

**UNIVERSITY OF RUHUNA**  
**BACHELOR OF COMPUTER SCIENCE (GENERAL DEGREE)**  
**LEVEL II (SEMESTER II)**  
**EXAMINATION – DECEMBER 2016**

Course Unit: CSC2252 – Project Management

Duration: 2 hours

*Answer All Questions*

1. Read the following case study and answer the given questions.

SoftSolutions is a company which develops commercial software and recently they accepted a contract to design, develop and implement a database management system. Simon Perera acts as the project manager for the software project. The client is a medical research organization which has a small IT section. Nihal de Silva, who is the CEO of this organization is the sponsor of the project and he wants the completed software product within one year.

During initiation phase of the project, Simon plans to develop the project charter. Then he needs sponsor to review the charter and get sponsor's approval and signoff of the charter. Simon plans to start the planning process by preparing a preliminary scope statement. Next, he wishes to carryout scope verification and determine the project team. Further, he needs to develop the project plan and get the approval of the project plan.

During the execution phase, he plans to verify and validate user requirements and design the system. Then he needs to procure the required hardware and software. Then he would carry out the development and testing of the software. Finally his plan is to install live system and start user training. At the end, he would close out the project by auditing procurements, documenting lessons learnt, updating files and archiving documents.

- a. Write two main differences between a project and an operation. [10 marks]
- b. Write three stakeholders mentioned in the given case study. [15 marks]
- c. Explain the main processes carried out in project scope management. [25 marks]
- d. Briefly explain the scope verification process. [10 marks]

- e.
- i. Explain three main approaches that can be used for creating a work breakdown structure (WBS). [15 marks]
  - ii. Considering the activities described in the case study, draw a work breakdown structure (WBS). Your WBS needs to contain at least two breakdown levels, at least four work groups and more than 16 activities. [25 marks]

2.

- a. Explain the main processes of project procurement management. [20 marks]
- b.
  - i. List three main types of cost reimbursable contracts. [15 marks]
  - ii. From the answers given in 2 (b) (i), write down the contract type which has the lowest risk for the buyer and highest risk for the seller. [10 marks]
- c. Saminda who is a project manager of the SoftE Company has to listen to the conflicting opinions of two team members. One team member explains her side of the conflict. The other team member responds by saying, "I know you'll never really listen to my side, so let's just go with her opinion and get back to work." Explain the conflict handling type used in this example. [15 marks]
- d. By mentioning three facts, discuss the differences between rough order of magnitude (ROM) and budgetary estimate. [15 marks]
- e. Answer the following questions considering the budget details of two year IT project given below. [25 marks]

Planned value: Rs. 330 000  
Earned value: Rs. 300 000  
Actual cost: Rs. 350 000  
Overall project budget: Rs. 10 20 000

- i. Calculate the cost variance, cost performance index (CPI) and schedule performance index (SPI) for the project.
- ii. Using your answers given for 2 (e) (i), explain whether the project is ahead of the schedule or behind the schedule.

- iii. Calculate the estimate at completion (EAC) for the project. Explain whether the project performing better or worse than planned.
- iv. How much more money do you wish to spend on the project?

3.

- a. Discuss how benchmarking technique can be used in project quality assurance process. [10 marks]
- b. Explain the cost of quality in project quality management. [10 marks]
- c. Write four benefits of resource loading in human resource management. [20 marks]
- d. Soft solutions is a software development company and the following table shows details of one of their software projects. Company receives a Rs.100 000 bonus if they complete the project within 15 days else a penalty cost of Rs.10 000 is charged for each day extra. [60 marks]

Table 1: Details of the software project.

Activity	Predecessor	Time (days)
A : Requirement collection	None	3
B : Requirement Analysis	A	4
C : System Design	B	4
D : Programming	B	1
E : Program Testing	B	1
F : Hardware installation	B	3
G : Integration	C, D, E, F	2
H: Training / support	G,F	2
I :Handover and go live	H	1

- i. Draw an activity on node (AON) diagram for the activities in Table 1.
- ii. Clearly indicate the followings in the diagram which is derived in 3 (d) (i).
  - the earliest start time
  - the latest start time
  - the earliest finish time
  - the latest finish time
  - the float/slack.
- iii. Calculate the expected bonus or the penalty value for the project.

- iv. Assume that the duration of task B is reduced by 2 days. How would this change affect the critical path and the project duration?

4.

- a. Describe the difference between contingency plan and fallback plan using examples. [20 marks]
- b. List the main risk response strategies for negative risks. [20 marks]
- c. Dave is the project manager of a software project of an online ticket booking system. Dave observes that the client has a little experience with online software, so the requirements are not clearly communicated. Thus, requirement satisfaction is a major risk in the project. Therefore, Dave decides to create a prototype first to ensure that it is accepted by the client. Explain the type of risk response strategy used by Dave. [15 marks]
- d. Write down three primary methods that can be used for determining the projected financial value of projects. [15 marks]
- e. Following table 2 shows the expected benefits and costs of two projects over their duration of 3 years. [30 marks]

Table 2: Details of the benefits and costs of the project.

		Project 1	Project 2
Benefits (Rs)	Year 1	0	5 000
	Year 2	270 000	213 000
	Year 3	450 000	110 000
Costs (Rs)	Year 1	10 000	9 000
	Year 2	200 000	80 000
	Year 3	300 000	30 000

- i. Calculate the cash flows of each project at the end of each year.
- ii. Using the cash flows calculated in 4 (e) (i), calculate the net present value (NPV) of each project assuming a discount rate of 10%.
- iii. Write which project is beneficial to invest on.