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Question Paper Code : S1355

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2016.

First Semester

DMC 7104 — SOFTWARE ENGINEERING

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the benefits of Agile methods.

2. What are the principles in fourth generation techniques? How do they differ from others?

3. List the specification to develop a home accounting and monitoring system for an efficient budget to be planned every month.

4. What are requirement elicitation? How important is this phase in the requirement analysis?

5. Give the significance of cohesion and coupling by comparing their principles in design phase.

6. Draw the architectural context diagram for a safe home security system.

7. State any four best programming practices with an example.

8. Write the factors essential during code inspection or reviews.

9. Sketch the layers of the SCM process and state the role of version control in the process.

10. What are the measures used in the analysis of reliability? Give the standards used in industries?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Define Product and Process and explain the various factors that integrate both. (8)

(ii) What is the need for a prototype model? Explain an application that needs prototype modeling. Also state the advantages and disadvantages of this model. (8)

Or

(b) Consider a state level basket ball tournament conducted for all college students across the state. State and explain an appropriate model to develop a system that automate the process schedule send the plan, reminder to the team head through SMS/email and update the result for final analysis. Is Agile method suitable for this application? If yes or no, state the reasons (16)

12. (a) Develop a SRS for a patient monitoring and control system for a hospital to efficiently treat more patients per day. Make your own assumptions with all necessary factors and attributes. (16)

Or

(b) Discuss the various phases in requirement analysis and prepare a chart for all phases of requirement analysis to develop a software application for all transactions in a textile shop. Consider all factors that include purchases and sales to produce the profit or loss outcome on the business application over a period. (16)

13. (a) A flood-warning system is to be procured which will give early warning of possible flood dangers to sites that are threatened by floods. The system will include a set of sensors to monitor the rate of change of river levels, links to a meteorological system giving weather forecasts, links to the communication systems of emergency services (police, coast guard, etc.), video monitors installed at selected locations, and a control room equipped with operator consoles and video monitors.

Controllers can access database information and switch video displays. The system database includes information about the sensors, the location of sites at risk and the threat conditions for these sites (e.g., high tide, south-westerly winds), tide tables for coastal sites, the inventory and location of flood-control equipment, contact details for emergency services, local radio stations, etc.

Draw a block diagram of a possible software architecture for such a system. You should identify the principal subsystems and the links between them. (16)

Or

(b) (i) What are the key features that distinguish structured development from object oriented development? State the difference between them. (10)

(ii) Explain reuse and designing for reuse. (6)

14. (a) (i) State the essential programming practice for efficient code. Explain the Internal documentation verification principles and practice. (10)

(ii) Write short notes on Information hiding. (6)

Or

(b) Discuss on the coding standards with illustrations. Give the programming style with examples. (16)

15. (a) Elaborate on the scope of the software metrics, classification of metrics and measuring process and product metrics. (16)

Or

(b) (i) Why is it sometimes inappropriate to use hardware reliability metrics in establishing software systems reliability? Illustrate your answer with an example. (8)

(ii) What is the influence of coupling on maintenance? Explain the maintenance models. (8)

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Question Paper Code : 80355

M.C.A. DEGREE EXAMINATION, AUGUST 2015.

First Semester

DMC 7104 – SOFTWARE ENGINEERING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the difference between product and process.

2. Define software engineering.

3. What is the necessity of feasibility analysis?

4. List out any two metrics of requirement analysis.

5. Define abstraction.

6. What is the purpose of reuse concept?

7. List the types of Reviews.

8. What are the levels of testing?

9. What is the base line for SCM?

10. Define reliability.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare and contrast waterfall model and spiral model. (6)

(ii) Explain in detail about the fourth generation techniques. (10)

Or

(b) Discuss in detail about agile methods and its features. (16)

12. (a) (i) Write the function and non-functional requirements for banking system Software. (8)

(ii) Discuss about validation process in requirement analysis. (8)

Or

(b) How the requirement analysis and specification process is done in development of software? Explain in detail. (16)

13. (a) Describe about the various design concepts in detail. (16)

Or

(b) (i) State the difference between cohesion and coupling. (4)

(ii) Explain in detail about dataflow oriented design concepts. (12)

14. (a) What is information hiding? Describe about internal document verification Process. (16)

Or

(b) Write short notes on:

(i) Top down Structured programming. (8)

(ii) Code inspection. (8)

15. (a) (i) Give an account on software quality assurance. (8)

(ii) Explain the scope of software metrics? (8)

Or

(b) Discuss in detail about software configuration management process. (16)

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Question Paper Code : 22357

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2015.

First Semester

DMC 7104 — SOFTWARE ENGINEERING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the difference between product and process.

2. What are the benefits of prototype?

3. What is verification and Validation?

4. List out any two non-functional requirements.

5. What is abstraction?

6. Why documentation is important in design process?

7. Compare the Top-Down and Bottom-up approach.

8. What are the levels of testing?

9. List out any two case tools.

10. Define reliability.

PART B — (5 × 16 = 80 marks)

11. (a) Describe about any two agile methods in details. List out its merits. (16)

Or

(b) (i) Compare any four software process models. (4)

(ii) Discuss in details about spiral software process models. List the Demerits. (12)

12. (a) (i) Write the needs of SRS document (4)

(ii) Explain in detail about software requirements analysis process. (12)

Or

(b) Write short notes on :

(i) Software Requirement Metrics. (8)

(ii) Requirements Specification (8)

13. (a) Describe about the Real time and distributed system design in detail. (16)

Or

(b) (i) Explain the various design concepts and notations used in software design. (12)

(ii) Write about cohesion concept used in software design. (4)

14. (a) (i) Compare the Functional Testing and structural testing. (8)

(ii) Write notes on Information hiding. (8)

Or

(b) Write notes on :

(i) Code inspection and reviews. (8)

(ii) Symbolic execution. (8)

15. (a) Discuss in detail about Software Configuration Management process. (16)

Or

(b) (i) Explain in detail about direct and indirect measures for measuring process and its attributes. (8)

(ii) Write short notes on Software Quality Assurance. (8)

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Question Paper Code : 46354

M.C.A. DEGREE EXAMINATION, AUGUST 2014.

