GANPAT UNIVERSITY
M. TECH SEMESTER II (INFORMATION TECHNOLOGY)
CBCS (NEW) REGULAR EXAMINATION APRIL – JUNE 2016
3IT204: SOFTWARE ENGINEERING

Total Time: 3 hours

Total Marks: 60

Instructions: 1. Write each section in separate answer sheet.
2. Figure to the right indicates full marks.
3. Assume suitable data wherever necessary.

SECTION – I

Q – 1 (a) Differentiate between a program and a software product. [2]

(b) For which type of software product prototype process model is most appropriate? Explain each phase of prototype model in detail. [6]

(c) What is inconsistent and incomplete requirement in SRS? Explain it with one example. [2]

OR

Q – 1 (a) What is phase containment of errors? Explain it with an example. [2]

(b) Explain each phase of spiral model in detail. [5]

(c) Discuss about properties of a good SRS document. [3]

Q – 2 (a) There is one android mobile application for which we have identified 10 inputs, 12 outputs, 6 logical files, 8 interface files and 16 external inquiries. Consider value of complexity adjustment factor or TCF of 1.10. What are the unadjusted and adjusted function point counts? (Weighting factors for input: 4, output: 6, logical files: 11, interface file: 7, external inquiries: 4) [4]

(b) Discuss about Following UML Diagrams using Example:
1. Activity Diagram
2. Sequence Diagram [6]

OR

Q – 2 (a) What is cohesion? Explain the different types of cohesion. [4]

(b) Draw the CLD and DFD (up to level – 2) for centralized admission system in education after 12th standard. [6]

Q – 3 (a) Identify appropriate life cycle model for the following products. Justify your answer.
1. Online MCQ based quiz system.
2. GPS based car rental system. [2]

(b) Discuss about all non functional requirements of a SRS document. [4]

(c) The size of an embedded software product has been estimated to be 42,000 lines of source code. Find out the effort and development time required to develop the product using the basic COCOMO model. Consider the values for a_1: 3.6, a_2: 1.2, b_1: 2.5, b_2: 0.32. [4]

Q – 4 (a) Write a short note on software configuration management. [4]

    (b) Discuss about the guidelines and commonly made errors for the construction of any DFD. [4]

   **(c)** Differentiate between alpha and beta testing. [2]

OR

Q – 4 (a) Using Halstead's software science analytical technique, discuss about the following terms: [4]
1. Length of a program
2. Volume of a program

    (b) Explain any one technique to convert the given DFD into the structure chart. [4]

    (c) Discuss about stress and volume testing. [2]

Q – 5 (a) Discuss about ISO 9000 standards for software industry. [4]

    (b) Explain the following testing strategies: [4]
1. Data-flow based testing
2. Mutation testing

    (c) Discuss some of the representative coding standards. [2]

OR

Q – 5 (a) What is CMM? Explain each level of it with respect to software quality standards. [5]

    (b) What is CFG? Draw the CFG for sequential, branching and looping statements. Discuss any one technique to derive the cyclometic complexity of the code from the given CFG. [5]

Q – 6 (a) Discuss the following terms in the context of real-time requirement specification: [4]
1. Task Period   2. Task Deadline
3. Jitter   4. Transport Lag

    (b) Consider the following activity network. The table given below represents the number of required days to complete any activity shown in activity network. Find out times for earliest start, earliest finish, latest start, latest finish and slack time for each activity. Also find out critical path for this activity network. [6]
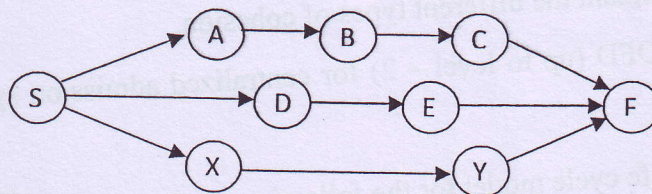
Activity:	S	A	B	C	D	E	X	Y	F
No. of days:	15	35	35	35	40	70	55	45	15

END OF PAPER