

**KABARAK**



**UNIVERSITY**

**EXAMINATIONS**

**2008/2009 ACADEMIC YEAR**

**FOR THE DEGREE OF BACHELOR OF EDUCATION  
SCIENCE**

**COURSE CODE: COMP 313**

**COURSE TITLE: SOFTWARE ENGINEERING**

**STREAM: SESSION**

**DAY: DAY**

**TIME: P.M.**

**DATE:**

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**INSTRUCTIONS:**

Answer questions **ONE** and any other **TWO**

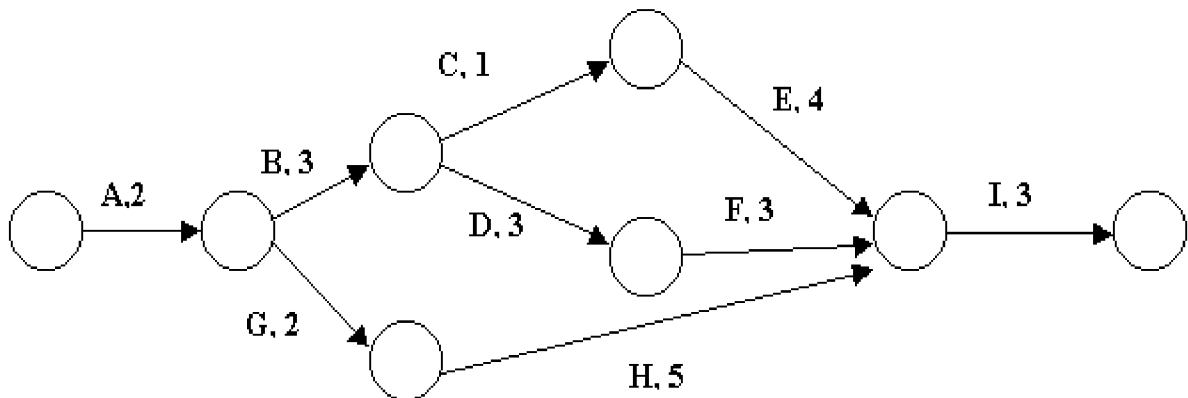
**PLEASE TURN OVER**

### Question One: (30 Marks)

- a) Explain why an information system should be changed in an organization. (6 Marks)
- b) Define the following terms.
  - i. Context diagram with a sketch diagram. (4 Marks)
  - ii. Maintenance process. (2 Marks)
  - iii. Feasibility study. (2 Marks)
- c) Differentiate between the following set of terms in software engineering.
  - i. function-oriented design and object-oriented design (3 Marks)
  - ii. Activities, tasks, and resources. (3 Marks)
  - iii. Top-down and Bottom-up design approach. (2 Marks)
- d) List the problems of software development process model. (5 Marks)
- e) Explain the three basic principles that waterfall processes are characterized. (3 Marks)

### Question TWO: (20 Marks)

- a) Explain the criterion for classifying non-functional requirements. (4 Marks)
- b) Below is a PERT chart drawn to show the development of a system. Use it to answer the questions that follow.



- i. Which tasks are on the critical path of the PERT chart above? (1 ½ Marks)
- ii. What is the slack time for tasks C, D and G? (1 ½ Marks)

- iii. The person working on task C tells the project manager he can not start work until one day after the scheduled starting date. What impact would this have on the completion date of the project? Why? (3 Marks)
  - iv. Task A will be delayed by 2 days because some equipment has arrived late. If the project manager still wants to finish the project within the original time frame, he will need to shorten time for one or more of the tasks. What steps can he take to reduce the number of days allocated to a task. (3Marks)
  - v. The project manager decides to reduce the time needed for tasks D and F by one day each. How effective will this reduction be in achieving his aim of maintaining the original finish time for the project? (3 Marks)
- c) Discuss how evolutionary model of software development compare with prototyping model. (4 Marks)

### **Question THREE: (20 Marks)**

- a. Describe the quantitative measures in software maintainability (4 Marks)
- b. Outline the significance of software Verification and software Validation. (4 Marks)
- c. What is documentation? Explain how documentation can be conducted. (8 Marks)
- d. Explain the functions of testing. (4 Marks)

### **Question FOUR: (20 Marks)**

- a) Consider a hospital:
- Patients are treated in a single ward by the doctors assigned to them. Usually each patient will be assigned a single doctor, but in rare cases they will have two. Healthcare assistants also attend to the patients, a number of these are associated with each ward. Initially the system will be concerned solely with drug treatment. Each patient is required to take a variety of drugs a certain number of times per day and for varying lengths of time.
- The system must record details concerning patient treatment and staff payment. Some staff are paid part time and doctors and healthcare assistants work varying amount of overtime at varying rates. The system also keeps track of what treatments are required for which patients and when and it should be capable of calculating the cost of treatment per week for each patient.

**Required:**

- i. Define entities. (3 Marks)
  - ii. Define relationships. (3 Marks)
  - iii. Draw an Entity relationship diagram (ERD) (4 Marks)
- b) Identifying project scope and objectives is one of the phases in project planning. Explain what is done. (4 Marks)
- c) Discuss how feasibility study is conducted in software development. (6 Marks)

**Question FIVE: (20 Marks)**

- a. Code analysis involves obtaining program codes and analyzing its characteristics.  
Describe these characteristics. (6 Marks)
- b. Why is maintenance termed as an ongoing support? Explain (6 Marks)
- c. List the factors that affect software re-engineering. (4 Marks)
- d. Define the term software process? Why is it difficult to improve it? (4 Marks)