CBCS SCHEME

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Management and Entrepreneurship for IT Industry

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a. Explain the various roles of a manager.   (06 Marks)
   b. Explain the contribution of FW Taylor to the theory of management.   (10 Marks)

OR

2   a. Explain the steps involved in planning, and give the importance and purpose of planning process.   (12 Marks)
   b. What are MBO and MBE? Explain.   (04 Marks)

Module-2

3   a. Explain types of leaders or leadership styles.   (06 Marks)
   b. Explain steps in controlling.   (10 Marks)

OR

4   a. Explain Maslow's hierarchy theory.   (10 Marks)
   b. Explain the following: (i) Cognitive evaluation theory
                         (ii) Herzberg (two factor theory)   (06 Marks)

Module-3

5   a. Differentiate between entrepreneur, intraprenur and manager.   (04 Marks)
   b. Explain various stages in entrepreneurial process.   (12 Marks)

OR

6   a. List some of the most commonly attributed reasons for the lack of entrepreneurship in India.   (12 Marks)
   b. Write short notes on: (i) Procrastination   (ii) Tying your dreams to age   (04 Marks)

Module-4

7   a. Explain the phases of project identification with its sources.   (04 Marks)
   b. List out various contents of project report.   (12 Marks)

OR

8   a. Explain various factors to be considered for selection of a project.   (06 Marks)
   b. Give the meaning of project appraisal.   (10 Marks)

Module-5

9   a. Explain the following:
     (i) NSIC   (ii) DIC   (iii) NIMSMIET   (iv) NIESBUD   (v) KSFC   (10 Marks)
   b. Justify WTO and its impact on Small Scale Industries in India.   (06 Marks)

OR

10   a. What is TECSOK? Explain the services offered by TECSOK.   (10 Marks)
   b. Explain the aims and objectives of KIADB.   (06 Marks)

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Computer Networks

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Explain HTTP messages.   (08 Marks)
   b. Explain web caching with diagram.   (08 Marks)

OR

2 a. Explain FTP with its commands and replies.   (08 Marks)
   b. Explain SMTP.   (04 Marks)
   c. Explain DNS resource record.   (04 Marks)

Module-2

3 a. Explain Sender's view of sequence numbers and its operation in Goback N protocol.   (08 Marks)
   b. Draw TCP segment structure and explain.   (08 Marks)

OR

4 a. Explain 3 way handshake and closing a TCP connection.   (08 Marks)
   b. Explain the causes and costs of congestion.   (08 Marks)

Module-3

5 a. With diagram explain router architecture.   (08 Marks)
   b. Explain IP fragmentation.   (08 Marks)

OR

6 a. Explain distance vector algorithm.   (08 Marks)
   b. Explain 4 types of hierarchical OSPF routers.   (04 Marks)
   c. Compare link state with distance vector algorithm.   (04 Marks)

Module-4

7 a. Explain components of a cellular network architecture.   (08 Marks)
   b. Explain direct routing of a mobile node.   (08 Marks)

OR

8 a. Explain steps of handoff a mobile user.   (08 Marks)
   b. Explain HLR, VLR, home address, care-of-address.   (08 Marks)

Module-5

9 a. With diagram, explain naïve architecture for audio/video streaming.   (08 Marks)
   b. Explain audio compression in internet.   (08 Marks)

OR

10 a. With diagram, explain interaction between client and server using RTSP.   (08 Marks)
    b. Explain how streaming from streaming server to a media player is done.   (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Database Management System

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a. What are the responsibilities of the DBA and Database Designer?   **(06 Marks)**
    b. With neat diagram, explain "three schema Architecture".   **(05 Marks)**
    c. Discuss the different types of user friendly interfaces and the types of user who typically use each.   **(05 Marks)**

OR

2   a. Explain with block diagram the different phases of database design.   **(08 Marks)**
    b. Draw an ER-Diagram of movie database. Assume your own entities (minimum 4) attributes and relationships.   **(08 Marks)**

Module-2

3   a. Discuss the characteristics of relations.   **(06 Marks)**
    b. Outline the steps to convert the basic ER Model to relational Database schema.   **(06 Marks)**
    c. Define the following:
        i)   Relation state
        ii)   Relation schema
        iii) Arity
        iv)   Domain.   **(04 Marks)**

OR

4   a. Discuss the various types of set theory operations with example.   **(08 Marks)**
    b. Consider the two tables, show the results of the following:

