Question Paper Code : 20365

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Fourth Semester

Computer Science and Engineering

CS 6403 — SOFTWARE ENGINEERING

(Common to Information Technology)

(Regulations 2013)

(Also common to PTCS 6403 – Software Engineering B.E. (Part-Time)
Fourth Semester – Computer Science and Engineering–Regulations 2014)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   List the characteristics of a software.

2.   Name the umbrella activities in software process.

3.   Draw a use case diagram for an online shopping which should provide provisions for registering, authenticating the customers and also for online payment through any payment gateway like paypal.

4.   Write a brief note on Petri Nets.

5.   Mention the design quality model proposed by hewlett packard.

6.   Draw the zero level data flow diagram of an ATM system.

7.   What is meant by regression testing?

8.   Define verification, validation testing and debugging.

9.   Enumerate the factors that influence a project schedule

10.   What is a Risk Information Sheet (RIS)?

PART B — (5 × 13 = 65 marks)

11. (a) Assume that you are the technical manager of a software development organization. A client approached you for a software solution. The problems stated by the client have uncertainties which lead to loss if it is not planned and Solved. What software development model you will suggest for this project? Justify. Explain that model with a neat sketch along with its pros and cons.

Or

(b) (i) Draw the layered architecture of software engineering. (3)

(ii) What are the merits and demerits of using formal methods for developing a software? (3)

(iii) Explain the CMMI model to assess the organization level. (7)

12. (a) (i) What is feasibility study? How it helps in requirement engineering process? (3)

(ii) How will you classify the requirement types for a project? Give example. (3)

(iii) List the stake holders and all types of requirement for an online train reservation system. (7)

Or

(b) Consider the process of ordering a pizza over the phone. Draw the *use case diagram* and also sketch the *activity diagram* representing each step of the process, from the moment you pick up the phone to the point where you start eating the pizza. Include activities that others need to perform. Add exception handling to the activity diagram you developed. Consider atleast two exceptions (e.g. delivery person wrote down wrong address, deliver person brings wrong pizza). (13)

13. (a) Explain the steps involved in conducting component level design when it is applied for object-oriented system. (13)

Or

(b) Discuss about User Interface Design of a Software with an example and neat sketch. (13)

14. (a) Explain the process of unit testing and integration testing. (13)

Or

(b) (i) Explain how various types of loops are tested. (9)

(ii) Differentiate black box and white box testing. (4)

15. (a) (i) Explain the steps involved in project planning. (10)

(ii) Discuss about various factors that affect a project plan. (3)

Or

(b) (i) Discuss how Earned Value Analysis (EVA) helps to track a project quantitatively. (8)

(ii) Explain about the factors that cause difficulty in testing a software. (5)

PART C — (1 × 15 = 15 marks)

16. (a) What is risk? How will you define and categorize it and what are the various risks that will happen from initialization phase of a software development to product delivery. Also explain how will you manage those risk in various phases. (15)

Or

(b) For any problem of your choice (say for example stock monitoring system or key word frequency vector or key word in context that is used in Information Retrieval system), design atleast four different architectural design solutions using four different architectural styles. Compare these solutions based on atleast three quality attributes. Note that the problem can be of your choice, the example given need not be considered.