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## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

**Eighth Semester, B.E. - Computer Science and Engineering**

**Semester End Examination; May/June - 2019**

**Foundation to Information Technology**

Time: 3 hrs

Max. Marks: 100

**Note:** i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.

ii) Missing data if any may be suitably assumed.

### UNIT - I

- 1 a. What is Data Structure? List and explain various operations of stack. 10
- b. Obtain the Postfix and Prefix expression for;  

$$\left( (A + (B - C) * D)^E + F \right) = ?$$
 10
- 2 a. Write the pseudocode for the following queue operation : 10
- i) Insert an item into queue ii) Delete an item from queue iii) Display the contents from queue
- b. What is a Linked list? How linked list are classified? Write the code to insert front for linked list. 10

### UNIT - II

- 3 a. What is Database? Explain the services offered by database management systems. 10
- b. What are constraints? Explain the following keys : 10
- i) Primary key ii) Foreign key iii) Consolidate key
- 4 a. What is ER diagram? Write the ER diagram for student database. 10
- b. What do you mean by DBMS? What are its different types? What is the difference between DELETE and TRUNCATE statements? 10

### UNIT - III

- 5 a. What is SQL? Explain the different subsets of SQL. 10
- b. What is Table? Explain the different operators available in SQL. Write the syntax with example to create the table, alter table. 10
- 6 a. Write SQL query for the following : 10
- i) To Find the names of employees that begin with 'A'?. 10
- ii) To get the third highest salary of an employee from employee table?
- b. Explain the following SQL statements : 10
- i) Count ii) Group by iii) Insert iv) Min v) Max

### UNIT - IV

- 7 a. With a neat diagram, explain four main activities in the requirements of engineering process. 10
- b. What are the attributes of good software? Explain the key challenges facing in software engineering. 10

- 8 a. State and explain the principles of agile methods. 10
- b. With a neat diagram, explain the water fall model of software development process. 10

**UNIT - V**

- 9 a. What is object orientation? List and explain four aspects (characteristics) required by OO approach. 10
- b. What is model? Explain the 3 kinds of models to describe a system from different viewpoints. 10
- 10 a. Define the following terms with an example :
  - i) Objects
  - ii) Classes
  - iii) Class diagrams
  - iv) Operations and methods
  - v) Values and Attributes
- b. Define state diagram and state model. Draw the state diagram for telephone line with activities. 10

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