T_1		
A	B	C
10	a	5
15	b	8
25	a	6

T_2		
P	Q	R
10	b	6
25	c	3
10	b	5

i) $T_1 \bowtie T_2$
      $T_1 \cdot B = T_2 \cdot Q$

ii) $T_1 \bowtie T_2$
      $T_1 \cdot A = T_2 \cdot P$

iii) $T_1 \bowtie T_2$
      $(T_1 \cdot A = T_2 \cdot P) \ AND \ (T_1 \cdot C = T_2 \cdot R)$

iv) $T_1 - T_2$

                                                                                                (08 Marks)

Module-3

5 a. How does SQL implement the entity integrity constraints of the relational data model? Explain with an example. **(04 Marks)**

b. Discuss: i) Shared variables   ii) Communication variables. **(06 Marks)**

c. Explain with examples in SQL:
    i)   Drop command
    ii) Delete command
    iii) Update command. **(06 Marks)**

OR

6 a. With program segment, explain retrieving of tuples with embedded SQL in C. **(06 Marks)**

b. Consider the following tables:
    works (Pname, Cname, Salary)
    lives (Pname, Street, City)
    located-In (Cname, City)
    write the following queries in SQL:
    i)   List the names of the people who work for the company 'Wipro' along with the cities they live in.
    ii) Find the names of the persons who do not work for 'Infosys'.
    iii) Find the people whose salaries are more than that of all of the 'oracle' employees.
    iv) Find the persons who works and lives in the same city. **(10 Marks)**

Module-4

7 a. What do you mean by closure of attribute? Write an algorithm to find closure of attribute. **(06 Marks)**

b. Explain any two informal quality measures employed for a relation schema design. **(04 Marks)**

c. Given below are two sets of FDs for a relation R (A, B, C, D, E). Are they equivalent?
    i) $A \rightarrow B$, $AB \rightarrow C$, $D \rightarrow AC$, $D \rightarrow E$
    ii) $A \rightarrow BC$, $D \rightarrow AE$ **(06 Marks)**

OR

8 a. What do you mean by multivalued dependency? Explain the 4NF with example. **(06 Marks)**

b. Suggest and explain three different techniques to achieve INF using suitable example. **(04 Marks)**

c. Consider the following relation for CARSALE (CAR-NO, Date-Sold, Salesman No, Commission, Discount)
    Assume a car can be sold by multiple salesman and hence primary key is {CAR_No, Salesman_No}.
    Additional dependencies are
    Date_Sold $\rightarrow$ Discount
    Salesman_No $\rightarrow$ Commission
    i)   Is this relation in 1NF, 2NF or 3NF? Why or why not?
    ii) How would you normalize this completely? **(06 Marks)**

Module-5

9 a. Discuss the ACID properties of a transaction. **(04 Marks)**

b. What are the anomalies occur due to interleave execution? Explain them with example. **(06 Marks)**

c. Consider the three transactions T_1, T_2 and T_3 and schedules S_1 and S_2 given below. Determine whether each schedule is serializable or not? If a schedule is serializable write down the equivalent serial schedule (S).

$T_1 : R_1(x);\ R_1(z);\ W_1(x);$

$T_2 : R_2(x);\ R_2(y);\ W_2(z);\ W_2(y);$

$T_3 : R_3(x);\ R_3(y);\ W_3(y);$

S1 : $R_1(x);\ R_2(z);\ R_1(z);\ R_3(x);\ R_3(y);\ W_1(x);\ W_3(y);\ R_2(y);\ W_2(z);\ W_2(y);$

S2 : $R_1(x);\ R_2(z);\ R_3(x);\ R_1(z);\ R_2(y);\ R_3(y);\ W_1(x);\ W_2(z);\ W_3(y);\ W_2(y);$

(06 Marks)

OR

10 a. Describe the problems that occur when concurrent execution uncontrolled. Give examples.

(06 Marks)

b. What is two phase locking? Describe with the help of an example. (04 Marks)

c. What is Deadlock? Consider the following sequences of actions listed in the order they are submitted to the DBMS.

