
E	2	1	300	550

Using the project network and the additional information above,

a. Calculate the cost slope (cost per unit time) for each activity.

(02 marks)

b. What is the meaning of the cost slope in the context of project management?

(02 marks)

c. Which activities should be crashed to meet a project deadline of eight (08) days with a minimum cost?

(04 marks)

(Total 12 marks)

Question 04.

Imagine that you are an entrepreneur who recently launched a startup company. As part of your role in managing the business, you've implemented a project aimed at improving employee productivity and satisfaction. The project involved various HR initiatives, such as training programs, performance evaluations, and a flexible work schedule. The performance of a project was evaluated five (05) days after its start. The relevant information concerning the project is shown in the following table:

Activity	Duration (days)	PV Rs. ('000)	Baseline PV Rs. ('000)							% completed after 5 days	Actual Cost Rs. ('000)
			1	2	3	4	5	6	7		
1	2	80	40	40						100	85
2	4	50			10	20	10	10		90	45
3	3	30			10	15	5			100	30
4	3	40			15	15	10			85	35
5	2	40						20	20	0	0

*PV = planned value

Compute the following:

i. Cost Variance (CV)
ii. Schedule Variance (SV)
iii. Cost Performance Index (CPI)
iv. Schedule Performance Index (SPI)
v. Estimated cost at completion (EAC)
vi. To Complete Performance Index (TCPI)

(02 x 06 = 12 marks)

(Total 12 marks)

Cumulative Normal Probability Table (Z-Values)

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.50000	0.50399	0.50798	0.51197	0.51595	0.51994	0.52392	0.52790	0.53188	0.53586
0.1	0.53983	0.54380	0.54776	0.55172	0.55567	0.55962	0.56356	0.56749	0.57142	0.57535
0.2	0.57926	0.58317	0.58706	0.59095	0.59483	0.59871	0.60257	0.60642	0.61026	0.61409
0.3	0.61791	0.62172	0.62552	0.62930	0.63307	0.63683	0.64058	0.64431	0.64803	0.65173
0.4	0.65542	0.65910	0.66276	0.66640	0.67003	0.67364	0.67724	0.68082	0.68439	0.68793
0.5	0.69146	0.69497	0.69847	0.70194	0.70540	0.70884	0.71226	0.71566	0.71904	0.72240
0.6	0.72575	0.72907	0.73237	0.73565	0.73891	0.74215	0.74537	0.74857	0.75175	0.75490
0.7	0.75804	0.76115	0.76424	0.76730	0.77035	0.77337	0.77637	0.77935	0.78230	0.78524
0.8	0.78814	0.79103	0.79389	0.79673	0.79955	0.80234	0.80511	0.80785	0.81057	0.81327
0.9	0.81594	0.81859	0.82121	0.82381	0.82639	0.82894	0.83147	0.83398	0.83646	0.83891
1.0	0.84134	0.84375	0.84614	0.84849	0.85083	0.85314	0.85543	0.85769	0.85993	0.86214
1.1	0.86433	0.86650	0.86864	0.87076	0.87286	0.87493	0.87698	0.87900	0.88100	0.88298
1.2	0.88493	0.88686	0.88877	0.89065	0.89251	0.89435	0.89617	0.89796	0.89973	0.90147
1.3	0.90320	0.90490	0.90658	0.90824	0.90988	0.91149	0.91308	0.91466	0.91621	0.91774
1.4	0.91924	0.92073	0.92220	0.92364	0.92507	0.92647	0.92785	0.92922	0.93056	0.93189
1.5	0.93319	0.93448	0.93574	0.93699	0.93822	0.93943	0.94062	0.94179	0.94295	0.94408
1.6	0.94520	0.94630	0.94738	0.94845	0.94950	0.95053	0.95154	0.95254	0.95352	0.95449
1.7	0.95543	0.95637	0.95728	0.95818	0.95907	0.95994	0.96080	0.96164	0.96246	0.96327
1.8	0.96407	0.96485	0.96562	0.96638	0.96712	0.96784	0.96856	0.96926	0.96995	0.97062
1.9	0.97128	0.97193	0.97257	0.97320	0.97381	0.97441	0.97500	0.97558	0.97615	0.97670
2.0	0.97725	0.97778	0.97831	0.97882	0.97932	0.97982	0.98030	0.98077	0.98124	0.98169
2.1	0.98214	0.98257	0.98300	0.98341	0.98382	0.98422	0.98461	0.98500	0.98537	0.98574
2.2	0.98610	0.98645	0.98679	0.98713	0.98745	0.98778	0.98809	0.98840	0.98870	0.98899
2.3	0.98928	0.98956	0.98983	0.99010	0.99036	0.99061	0.99086	0.99111	0.99134	0.99158
2.4	0.99180	0.99202	0.99224	0.99245	0.99266	0.99286	0.99305	0.99324	0.99343	0.99361
2.5	0.99379	0.99396	0.99413	0.99430	0.99446	0.99461	0.99477	0.99492	0.99506	0.99520
2.6	0.99534	0.99547	0.99560	0.99573	0.99585	0.99598	0.99609	0.99621	0.99632	0.99643
2.7	0.99653	0.99664	0.99674	0.99683	0.99693	0.99702	0.99711	0.99720	0.99728	0.99736
2.8	0.99744	0.99752	0.99760	0.99767	0.99774	0.99781	0.99788	0.99795	0.99801	0.99807
2.9	0.99813	0.99819	0.99825	0.99831	0.99836	0.99841	0.99846	0.99851	0.99856	0.99861
3.0	0.99865	0.99869	0.99874	0.99878	0.99882	0.99886	0.99889	0.99893	0.99896	0.99900
3.1	0.99903	0.99906	0.99910	0.99913	0.99916	0.99918	0.99921	0.99924	0.99926	0.99929
3.2	0.99931	0.99934	0.99936	0.99938	0.99940	0.99942	0.99944	0.99946	0.99948	0.99950
3.3	0.99952	0.99953	0.99955	0.99957	0.99958	0.99960	0.99961	0.99962	0.99964	0.99965
3.4	0.99966	0.99968	0.99969	0.99970	0.99971	0.99972	0.99973	0.99974	0.99975	0.99976
3.5	0.99977	0.99978	0.99978	0.99979	0.99980	0.99981	0.99981	0.99982	0.99983	0.99983
3.6	0.99984	0.99985	0.99985	0.99986	0.99986	0.99987	0.99987	0.99988	0.99988	0.99989
3.7	0.99989	0.99990	0.99990	0.99990	0.99991	0.99991	0.99992	0.99992	0.99992	0.99992
3.8	0.99993	0.99993	0.99993	0.99994	0.99994	0.99994	0.99994	0.99995	0.99995	0.99995
3.9	0.99995	0.99995	0.99996	0.99996	0.99996	0.99996	0.99996	0.99996	0.99997	0.99997
4.0	0.99997	0.99997	0.99997	0.99997	0.99997	0.99997	0.99998	0.99998	0.99998	0.99998