First Semester

DMC 7104 — SOFTWARE ENGINEERING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define software process. State the important features of a process.

2. What is the prime objective of software engineering?

3. What is known as SRS review? How is it conducted?

4. Mention any two non-functional requirements on software to be developed.

5. Why software architecture is important in a software process?

6. What is the work product of software design process and who does this?

7. What are the roles of testing tools?

8. Distinguish between verification and validation.

9. Why the software needs maintenance?

10. Define reliability.

PART B — (5 × 16 = 80 marks)

11. (a) With suitable illustration explain SPIRAL model evolutionary software development. List the advantages and disadvantages. (16)

Or

(b) Explain in detail about Agile methods and its significance. (16)

12. (a) Discuss the requirement specification in detail. (16)

Or

(b) Explain in detail about requirement engineering process in requirement analysis. (16)

13. (a) (i) Draw a DFD diagram for restaurant system. (8)

(ii) Explain in detail about cohesion and coupling. (8)

Or

(b) Explain the various design concepts and notations and their effectiveness in coding. (16)

14. (a) (i) Difference between functional testing and structural testing coding. (8)

(ii) What is code reading? Explain it. (8)

Or

(b) Write short notes on :

(i) Unit testing (8)

(ii) Code inspection. (8)

15. (a) Discuss in detail about SCM process. (16)

Or

(b) What is the scope of software metrics? Explain the classification of metrics. (16)

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Question Paper Code : 96354

M.C.A. DEGREE EXAMINATION, FEBRUARY/MARCH 2014.

First Semester

DMC 7104 — SOFTWARE ENGINEERING

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the difference between a software life cycle and a process model.

2. For each of the following document indicate in which phase of the software life cycle it is produced: final user manual, architecture design, SQA plan, module specification, source code, statement of work, test plan, preliminary user manual, detailed design, cost estimate, project plan, test report, documentation.

3. What is the objective of FAST? Expand.

4. State the requirement gathering for any software package.

5. Why it is necessary to design the system architecture before the specifications are completed?

6. What are the issues in distributed system design?

7. What are test cases? What kinds of test cases are required for unit testing?

8. Explain in one or two sentences why quality metrics by themselves are inadequate for predicting the quality of a software design. State the advantages of function point metrics over the LOC metrics.

9. State the use of CASE tools.

10. Discuss the cost factors involved in major and minor enhancement and maintenance.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the major features of fourth generation techniques. (8)

(ii) Explain in detail the Agile methods and its significance. (8)

Or

(b) Give an evolving software process model to develop a automated grocery store software with details involving customer, suppliers, purchase, items, item – cost, number of items sold, etc. Compare and justify with any other two models. (16)

12. (a) Distinguish between functional and non functional requirements. Consider the following application: You are asked to design a new product – a speed and distance computer to be mounted on the handlebars of a bicycle. The hardware includes two control pushbuttons, an LCD screen and a rotation sensor on the bicycle wheel. The device will have three normal operating modes: display of the current speed and distance traveled today; a graph of distance traveled on each day of the week; and a graph of average speed plotted against day of the week. It will be powered by stored energy from the rotation sensor. As stored energy becomes depleted, power management functions should first save data to non-volatile memory, then turn off the screen, and as a last resort shut down clock functions. Discuss the functional and non functional requirements with SRS in detail for the above application. (16)

Or

(b) Requirements should state what a system should do, without stating how it should do it. Why is this distinction useful? Give the importance of Requirements Engineering in software engineering process? Explain all phases of requirement engineering. (16)

13. (a) Consider the application of developing a personal computerised diary so that you can maintain a diary of appointments at half-hourly intervals during normal working hours. Appointments should be either flexible (able to be moved) or fixed. Ideally, you would like your colleagues to be able to read your electronic diary from different machines but not to update it. Draw a block diagram of a possible architecture for such a system. You should identify the principal subsystems and the links between them. Use a DFD to represent the process. (16)

Or

(b) (i) Explain the various design concepts and notations and their effectiveness in coding. (10)

(ii) Describe the concepts of cohesion and coupling. (6)

14. (a) How do you distinguish black box testing and white box testing? State the significance of both and elaborate on various approaches to white box testing. (16)

Or

(b) (i) Discuss in detail the different issues in coding and good programming practice. (8)

(ii) What factors improve the standard during code inspection and reviews? Discuss. (8)

15. (a) What type of Software Cost Estimation technique is followed in the COCOMO model? Explain in detail all the attributes involved in the Construction Model. Explain project duration and staffing for the same. Illustrate using the home security system application. (16)

Or

(b) (i) Write short notes on Change management. (6)

(ii) Elaborate on Software Configuration Management. (10)