

KATHMANDU UNIVERSITY  
End Semester Examination  
February/March, 2019

Mark Scored:

Level : B. Sc.

Year : III

Exam Roll No. :

Time: 30 mins.

Course : COMP 302

Semester : II

F. M. : 10

Registration No.:

Date

FEB 22 2019

SECTION "A"

[20 Q. × 0.5 = 10 marks]

Tick (✓) the best possible answer(s).

1. You are a System Analyst, if you are studying the organizations current procedure, then you are working in which phase of system development life cycle?  
 Planning       Analysis       Logical Design       Physical Design
2. Which information system possesses the characteristics such as finding and evaluating alternative solutions, provides guidance in identifying problems?  
 Management Information System       Personal office automation system  
 Decision Support System       Transaction Processing system
3. Which element of the system determines "How a system must function"?  
 Control       Environment       Boundary       Feedback
4. \_\_\_\_\_ : An ongoing process that defines the mission, objectives, and strategies of an organization.  
 Competitive strategy       Mission statement  
 Value chain analysis       Corporate strategic planning
5. What analysis are done during the Technical Feasibility:  
i. Operating environments to be used  
ii. Which problem will likely solve the business problems  
iii. Group's experience with similar system  
 i and ii       ii and iii       i and iii       i, ii, and iii
6. Which of the given categories will intangible benefits fits within:  
i. Competitive necessity  
ii. Error reduction  
iii. Positive impacts on society  
iv. Increased speed of activity  
 i and iii       ii and iii       iii and iv       iii only
7. The major goal of requirement determination phase of information system development is  
 determine whether information is needed by an organization  
 determine what information is needed by an organization  
 determine how information needed by an organization can be provided  
 determine when information is to be given
8. Which among the following System requirements identification techniques are used for rapid application development?  
 Interviewing       JRP       Prototyping       Observation

9. Which type of questionnaire allows the users to exercise more freedom in their answers?
- Multiple choice questionnaire       Rating questionnaire  
 Free-format questionnaire       Ranking questionnaire

10. The following portion of DFD is incorrect because



- the data flow act as signals to activate process  
 the process is a single decision  
 the process does not refer to a data store  
 there are too many Output data flows
11. The conservation of inputs and outputs to a DFD process when that process is decomposed to a lower level is referred as \_\_\_\_\_
- Data store       Context diagram  
 DFD completeness       Balancing
12. The part of a decision table that specifies which actions are to be followed for a given set of conditions are referred as \_\_\_\_\_
- Condition stub       Decision table with Else  
 Rules       Action stubs
13. The objective of using structured English is to
- describe computational procedures reasonably precisely which can be understood by any user  
 expand a DFD so that a user can understand it  
 develop algorithms corresponding to processes in a DFD  
 ease writing programs for DFDs
14. A student can take not more than 5 subjects in a semester. The numbers of students allowed in a subject in a semester are not more than 40. The student– subject relationship is:
- 5: 40       40: 5       N: 5       40: M
15. In an E-R diagram attributes is represented by
- circles       rectangles  
 diamond shaped box       ellipse
16. What is Sequence diagram?
- i. A diagram that shows interacting individuals along the top of the diagram and messages passed among them arranged in temporal order down the page  
ii. A diagram that shows messages super imposed on a diagram depicting collaborating individuals and the links among them  
iii. A diagram that shows the change of an individual's state over time
- i only       ii only       iii only       i, ii, and iii





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Level : B. Sc.  
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Time : 2 hrs. 30 mins.

Course : COMP 302  
Semester : II  
F.M. : 40

SECTION "B"

[6Q. × 4 = 24 marks]

Attempt *ANY SIX* questions.

1. What does the System means in System Analysis and Design? List and describe the six different elements (components) of System and also show their relations with block diagram? [1+3]
2. Identify and discuss briefly the five different factors that lead to the need for improved information systems planning today? Describe operational feasibility and Technical feasibility and also write the criteria each of them uses to measure feasibility? [2+2]
3. What are the advantages of using decision table for specifying data processing? A bank has the following policy on deposits: On deposits of Rs. 5000 and above and for three years or above the interest is 12%. On the same deposit for a period less than 3 years it is 10%. On deposits below Rs. 5000 the interest is 8% regardless of the period of deposit. Generate the decision table and decision tree for above process? [1+3]
4. What are the criteria for picking objects while drawing object diagram? Suppose you want to develop software for an alarm clock. The clock shows the time of day. Using buttons, the user can set the hours and minutes fields individually, and choose between 12 and 24-hour display. It is possible to set one or two alarms. When an alarm fires, it will sound some noise. The user can turn it off, or choose to 'snooze'. If the user does not respond at all, the alarm will turn off itself after 2 minutes. 'Snoozing' means to turn off the sound, but the alarm will fire again after some minutes of delay. This 'snoozing time' is pre-adjustable. Develop the UML use case diagram for above scenario. [1+3]
5. Explain the various task allocated to walkthrough team members for their different roles? [4]
6. List the different phases that have to be gone through for developing an information system using water fall model and describe four of them? [1+3]
7. What is the Purpose of database design? Describe 2NF and 3NF with relevant examples? [1+3]

SECTION "C"

[2Q. × 8 = 16 marks]

Attempt *ANY TWO* questions. (Question No.10 is compulsory).

8. What are the possible consequences if you fail to identify system Requirements correctly and completely? Consider a Canteen Management System; identify its functional and non-functional requirements? Explain the different ways for gathering requirements by Prototyping and list four of its advantages? [2+2+4]

9.

- a. The bookstore staff at National Bookstore works hard to satisfy students, instructors, and the school's business office. Instructors specify textbooks for particular courses, and the bookstore orders the books and sells them to students. The Bookstore wants you to develop an object-oriented model for a new book store information management system. List possible objects in the bookstore operation, including their attributes and methods and Draw a Class diagram? [5]
- b. Draw a Sequence diagram for showing the cash withdrawal process from ATM (make necessary assumptions). [3]

10.

**Blood Bank Testing Unit.** This is one unit within the Kathmandu University Teaching Hospital, Dhulikhel. On the day following a blood donation, the Blood Bank unit tests all blood for blood type and potential viral agents. They send the results of these tests to the Processing Office (another unit of the Centre). For each tested blood unit, they fill out a form which lists the blood unit number, the blood type, the date and the results of the test. If the tests indicate that the blood may be contaminated with a viral agent, the blood unit is destroyed. This is indicated on the test form.

Blood units have a limited shelf life. The Blood Bank receives a list every day of those units which have exceeded their shelf life. These are discarded and the list sent back to the Processing Office with a signed indication of the disposal of the units.

The Blood Bank also distributes blood to various hospitals requesting blood. Requests usually come in for specific blood types. The Blood Bank prepares refrigerated containers of these units and distributes them to the hospital vans when they arrive to pick up their supply. The Blood Bank receives a listing for each hospital and the specific units of blood to supply to the hospital from the Processing Office. The order is printed in triplicate. When the order is filled, the lab technician signs the order and returns a copy to the Processing Office. A copy of it travels with the blood to the requesting hospital. The final copy is kept in the Blood Bank records but discarded after one year.

- a. Draw a context diagram for the Blood Banking Testing unit System.
- b. Draw a level 0 DFD for the Blood Banking Testing unit System
- c. Using the level-0 diagram that you constructed in part b, select one of the level-0 processes and prepare a level-1 diagram.

[2+4+2]