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PGDSM-01

**P.G. DIPLOMA EXAMINATION —
JUNE, 2018.**

Software Quality Management

**FUNDAMENTALS OF INFORMATION
TECHNOLOGY**

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Differentiate between system software and application software.
2. Draw a diagram highlighting functional components of computer and label the same. Brief the various components.
3. Mention the various applications of CASE tools.
4. Write a short note on Internet capabilities.
5. Compare and contrast the functionalities of Repeaters, Routers.

6. Mention any two real-time application software and brief them with their applications.
7. Discuss about retrieval on the Internet.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain about memory hierarchy in detail.
9. List out the types of operating system and explain any two operating system in details.
10. Explain the server software in network operating system.
11. Brief the features, advantages and drawbacks of various network topologies with suitable real time examples.
12. Write in short about important milestones in the evolution of computer systems and also brief the limitations of such type of computer system.
13. What is HTML? Discuss the structure of a HTML document in detail.
14. Explain about the functions of Bridges.

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**P.G. DIPLOMA EXAMINATION —
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Software Quality Management

DATA STRUCTURES THROUGH C

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Brief about various Control Structures in C.
2. What are the various data types in C? Give the limitations of these data types.
3. Write a simple program using multi dimensional array for getting a matrix of numbers as input and displaying the same as output.
4. Brief the differences between structures and unions with suitable example program.
5. Write and explain the procedure for creating a B—Tree.

6. Write a program in C to create, insert and search elements in a singly linked list.
7. Discuss about the structure of a C program.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Write a program to swap two numbers using call by value and call by reference methods. Also brief the differences between the methods.
9. What is stack? How to push, pop and delete elements in the stack? Explain with examples.
10. Explain the various graph traversal techniques with suitable pseudo code.
11. Brief the various types of operators in C with necessary examples.
12. Write a short note on Text and binary files. Also explain Random access in files.
13. List out the various tree traversal techniques. Explain any two methods in detail.
14. Explain Indexed Sequential file structures with neat diagram and examples.

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PGDSM-03

**P.G. DIPLOMA EXAMINATION –
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Software Quality Management

**INTRODUCTION TO DATABASE MANAGEMENT
SYSTEMS**

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. What is an instance? What is a schema? Explain with examples.
2. Brief the drawbacks of file management systems.
3. What is DBA? Mention the functionalities of DBA.
4. Write a short note on sequential file management.
5. State BCNF. How does it differ from 3NF?

6. List and explain the common data types available in SQL.
7. Compare and contrast natural, inner and outer join with suitable examples.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain insertion, deletion and modification anomalies with suitable examples.
9. Discuss the main characteristics of the database approach and specify how it differs from traditional file system. Also explain in detail about the three tier schema architecture of DBMS.
10. What is 2-phase locking protocol? How does it guarantee serializability?
11. State 1NF, 2NF, 3NF and PJNF and explain with examples.
12. Discuss in detail about Direct and Index Sequential file organization techniques.
13. Explain the various relational algebraic operations with suitable examples.

14. Suppose you are given the following requirements for a simple database for the National Football League (NFL) :

- the NFL has many teams.
- each team has a name, a city, a coach, a captain, and a set of players,
- each player belongs to only one team,
- each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records,
- a team captain is also a player.
- a game is played between two teams (referred to as `host_team` and `guest_team`) and has a date (such as May 11th, 2018) and a score (such as 4 to 2).

Construct a clean and concise ER diagram for the NFL database. List your assumptions and clearly indicate the cardinality mappings as well as any role indicators in your ER diagram.

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PGDSM-04

**P.G. DIPLOMA EXAMINATION —
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Software Quality Management

**INTRODUCTION TO SOFTWARE
ENGINEERING**

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. What are the phases in Software development? Mention any two significances of each phase.
2. Discuss about RAD model. State the drawbacks of RAD model.
3. Write a short note about the 4Ps in project management.
4. Brief the role of system analyst in project management.
5. State the objectives of Formal Technical Reviews? Give.

6. Differentiate between verification and validation highlighting their features in software development.
7. Explain integration testing with suitable examples.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Briefly discuss the following software models.
 - (a) Spiral model
 - (b) Incremental model.
9. With a neat block diagram briefly explain the phases of software development.
10. Discuss about Risk and Risk management in software development.
11. Explain project planning and control with suitable case study.
12. What is software configuration management? Explain the various factors that affect software configuration management.
13. Compare and contrast black box testing and white box testing.
14. What is software prototyping? Explain the steps involved in prototyping and its types.

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**P.G. DIPLOMA EXAMINATION —
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Software Quality Management

SOFTWARE TESTING

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. State and explain metrics for Software Quality.
2. State the importance of software testing for real-time software. Is it not needed for all softwares? Justify.
3. Differentiate between testing and debugging. Explain with examples.
4. Discuss the responsibilities of a test specialist.
5. What is automated testing? Explain how it is better than manual testing.

6. What is Alpha and Beta testing? Will every software need both these testing? Justify.
7. Explain the relation between load testing and stress testing using necessary model graphs.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain various models for Software Quality.
9. How is SDLC related to STLC? Illustrate with necessary sketches and explain.
10. Discuss V model and explain how testing is given importance when compared to SDLC models
 - (a) Boehm's Spiral Model
 - (b) RAD model.
11. Write a program to get input for Table no. and print the respective Multiplication Table up to 10. Explain the test cases and test criteria for Equivalence Class Partitioning.
12. Explain TMM in detail.
13. State and explain the architecture of any open source automated testing tool.

14. Explain briefly :

- (a) Unit Testing
 - (b) Performance Testing
 - (c) Usability Testing
 - (d) Random Testing
 - (e) Integration Testing.
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PGDSM-06

**P.G. DIPLOMA EXAMINATION —
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SOFTWARE QUALITY MANAGEMENT

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Define: software quality assurance.
2. Can a software be made with zero defects? Explain.
3. How is software quality controlled in a SD environment? Explain.
4. Discuss Clean room software engineering.
5. Distinguish: Testing and Auditing.
6. Distinguish: Reverse engineering and Re-engineering.
7. What are legacy softwares? How is quality assured for such softwares?

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain the levels of CMM in detail. Also explain the difference with respect to CMMI.
9. State and explain various ways in which software process are implemented.
10. Discuss about software testing methods for TQM.
11. Explain briefly about defect detection, prevention and avoidance strategies.
12. State and explain any two methods each in black box testing and white box testing strategies.
13. What are test cases? How are they designed? Explain the necessary criteria.
14. How is Software quality ensured in modern day practices of Software Development? Explain the benefits and shortcomings involved.