Sequence S1: $R_1(A);\ W_2(B);\ R_1(B);\ R_3(C);\ W_2(C);\ W_4(B);\ W_3(A)$

Draw waits-for graph in case of Deadlock situation. (06 Marks)

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Automata Theory and Computability

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 80

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*
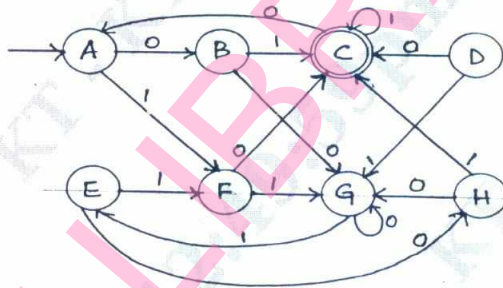
Module-1

1　a. Define the following with example :
　　　i) String　　ii) Language　　iii) Alphabet　　iv) DFSM.　　(08 Marks)
　b. Design a DFSM to accept each of the following languages :
　　　i)　$L = \{W \in \{0, 1\}^* : W$ has 001 as a substring$\}$
　　　ii)　$L = \{W \in \{a, b\}^* : W$ has even number of a's and even number of b's$\}$.　　(08 Marks)

OR

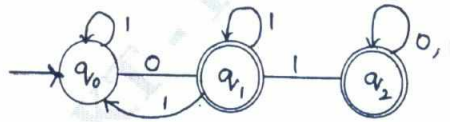2　a. Define NDFSM. Convert the following NDFSM to its equivalent DFSM.　　(08 Marks)

　b. Minimize the following DFSM.　　(08 Marks)

Module-2

3　a. Define Regular expression and write Regular expression for the following language.
　　　i)　$L = \{a^{2n} b^{2m} \mid n \geq 0, m \geq 0\}$　　(08 Marks)
　　　ii)　$L = \{a^n b^m \mid m \geq 1, n \geq 1, nm \geq 3\}$.
　b. Obtain the Regular expression for the following FSM.　　(08 Marks)

OR

4　a. Define a Regular grammar. Design regular grammars for the following languages.
　　　i)　Strings of a's and b's with at least one a.
　　　ii)　Strings of a's and b's having strings without ending with ab.
　　　iii)　Strings of 0's and 1's with three consecutive 0's.　　(08 Marks)
　b. State and prove pumping theorem for regular languages.　　(08 Marks)

Module-3

5   a.   Define context free grammar. Design a context free grammar for the languages.   (08 Marks)
i) $L = \{0^m \, 1^m \, 2^n \mid m \geq 0 \, , \, n \geq 0\}$ ii) $L = \{a^i \, b^j \mid i \neq j \, , \, i \geq 0 \, , \, j \geq 0\}$
iii) $L = \{a^n \, b^{n-3} \mid n \geq 3\}$.
   b.   Consider the grammar G with production.
$S \rightarrow AbB$
$A \rightarrow aA \mid \in$ (08 Marks)
$B \rightarrow aB \mid bB \mid \in$
Obtain leftmost derivation , rightmost derivation and parse tree for the string aaabab.

OR

6   a.   Define a PDA. Obtain a PDA to accept
$L = \{a^n \, b^n \mid W \in \{a, b\}^*\}$. Draw the transition diagram.   (08 Marks)
   b.   Convert the following grammar into equivalent PDA.
$S \rightarrow aABC$
$A \rightarrow aB \mid a$
$B \rightarrow bA \mid b$ (08 Marks)
$C \rightarrow a$.

Module-4

7   a.   State and prove pumping lemma for context free languages. Show that   (10 Marks)
$L = \{a^n \, b^n \, c^n \mid n \geq 0\}$ is not context free.
   b.   Explain Turing machine model.   (06 Marks)

OR

8   a.   Design a Turing machine to accept the language $L = \{0^n \, 1^n \, 2^n \mid n \geq 1\}$.   (08 Marks)
   b.   Design a Turing machine to accept strings of a's and b's ending with ab or ba.   (08 Marks)

Module-5

9   a.   Explain the following :
i) Non deterministic Turing machine   ii) Multi – tape Turing machine.   (06 Marks)
   b.   Define the following :
i) Recursively enumerable language   ii) Decidable language.   (06 Marks)
   c.   What is Post correspondence problem?   (04 Marks)

OR

10 a.   What is Halting problem of Turing machine?   (06 Marks)
   b.   Define the following : i) Quantum computer   ii) Class NP.   (06 Marks)
   c.   Explain Church Turing Thesis.   (04 Marks)

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Object Oriented Modeling and Design

Time: 3 hrs.   Max. Marks: 80

Note: *Answer FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a. What is object orientation? Explain OO Themes. (08 Marks)
    b. Define the following terms with examples:
       (i) Object   (ii) Class   (iii) Multiplicity   (iv) Link and Association   (08 Marks)

OR

2   a. Explain the three models used in object oriented modeling and design. (08 Marks)
    b. Briefly explain Aggregation and Composition. (08 Marks)

