



UNIVERSITY OF RUHUNA
FACULTY OF MANAGEMENT AND FINANCE

No. of Pages : 04
No. of Questions: 05
Total Marks : 70

ACC 31133 – Project Management

Academic Year 2025/2026

BACHELOR OF BUSINESS ADMINISTRATION HONOURS DEGREE

3000 LEVEL FIRST SEMESTER END EXAMINATION – AUG/SEP 2025

Three Hours

Instructions

- Answer all questions.
- Calculators are allowed.
- Make logical assumptions where necessary.

1. AquaPure Water Solutions (Pvt) Ltd operates in the bottled drinking water industry, distributing its products to several districts in Sri Lanka. The company's employees perform day-to-day functions, including filtering, bottling, packaging, and distributing water to retailers. Recently, AquaPure undertook a new assignment: constructing a village-level clean water facility in a rural area where access to safe drinking water is scarce. This effort is a unique endeavour with a clear target (supplying safe water to 500 households), a limited timeframe (six months), and a pre-determined financial plan.

To ensure success, the management team must carefully manage the scope of work, the deadline for completion, and the allocated monetary resources. Weaknesses in managing these aspects may result in unfinished tasks, overspending, or failure to deliver water that meets community expectations. Before committing large funds, AquaPure is conducting a study to examine whether the facility is technically achievable, financially sound, and socially acceptable. This study will guide the company's decision on whether to proceed. In addition, the company is carrying out a customer and market assessment to understand how many families are likely to use the new service, their ability to afford it, existing alternatives, and the level of acceptance compared to traditional water sources. The outcome will indicate whether the initiative can sustain itself in the long term.

You are required to answer the following questions based on the above case study.

- i. Compare a project and routing works. (3 Marks)
- ii. Briefly discuss the importance of effective management of a project's scope, time, and cost. (4 Marks)
- iii. Explain the role of a feasibility study in project management. (3 Marks)
- iv. Briefly discuss the factors to be considered when carrying out a market and demand analysis for this proposed project. (4 Marks)

(Total Marks 14)

2. A university has decided to digitise its library system by setting up new software, integrating digital resources, and training staff. The activities and their estimated completion times are given below:

| Activity | Predecessor(s) | Duration (Weeks) | Description |
|----------|----------------|------------------|---------------------------------------|
| A | None | 2 | Assess the current library system |
| B | A | 3 | Procure necessary hardware |
| C | A | 4 | Select digital library software |
| D | B | 2 | Install and test hardware |
| E | C | 3 | Configure and test software |
| F | D, E | 2 | Integrate hardware & software |
| G | E | 2 | Staff training on software |
| H | F, G | 4 | Pilot implementation |
| I | H | 3 | Final roll-out of the digital library |

You are required to:

- i. Draw a network diagram for this project using the Activity on Node (AON) method. (3 Marks)
 - ii. Calculate the earliest finish, latest start, latest finish, total slack, free slack, and independent slack for each activity (show all the calculations clearly). (4 Marks)
 - iii. Identify and indicate the critical path of this project. (2 Marks)
 - iv. Explain how the project manager could use free slack to manage resources more efficiently in this project. (2 Marks)
 - v. Suppose a delay in hardware procurement (Activity B) creates a negative slack of 2 weeks. Define negative slack and propose three corrective actions that could be applied in this specific project to mitigate the delay. (3 Marks)
- (Total Marks: 14)**
3. i. Explain why an accurate time and cost estimate is essential in project management. How can poor estimates affect stakeholders and jeopardise the overall success of a project? (3 Marks)
 - ii. List out the challenges of assuming 'normal conditions' in time and cost estimation, and suggest ways project managers can manage these challenges. (4 Marks)
 - iii. The following information is provided regarding a library computer lab upgrade project. Assume only four Technicians (T) are available at any time for this project.

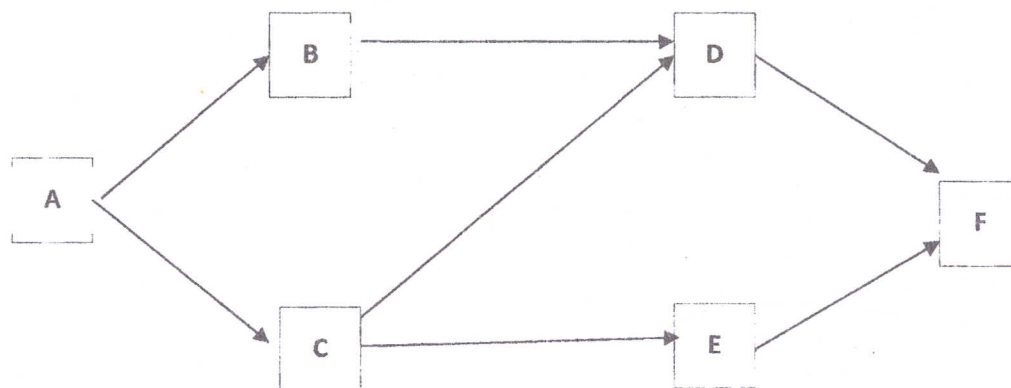
| Activities | Description | Dur. (days) | Predecessor | Resource |
|------------|-----------------------|-------------|-------------|----------|
| A | Remove old equipment | 2 | — | 2 T |
| B | Install cabling | 4 | A | 3 T |
| C | Set up furniture | 3 | A | 2 T |
| D | Install computers | 5 | B, C | 3 T |
| E | Network configuration | 3 | D | 2 T |
| F | Testing & handover | 2 | E | 1 T |

You are required to,

- a) Draw a resource loading chart for the project. (2 Marks)
 - b) Using a heuristic approach, reschedule the loading chart to meet the resource constraint. (3 Marks)
 - c) Comment on the effect of resource limits on project duration and flexibility. (2 Marks)
- (Total Marks 14)**

4. i. Differentiate between mitigating and transferring risk strategies using examples. (3 Marks)
- ii. Briefly discuss the management reserve and budget reserve in project risk management using suitable examples. (4 Marks)
- iii. The following information pertains to a construction project.

| Activity | Normal time (days) | Crash Time (days) | Normal Cost (Rs.) | Crash Cost (Rs.) |
|----------|--------------------|-------------------|-------------------|------------------|
| A | 6 | 4 | 280 | 420 |
| B | 6 | 5 | 400 | 520 |
| C | 5 | 4 | 200 | 300 |
| D | 7 | 5 | 350 | 500 |
| E | 6 | 5 | 250 | 370 |
| F | 8 | 7 | 500 | 680 |



Additional information:

- Assume that the above project is associated with an indirect cost of Rs 700 and can save Rs. 100 per day crashed.

You are required to:

- a) Compute the optimum project duration and the corresponding minimum total project cost. (4 Marks)
 - b) Briefly discuss one practical limitation of project crashing that may apply in this case. (3 Marks)
- (Total Marks 14)**

5. i. Explain the significance of establishing a project control process using suitable examples.

(3 Marks)

ii. Discuss the role of control charts in monitoring the time performance of a project, including their advantages in communicating project progress.

(4 Marks)

iii. Explain the importance of project closure as a critical phase in the project life cycle.

(3 Marks)

iv. Discuss the term "Premature Project" with a real-world example.

(4 Marks)

(Total Marks 14)
