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(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1009 Roll No.

B.Tech.

FIFTH SEMESTER EXAMINATION, 2005-2006

SOFTWARE ENGINEERING

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt **ALL** questions.*
(ii) All questions carry equal marks.
(iii) Be precise in your answer.

1. Attempt ***any four*** of the following questions : **(5x4=20)**

(a) Why can a count of faults be a misleading measure of product quality ? Explain.

(b) Compare between system engineering and software engineering. Explain.

(c) Discuss various software engineering methods.

(d) Describe in brief the evolution of software.

(e) Should a development organization adapt a single process model for all its software development ? Discuss the pros and cons ?

(f) Is it fair to say that a preliminary user's manual is a form of prototype ? Explain your answer.

2. Attempt ***any four*** of the following questions : **(5x4=20)**

(a) How does the description of a system relate to the notion of process model ?

(b) What are the benefits of separating functional flow from data flow ?

(c) Contrast the benefits of an object oriented requirements specification with those of a functional decomposition ?

(d) Suggest three measures, three metrics, and corresponding indicators that might be used to assess an automobile.

(e) Compute the function point value for a project with the following information domain characteristics :

Number of user inputs : 32

Number of user outputs : 60

Number of user inquiries : 24

Number of files : 8

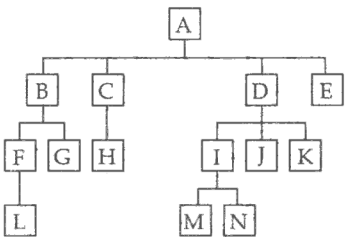
Number of external interfaces : 2

Assume that all complexity adjustments values are average. Assume that 14 algorithm have been counted. Compute the feature point value under the same conditions.

(f) Does the LOC measure make any sense when 4 GL's are used ? Explain.

3. Attempt *any two* of the following questions : **(10x2=20)**

(a) Following figure illustrate the component hierarchy in a software system. Describe the sequence of tests for integrating the components using a bottom-up approach and also by a top-down approach.



(b) If you could only select three test case design methods to apply during unit testing, what would they be and why ? Explain.

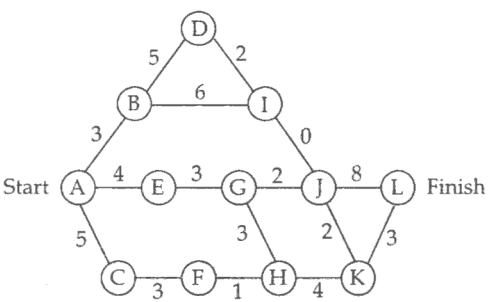
(c) Desire a set of test cases for the following components:

(i) a routine which examines a line of text and replaces sequences of blank characters with a single blank character.

(ii) An object representing a keyed table where entries are made and retrieved using some alphabetic key.

Attempt *any two* of the following questions : **(10x2=20)**

(a) Explain the significance of activity graph and critical path. Find the critical path for the following activity graph. The number corresponding to each edge of the graph indicates the number of days required to complete the activity represented by that branch.



(b) Define Gantt Chart ? Describe how adding personnel to a project that is behind schedule might make the project completion date even later.

(c) (i) What strategy would you propose for defining subsystems for a collection of classes ?

(ii) Describe the difference between an active and a passive state for an object.

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Attempt *any two* of the following questions : **(10x2=20)**

(a) Besides counting errors, are there other countable characteristics of software that imply quality ? What are they and can they be measured directly ?

(b) (i) Can a program be correct and still not be reliable ? Explain.

(ii) Describe the Formal Technical Review (FTR)

(c) (i) Compare between ISO and SEI's CMM.

(ii) Differentiate between validation and verification.

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