Module-2

3   a. What are use case diagrams? Explain Use Case diagrams with an example. (08 Marks)
    b. What are sequence diagrams? Explain sequence diagrams with an example. (08 Marks)

OR

4   a. Define state diagram. Explain state diagram for order item and mention states and exit
       transitions for order. (08 Marks)
    b. Briefly explain the steps involved in developing state chart diagram. (08 Marks)

Module-3

5   a. Explain software development stages. (08 Marks)
    b. Explain waterfall development and iterative development life cycles. (08 Marks)

OR

6   a. Explain an overview of Domain Analysis. (08 Marks)
    b. Explain the steps involved in constructing a domain class model. (08 Marks)

Module-4

7   a. Explain design classes and design class diagrams. (08 Marks)
    b. Briefly explain object responsibility and class responsibility collaboration cards. (08 Marks)

OR

8   a. Explain designing with communication diagrams. (08 Marks)
    b. List and explain the primary responsibility of view layer classes, domain layer classes and
       data access layer classes. (08 Marks)

Module-5

9   a. What is design pattern? Explain four essential elements of design pattern. (08 Marks)
    b. Explain selecting a design pattern and how to use a design pattern. (08 Marks)

OR

10 a. Briefly explain the general template for describing design pattern. (08 Marks)
    b. Write short note on:
       (i)   Creational pattern.
       (ii) Structural pattern. (08 Marks)

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Advanced JAVA and J2EE

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a.   What is auto-boxing? Write a program to demonstrate autoboxing/unboxing.   **(05 Marks)**
     b.   What do you mean by type wrapper? Explain numeric type wrapper with an example program in JAVA.   **(05 Marks)**
     c.   Explain the following methods of java.lang.Enum with an example:
        i) ordinal( )   ii) compareTo( )   iii) equals( )   **(06 Marks)**

OR

2   a.   Demonstrate single annotation with an example.   **(04 Marks)**
     b.   Explain following built-in annotations with a program in Java:
        i) @Override   ii) @Inherited   iii) @Retention   **(06 Marks)**
     c.   Explain different retention policies for annotations in Java.   **(06 Marks)**

Module-2

3   a.   Explain ArrayList. Write a program to demonstrate how ArrayList can be used to insert and remover string.   **(08 Marks)**
     b.   Explain Queue interface. Explain different methods defined by Queue.   **(08 Marks)**

OR

4   a.   Create a class STUDENT with two private string members: USN, Name using LinkedList class in Java, write a program to add atleast 3 objects of above STUDENT class. Also display the data in neat format.   **(08 Marks)**
     b.   Explain ArrayList class and explain following methods:
        i) binarySearch   ii) copyOf   iii) equals   iv) fill   **(08 Marks)**

Module-3

5   a.   Explain following StringBuffer methods with an example:
        i) insert   ii) append   iii) replace   iv) substring   **(08 Marks)**
     b.   Differentiate String and StringBuffer class. Write a program to demonstrate different construction of String class.   **(08 Marks)**

OR

6   a.   Write a program to remove duplicate characters from a given string and display the resultant string.   **(06 Marks)**
     b.   Differentiate between equals( ) and = = with respect to string with a program.   **(06 Marks)**
     c.   Explain following character extraction method: i) charAt( )   ii) toCharArray( )   **(04 Marks)**

Module-4

7   a.   What is the role of Tomcat server? Explain different steps involved in configuring for development of servlet program execution.   **(08 Marks)**
     b.   Write a Java servlet program to accept two parameter from webpage, find the sum of them, display the result in web page. Also give necessary html script to create web page. **(08 Marks)**

OR

8 a. Explain different JSP tags with a program to demonstrate all tags. **(08 Marks)**
   b. What are cookies? How cookies are handled in JSP? Write a program to create with name "Username" and cookie value "xyz". Also display stored cookie in webpage. **(08 Marks)**

Module-5

9 a. What are database drivers? Explain different JDBC driver types. **(08 Marks)**
   b. List and explain various statement objects in JDBC. **(08 Marks)**

OR

10 a. Explain different steps involved in JDBC process, with a code snippet. Also give exception handling block. **(08 Marks)**
    b. Write a program to connect to database with following information:
        Drive: JDBC/ODBC bridge
        URL: "jdbc.odbc:Ex"
        Username: "xyz"
        Password: "123"
        Retrieve all rows with marks > 60 using prepared statement object. Assume following table:
        Table Name : STUDENT
        Fields : USN-Varchar (20)
                 Marks-int
                 Name-Varchar (25)

