TDC Even Semester Exam., 2019

BVOC (INFORMATION TECHNOLOGY)

(4th Semester)

Course No. : BVOC–GE–403

(Software Engineering)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Define software engineering. Briefly explain three phases of software engineering. 8

(b) Explain spiral model. What are its advantages and disadvantages. 6

2. *(a)* What do you mean by software requirement specification (SRS)? What are its importances during software development? 6

(b) Briefly explain the structure of requirement documents. 5

(c) Write a short note on prototyping model. 3

UNIT—II

3. *(a)* Define the following terms : 8

(i) Abstraction

(ii) Modularity

(iii) Cohesion

(iv) Coupling

(b) Briefly explain structure chart with example. 6

4. *(a)* What do you mean by function-oriented design? What are the principles associated with design of the software? 6

(b) Explain TOP-DOWN and BOTTOM-UP strategies with respect to software design. 8

UNIT—III

5. *(a)* Explain the concept of object-oriented design. 10

(b) Briefly explain Unified Modelling Language (UML). 4

6. *(a)* Define PDL. 2

(b) Discuss the following verification techniques : 12

(i) Design walkthrough

(ii) Critical design review

(iii) Consistency checkers

UNIT—IV

7. *(a)* Explain different levels of testing that are used in the testing process. 8

(b) Briefly explain the term black-box testing and white-box testing. 6

8. *(a)* Describe the concepts of the following structural testing : 12

(i) Control flow-based testing

(ii) Data flow-based testing

(iii) Mutation testing

(b) Define test case specification. 2

UNIT—V

9. *(a)* What do you mean by quality assurance? What are the activities of SQA? 8

(b) Briefly explain software reliability. 6

10. *(a)* Define the following : 12

(i) Version control

(ii) Change control

(iii) The SQA plan

(b) What is the ISO 9001 standard. 2

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TDC Even Semester Exam., 2019

BVOC (INFORMATION TECHNOLOGY)

(4th Semester)

Course No. : BVOC-GE-401

(Indian Culture and Heritage)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. What is meaning of Heritage? Discuss the significance of cultural Heritage of India. 4+10=14

2. Define the term 'cultural identity'. How does the cultural Heritage make the Indian Nation? 4+10=14

UNIT—II

3. Discuss the salient features of Ancient Indian Culture. 14

4. Write a note on Modern Indian Culture. 14

UNIT—III

5. Do you think 'Architecture as symbol of power? Explain. 14

6. Discuss the significant features of temples, tombs and monuments of Indian culture. 14

UNIT—IV

7. Discuss the multiple forms of Indian culture. 14

8. Write a note on various performing arts in India. 14

UNIT—V

9. Discuss the various representations of Native in Indian culture. 14

10. What contribution did Mahatma Gandhi in Environment of Modern World? 14

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TDC Even Semester Exam., 2019

BVOC (INFORMATION TECHNOLOGY)

(4th Semester)

Course No. : BVOC-GE-402

(Database Management System)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Discuss the main characteristics of the database approach. How it differs from traditional file system? 7

(b) Write about different data models. 7

2. *(a)* Write the concept of primary key and foreign key. What is the difference between primary key and foreign key? Give an example. 5

(b) Define referential integrity. 2

(c) Discuss the three-tier architecture of DBMS. How it differs from two-tier architecture? 7

UNIT—II

3. List the operations of relational algebra and explain the purpose of each. 14

4. *(a)* Discuss the tuple and domain relational calculus. 7

(b) Give an example of relational algebra queries using aggregate function. 4

(c) When two relations are said to be union compatible? Explain with an example. 3

UNIT—III

5. *(a)* Design an *E-R* diagram for a database of a company having multiple departments. 7

(b) What is weak entity set? How it differs from strong entity set? Give an example. 4

(c) What do you mean by relationship set? 3

6. *(a)* Design an *E-R* schema diagram for a hospital with a set of patients and a set of doctors. Associate with each patient a log of various tests and examinations conducted. 7

(b) Write short notes on the following : 4+3=7

(i) Cardinality relation

(ii) Participation constraints

UNIT—IV

7. *(a)* What do you mean by functional dependency? Compute the closure of the following set F of functional dependencies for relational schema $R = (A, B, C, D, E)$:

$A \rightarrow BC$

$CD \rightarrow E$

$B \rightarrow D$

$E \rightarrow A$

List the candidate keys of R. 7

(b) Write short notes on the following : 4+3=7

(i) Armstrong's axioms

(ii) Canonical cover

8. Explain the various normal forms with an example. What is the necessity of normalization in the design of database? What is the difference between BCNF and 3NF? 9+2+3=14

UNIT—V

9. *(a)* Create a table in SQL using primary key and foreign key. 4

(b) Give examples of "Like" and "Between" operations. 3

(c) Write SQL commands to create a table "Employee" with attributes "name", "city", "salary", "emp_no", "address". Write SQL commands to insert a row and add an attribute "department into the table". 7

10. *(a)* Illustrate "Group by", "order by" and "Having" clauses with examples. 5

(b) Explain the join operation with an example. 3

(c) How to create a view? Give an example. 3

(d) Write about different built in data type of SQL. 3

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