Sri Lanka Institute of Information Technology

B.Sc. Honours Degree in Information Technology

Specialized in Computer Systems & Network Engineering

Final Examination
Year 2, Semester 2 (2022)

IE2090 – Professional Engineering Practice and Industrial Management

Duration: 2 Hours

November 2022

Instructions to Candidates:

- ◆ This paper is preceded by a 10-minutes reading period. The supervisor will indicate when answering may commence
- ◆ This paper has 04 questions.
- ◆ Answer all questions in the booklet given.
- ◆ The total mark for the paper is 100.
- ◆ This paper contains 5 pages, including the cover page.
- ◆ Electronic devices capable of storing and retrieving text are not allowed
- ◆ Calculators are allowed

Question 1 (25 marks)

a. List four (4) management functions which lead to achieve organizational goals

(4 marks)

b. Briefly describe the importance of customers and innovations for a manager (6 marks)

c. Skill migration drastically increased in Sri Lanka due to the economic crisis. This generated high traffic in the passport office.

Recommend the steps you can take to increase the efficiency of the employees and the organization to reduce the long queues in front of the passport office and inside the office premises. (7 marks)

d. Mr. Brown is the top manager of Fashion World Clothing PVT Ltd. He studies and analyses monthly business journals and IEEE research papers to explore new trends in his field and competitors. Meanwhile he conducts a meeting with all of his staff members to share the information he collected to improve the current business process. At the same time, he is considering using social media to develop a marketing strategy that can expand his client base and increase sales.

According to the given scenario assess the management qualities of Mr. Brown by emphasizing the managerial roles he plays. (8 marks)

Question 2 (25 marks)

a. List four (4) responsibilities of a business analyst (4 marks)

b. Briefly evaluate the importance of accurate requirement gathering for a software or hardware project (5 marks)

c. "SPAR is a latest supermarket chain in Sri Lanka. SPAR international granted a license to CBL to operate the SPAR brand in a joint venture with SPAR international. Due to the product quality and reasonable prices, popularity of SPAR Sri Lanka rapidly grown". By considering the current status, perform a brief SWOT analysis for SPAR Sri Lanka. (6 marks)

d. Develop a Work Breakdown Structure (WBS) by highlight the functionalities of the IE2090 – PEPIM module project. Your answer should satisfy following conditions. You may use top-down or bottom-up approach to satisfy the below conditions

- Total project should be completed by 4 months
- Allocated budget for the project is Rs. 50,000
- Mention responsible person for each node along with budget estimation and time estimation (Consider the capabilities of your group members during the responsibility assignment)

(Use the below format to create a node in WBS. Copy the template to your answer script)

Activity Name:
Time: Cost:
Responsible:

Question 3 (25 marks)

a. Identify four (4) stages of team building (4 marks)

b. Briefly explain the benefits of being a team player in a project (6 marks)

c. Cash flow of project A and B are given in the below table 3.1. As the Project manager of Star software solutions (PVT) LTD you have been asked to select a project for the implementation. If the annual discount rate is 8% find the best project using Net Present Value (NPV) method (8 marks)

Table 3.1: Cash flow (in USD)

Project	Year 0	Year 1	Year 2	Year 3
A	-13 000	8 850	10 000	12 500
B	-24 000	17 500	20 000	21 000
C	-33 000	25 000	24 500	29 500

d. Interpret how long it will take to recover the investment for each project given above and recommend the best project using payback analysis (7 marks)

Question 4 (25 marks)

a. List three (3) main reasons for scheduling conflicts (3 marks)

b. Create a network diagram for the project "Fuel App" with the details given in the table 4.1 (Time represented in days) (8 marks)

Table 4.1: Activity relationships and durations

Activity	Predecessor	Optimistic	Most Likely	Pessimistic
A	None	6	24	12
B	A	7	4	13
C	B	4	2	12
D	B	14	12	4
E	B	1	1	1
F	C,D	2	4	6
G	D,E	2	3	4
H	F,G	10	6	14
I	G	8	4	6
J	H,I	5	1	3

c. Using the backward/forward pass, identify the project duration and critical path for the created network diagram (4 marks)

d. IT manager of TechVision.lk has collected the following data relating to a project after 6 months from the commencement. The total duration of the project is 9 months and value of work completed is 80% of the total budgeted cost for 6 months.

Table 4.2: Activity completion

Month	Planned expenditure (Dollar)	Actual expenditure (Dollar)
1	25000	30000
2	15000	20000
3	35000	38500
4	20000	25250
5	47000	49778
6	190000	192000
7	25000	Not started
8	40500	Not started
9	60000	Not started

Compute the followings based on the values given in the above table 4.2.

(Hint : Calculate the answers for two decimal places)

i.	Cost variance (CV)	(3 marks)
ii.	Schedule variance (SV)	(3 marks)
iii.	Cost performance index (CPI)	(1 mark)
iv.	Schedule performance index (SPI)	(1 mark)
v.	Estimate at Completion (EAC)	(1 mark)
vi.	Estimated time to complete	(1 mark)

END OF THE PAPER