        (08 Marks)

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15CS562

Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Artificial Intelligence

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1	a.	Define Artificial Intelligence and list the task domains of Artificial Intelligence.	(06 Marks)
	b.	State and explain algorithm for Best First Search with an example.	(06 Marks)
	c.	Explain production system.	(04 Marks)

OR

2	a.	Write a note on Water Jug problem using production rules.	(08 Marks)
	b.	Explain simulated annealing.	(04 Marks)
	c.	Explain problem reduction with respect to AND-OR graphs.	(04 Marks)

Module-2

3	a.	Explain the approaches to knowledge representation.	(10 Marks)
	b.	Write a note on control knowledge.	(06 Marks)

OR

4	a.	State the algorithm to Unify (L_1, L_2).	(06 Marks)
	b.	Write the algorithm for conversion to clause form.	(10 Marks)

Module-3

5	a.	Explain Justification based Truth Maintenance System (TMS) with an example.	(08 Marks)
	b.	Write a note on Non-Monotonic logic and default logic.	(04 Marks)
	c.	Explain abduction and inheritance.	(04 Marks)

OR

6	a.	Write a note on Dempster Shafer theory.	(08 Marks)
	b.	Define semantic network with an example.	(04 Marks)
	c.	State Baye's theorem.	(04 Marks)

Module-4

7	a.	Explain conceptual dependency along with its goals and representation.	(08 Marks)
	b.	Give the reasons to build large databases.	(04 Marks)
	c.	Write a note on iterative deepening.	(04 Marks)

OR

8	a.	Write a note on global ontology.	(10 Marks)
	b.	Explain Minimax search procedure.	(06 Marks)

Module-5

9	a.	Define learning and give the difference between neural net learning and genetic learning.	(06 Marks)
	b.	Write a note on Knowledge acquisition.	(06 Marks)
	c.	Explain Rote learning.	(04 Marks)

OR

10	a.	Explain the five phases of natural language processing.	(10 Marks)
	b.	Explain spell checking techniques.	(06 Marks)

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Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Dot Net Frame Work for Application Development

Time: 3 hrs.   Max. Marks: 80

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Explain Namespaces and Assemblies in brief.   (04 Marks)
   b. Explain concept of named arguments with programming example.   (06 Marks)
   c. Write a C # program to find factorial of a given number.   (06 Marks)

OR

2 a. Explain how to use while, for, and do statements to execute code repeatedly while some Boolean condition is true with an example.   (08 Marks)
   b. Define Exception. Explain how to catch and handle exceptions by using the try and catch constructs with programming example.   (08 Marks)

Module-2

3 a. Explain Anonymous classes, with an example.   (04 Marks)
   b. Explain Boxing and Unboxing, with an example.   (06 Marks)
   c. Explain how arguments are passed as method parameters by using 'ref' and 'out' keywords.   (06 Marks)

OR

4 a. Define Constructor. Explain constructor overloading with a programming example.
                                                                            (08 Marks)
   b. Write a C # program to compute row sum and column sum of rectangular array.   (08 Marks)

Module-3

5 a. Explain the concept of params array with programming example.   (06 Marks)
   b. Define Inheritance. Explain how to create a derived class that inherits features from a base class, with an example program.   (06 Marks)
   c. Explain Abstract class and Abstract method, with an example.   (04 Marks)

OR

6 a. Explain how to manage system resources by using Garbage collector.   (06 Marks)
   b. Explain how to implement interface in a class with programming example. (06 Marks)
   c. Explain Sealed classes and Sealed methods in brief.   (04 Marks)

Module-4

7 a. Explain read – only and write – only properties with an example.   (04 Marks)
   b. Compare indexers and arrays with an example.   (04 Marks)
   c. Explain Binary tree Algorithm, with an example.   (08 Marks)

OR

8 a. What is an Indexer? List and explain set of operators provided by C # that you can use to access and manipulate the individual bits in an int.   (08 Marks)
   b. Explain Linked list < T > collection class with programming example.   (08 Marks)

Module-5

9 a. Explain how to implement an enumerator manually with an example. (06 Marks)
   b. Define Delegate. Explain how to declare delegate with an example. (05 Marks)
   c. Explain how to handle and event by using a delegate, with an example. (05 Marks)

OR

10 a. What is LINQ? Explain LINQ to selecting and ordering data, with an example. (08 Marks)
    b. Explain Operator overloading and their constraints with a programming example. (08 Marks)

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