

University of Ruhuna - Faculty of Technology

Bachelor of Information & Communication Technology
Level 2 (Semester 1) Examination - October 2018

Department: Information & Communication Technology

Time: 2 ½ hours

Course Unit: ICT2133 (System Analysis and Design and Usability)

Answer all five (5) questions

1)

a)

- i) What is mean by Systems Analysis and Design?
- ii) Name three objectives of linking business to Information Systems.
- iii) Write two advantages and two disadvantages of virtual organizations.
- iv) "Personal perspectives of managerial people can affect to the organizational decisions". Briefly explain the above statement using a suitable example.

b)

- i) What are the three primary roles of a systems analyst?
- ii) Describe any two roles which you have mentioned in a (i) above.
- iii) "Self-disciplined and self-motivated personality is a must for a systems analyst". Briefly explain why these qualities are important for a system analyst by giving two reasons.

2)

a)

- i) Name the seven phases of Software Development Life Cycle (SDLC) in the correct order.
- ii) Write one intended output separately for each of the phases you mentioned in a (i) above.
- iii) Give two reasons for software maintenance. Briefly explain the impact of maintenance of information systems and state what will happen to the maintenance over the time.

b)

- i) What is mean by a prototype?
- ii) Write the four values, four principles and four practices that the Agile software development methodology is based on.
- iii) Name five stages of Agile software development methodology.
- iv) Describe two factors that should be considered when selecting an Information System development methodology.

10	L, F, H	Design database	1
8	A	Write use cases	1
8	G	Revise output prototype design	H
5	A	Do output prototype	G
5	B	Organize data dictionary	F
4	D, I	Write up the project	E
4		Revise decision tree	D
4		Draw decision tree	C
4		Select a topic for the project and get	A
4			A

3)

a)

- i) What are the five steps that should be followed in preparation for interviews as a fact finding technique.
- ii) Discuss three advantages of open-ended questions over closed questions which can be used in interviews.
- iii) Write two situations that questionnaires are more suitable to use as an information gathering method.
- iv) Briefly explain three factors that should be considered in preparing a questionnaire for a survey to gather information.

b)

- i) What is meant by sampling?
- ii) What are the four steps that a systems analyst should follow in order to design a good sample?
- iii) "Observing decision maker's behavior and physical environment is important in information gathering." Explain the above statement by giving two reasons to justify it.

4)

a)

- i) What are the two broad reasons to initiate systems projects?
- ii) Write down five specific criteria for a project selection.
- iii) Why it is important to carry out a feasibility study before implementing a project.

b)

- i) Name two advantages of Gantt charts as a project scheduling method.
- ii) Construct a Gantt chart for following given details and name the fully completed tasks by the end of 8th week.

Task	Description	Predecessor	Time (Weeks)
A	Select a topic for the project and get the approval	None	4
B	Draw data flow diagram	A	3
C	Draw decision tree	B	4
D	Revise decision tree	C	5
E	Write up the project	D, J	4
F	Organize data dictionary	B	6
G	Do output prototype	A	2
H	Revise output prototype design	G	8
I	Write use cases	A	8
J	Design database	I, F, H	10

- iii) Draw a PERT diagram for the table given in b (ii) above.
- iv) Name the critical path and calculate the length of the critical path . Explain why it is called the critical path?

5)

a)

- i) What is mean by “Metadata”?
- ii) Name four advantages of using data dictionaries.
- iii) Explain the following algebraic notations of data structures.
 - Employee Name = First Name + (Middle Name) + Last Name
 - Contact No = Area Code + Local Number
 - Payment Method = [Cash; Cheque; Money Order]

b) Refer the following scenario for answering questions from b) i) to b) iii)

University students should submit a medical report if they were absent for any of the Continuous Assessment (CA) component. When a student submits the medical, the medical submission file is updated. By the end of every month, the medical submission list, along with the submitted medicals, are sent to the students’ request committee for approval. The committee evaluate all the medicals, and for this they check the details of the students’ attendance file. Then the list with approved/rejected details is sent back and the approved medical file is updated. Then the student is notified about the approval/rejection of his medical and a list of accepted students is sent to the relevant lecturer. The lecturer cross checks the list with the CA details file and re-schedule assessments for the students whose medicals are accepted. Finally, students are notified with the re-scheduled CA dates and venues.

- i) Identify all the external entities and data stores of the given scenario.
- ii) Draw the context level data flow diagram for above scenario.
- iii) How many external entities should be there in a level 0 DFD that is extended from the context diagram you have drawn in b (ii) above, and what are they?
- iv) You should pay attention to illegal representations of data flows in data flow diagram. Briefly state four illegal representations of data flow diagrams.