

KABARAK



UNIVERSITY

UNIVERSITY EXAMINATIONS

2008/2009 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF EDUCATION

SCIENCE

COURSE CODE: COMP 322

COURSE TITLE: SOFTWARE ENGINEERING

STREAM: SESSION VI

DAY: MONDAY

TIME: 2.00 – 4.00 P.M.

DATE: 10/08/2009

INSTRUCTIONS:

Attempt **Question ONE** and **Any other TWO**

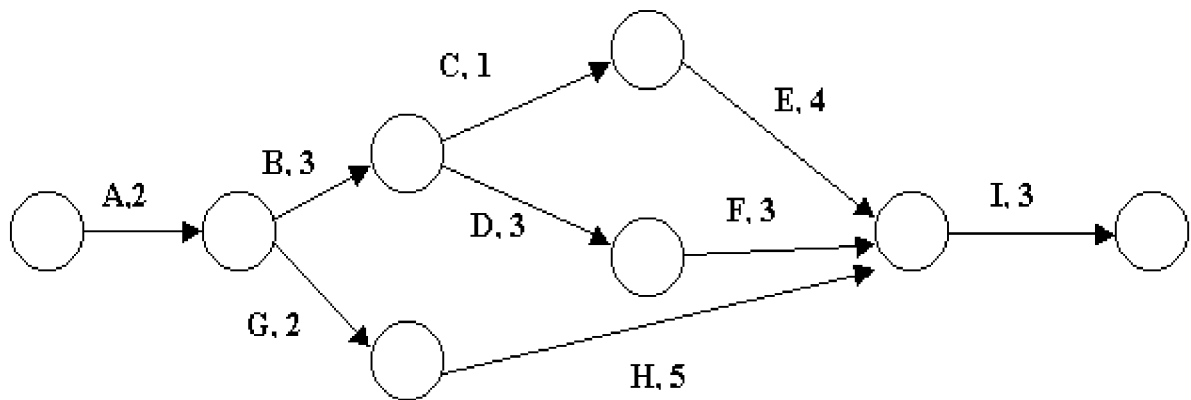
PLEASE TURN OVER

Question One: (30 Marks)

- a) Explain what necessitates change of an information system in an organization. (6 Marks)
- b) Differentiate between the following set of terms in software engineering.
 - i. Bottom-up testing and top-down testing. (2 Marks)
 - ii. Goals, Requirements and constraints. (3 Marks)
- c) Explain the three basic principles that waterfall processes are characterized. (4 ½ Marks)
- d) Explain any three primary purpose of having reviews or inspections in any project.(4 ½ Marks)
- e) List four types of system testing. (2 Marks)
- f) Describe what is meant by programming in the Large and Programming in the Small? (4 Marks)
- g) Define the “context diagram” with a sketch example. (4 Marks)

Question TWO: (20 Marks)

- a) State and explain the main activities of software production. (4 Marks)
- b) Explain the criterion for classifying non-functional requirements. (5 Marks)
- c) Discuss how evolutionary model of software development evolved? (4 Marks)
- d) Study the PERT chart drawn below used in the process of developing a system.



Required:

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

- 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? (2 Marks)
- 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? (2 Marks)

Question THREE: (20 Marks)

- a) Explain why maintenance is termed as an ongoing process? (6 Marks)
- b) List and explain four problems of software development process model. (4 Marks)
- c) Describe any four factors that affect software re-engineering process. (6 Marks)
- d) Describe the factors considered in selecting the software development model, when developing software. (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 in this phase. (4 Marks)
- c) Discuss how feasibility study is conducted in software development. (6 Marks)

Question FIVE: (20 Marks)

- a) Describe the quantitative measures in software maintainability (4 Marks)
- b) Define the following terms.
 - i. Software engineering. (1 Mark)
 - ii. Maintenance. (1 Mark)
 - iii. Feasibility study. (1 Mark)
 - iv. Project Planning. (1 Mark)
- c) Explain how documentation can be conducted. (4 Marks)
- d) Explain the functions of testing. (4 Marks)
- e) Describe how the problem of unrealistic schedules can be resolved in project management. (4 Marks)