No of Pages : 3 Course Code : 12XW45

Roll No:

(To be filled in by the candidate)

PSG COLLEGE OF TECHNOLOGY, COIMBATORE - 641 004

SEMESTER EXAMINATIONS, APRIL - 2014

MSc=SOFTWARE ENGINEERING Semester: 4

12XW45 SOFTWARE ENGINEERING TECHNIQUES

Time : 3 Hours Maximum Marks : 100

INSTRUCTIONS

- Group I, Group II and Group III questions should be answered in the Main Answer Book.
- Ignore the box titled as "Answers for Group III" in the Main Answer Book.
- Answer ALL questions from GROUP I.
- Answer any FIVE questions from GROUP H.
- 5. Answer any ONE question from GROUP III.

GROUP \bullet Marks \circ 10 x 3 = 30

- Identify at which stage of Software Development Life Cycle(SDLC) a prototype would be necessary for the given system:
 - A flood warning System which will give early warning of possible flood dangers to sites that are threatened by floods. The system will link to a meteorological system giving weather forecasts.
- 2. Identify the functional and non-functional requirement in the given statement of requirements for a part of ticket issuing system. "An automated ticket issuing system sells train tickets. Users select their destination and input a credit card and personal identification number. When the user presses the "Start" button, a menu display of potential destinations is activated along with a message to the user to select a destination".
- Choose the appropriate process model for the given application.
 - A computer-controlled video conferencing system used by passengers at a railway station.
- 4. Why count of faults may be a misleading measure of product quality?
- Are there some systems that cannot be made completely functionally cohesive? Justify.
- Can a system ever be completely "de-coupled" (i.e., can the degree of coupling be reduced so much that there is no coupling between components)? Justify your answer.
- How do you assess the quality of software design?
- Write a scenario for the good and bad user interface.

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To what extent can testing be used to validate whether the program is fit for its purpose?

10. Derive a set of test cases for the following component :

An object implements variable length character strings. Operations should include concatenation, length (to give the length of a string) and substring selection.

GROUP - II Marks : $5 \times 10 = 50$

- a) Explain three types of "user satisfiability" with respect to requirements.
 - b) Explain the spiral process model with a neat sketch. (5)
- 12. You have been asked by a charity to develop a system that keeps track of all donations they have received. This system has to maintain the names and addresses of donors, their particular interests, the amount donated and when it was donated. If the donation is over a certain amount, the donor may attach conditions to the donation (e.g. it must be spent on a particular project) and the system must keep track of these donations and how they were spent. Construct a structure chart and data flow diagram for the given system.
 - a) Construct a State Transition Diagram for given specification: A telephone answering machine which records incoming messages and displays the number of accepted messages on an LED display.
 - b) Explain how effort is estimated using function—point analysis method? (5)
 - a) Explain the COCOMO Model for effort estimation with a suitable example.
 - b) You have been hired by a computer consulting firm to develop an income tax, calculation package for an accounting firm.
 - (i) Design the input forms.
 - (ii) What reports will be produced? Specify the layout.
 - (iii) Represent the code using Nassi-Shneiderman diagram. ... (5)
 - 15. Project Managers sometimes regard work put into writing high quality specifications as "Gold Plating" and claim that it is unnecessary as it doesn't contribute to producing program code. Under what circumstances is this view practical and under what circumstances is it impractical?
 - A Retail Store wanted to automate their operations with the following requirements.
 - Products (Items) are purchased from various suppliers based on the stock and reorder level.
 - Payment time for each purchase is 30 days from the date of billing.
 - Store has multiple billing counters which accepts cash and credit card.
 - Purchase value above Rs.1000 is eligible for a free home delivery.

Apply relevant testing methodology to test the above and tabulate the test cases planned and the results.

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GROUP - III_C Marks: $1 \times 20 = 20$

17. Your company has just acquired a smaller company that sells office automation software. The smaller company's spread sheet software has a large market share, with many satisfied users. (A major reason for the acquisition was that these existing users are potential customers for your company's other products). Unfortunately, no documentation for the spread sheet software can be found and the source code is not commented. How would you go about maintaining this software to keep the customer's

Fare is fixed based on source destination combination and day type (week day, week end, holiday)

A flight can be booked 6 months in advance maximum of 6 passons.

- Agent can book flights for their clients (they will be paid 1% commission for this service)
- Booking will be done against full payment (thru payment gateway) along with preference (seat and meal) details.
- PSGTECH PSGTECH PSGTECH PSGTECH PSGTECH PSGTECH PSGTECH Cancellation for booking (All passengers/Few) is allowed 3 days prior to travel. This should remove booking entries.

PSG TECH PSG Create a Software Requirements Specification(SRS) document for the system