MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : CS-701

SOFTWARE ENGINEERING

Time Allotted: 3 Hours | *Full Marks*: 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group – A

(Multiple Choice Type Questions)

1. Choose the correct alternative of the following: http://www.makaut.com 1×10=10

(i) Tracking the correspondence between the design component and the SRS is known as
(a) availability
(b) traceability
(c) maintainability
(d) reliability

(ii) When the two bubbles are interconnected directly, it is referred as
(a) Serial DFD
(b) Direct DFD
(c) Synchronous
(d) Balanced DFD

(iii) DFD balancing means
(a) balancing of weight of processes.
(b) must match the total number of bubbles.
(c) must match the data flow at the next level of DFD.
(d) None of the above http://www.makaut.com

(iv) System Testing is performed by a friendly set of customer is known as
(a) Alpha Testing
(b) Beta Testing
(c) Performance Testing
(d) Usability Testing

(v) Function Point describes
(a) the SRS document.
(b) the test plans.
(c) the functional decomposition.
(d) the size of a software product direct from its specification.

(vi) The potential risks are best detected by
(a) Spiral Model
(b) Waterfall Model
(c) Incremental Model
(d) Prototyping Model

(vii) The most desirable form of cohesion is
(a) sequential cohesion
(b) procedural cohesion
(c) coincidental cohesion
(d) functional cohesion

(viii) Software testing is the
(a) process of demonstrating that errors are not present.
(b) process of establishing confidence that a program does what it is supposed to do.
(c) process of executing a program to show that it is working as per specifications.
(d) process of executing a program with the intent of finding errors.

(ix) The best type of coupling is
(a) coincidental
(b) logical
(c) informational
(d) functional

(x) Big Bank Integration testing is useful for project with
(a) smaller number of modules
(b) large number of modules
(c) average number of modules
(d) None of these

Group – B

(Short Answer Type Questions)

Answer *any three* of the following. 5×3=15

2. "Spiral model is not a panacea"; explain the meaning of the statement. Also state why spiral is called a Meta-model. 2+3=5

3. What are the different methods of information elicitation?

4. What are the metrics for estimation of software? State characteristics of feature point metrics. 3+2=5

5. What are the major components of SRS?

6. Develop a work breakdown structure specification for showing the process of admission to an engineering college. Assume major phases as exam preparation, entrance exam, admission criterion, and counseling and fees payment. Also write the output of each major task performed.

Group – C
(Long Answer Type Questions)

Answer *any three* of the following. 15×3=45

7. What is cost benefit analysis? What are the common techniques for cost benefit analysis? Develop a set of functional and non-functional requirements for a new software project. 3+5+7=15

8. (a) Consider a project with 950 lines of code which has the following distribution in terms of days for each effort:

Phase	Programmer Days
Requirements	20
Design	10
Implementation	10
Testing	15
Documentation	10

(b) Calculate the productivity given the line of code and number of programmer days. Calculate COCOMO effort, development time and productivity for an organic project that is estimated to have 39,800 lines of code. Assume values of constant $a = 2{\cdot}4$ and $b = 1{\cdot}05$

(c) Specify the general principles of user interface design. 3+7+5=15

9. (a) What is Cohesion? Explain the cohesion classification with respect to software design. 'A good software should have high cohesion but low coupling'— Explain.

(b) Draw the context diagram and Level 1 and Level 2 DFD for the following correspondence course system. A college offers correspondence courses to students. Each course lasts 20 weeks and is based on a weekly study module and progress test. At the end of the course students sit at an invigilated examination. The College Registrar deals with enquiries and applications, and students applying who have sufficient qualifications are asked to register by completing and submitting an application form. After approval by the Academic Director, the application form is returned to the Registrar who creates a student file. The Accounts department receives the application form and using information from the student file creates an invoice that is sent to the student. Payments made are registered on the invoice file. The first batch of student material and tests is issued from the library only to students who have paid fees (this information is taken from the invoice file).

(c) What are the propositions of Putnam's model? 6+6+3=15

10. (a) What do you mean by forking and joining in Activity Diagram? What is a swimlane?

(b) What are extend and include in use case diagram?

(c) What are dependency, aggregation and composition in use case diagram? Explain with example.

(d) What do you mean by an object lifeline and focus of control and which diagram is it required and why? (3+1)+2+(2+2+2)+3=15

11. Write short notes on *any three* of the following: 5×3=15

(a) CASE tools

(b) Quality Assurance

(c) Waterfall Model

(d) Software configuration management

(e) Regression Testing