CBCS SCHEME

USN												17CS51
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Fifth Semester B.E. Degree Examination, Aug./Sept.2020 Management and Entrepreneurship for IT Industry

Time: 3 hrs. Max. Marks: 100

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

Module-1 Define Management. Explain the functions of management. (10 Marks) b. Discuss in detail levels of management. (05 Marks) c. Explain any two modern management approaches. (05 Marks) Define planning? Explain types of plans. (07 Marks) b. Explain the steps involved in Decision-making with neat diagram. (06 Marks) Explain types of organizations in detail with advantages and disadvantages. (07 Marks) Module-2 List out the differences between recruitment and selection. 3 (05 Marks) b. Explain selection procedure in detail. (10 Marks) What is leadership? Explain various styles of leadership. (05 Marks) OR Explain any two motivation theories. (10 Marks) b. Describe communication process and its importance. (05 Marks) c. Explain steps in Control Process. (05 Marks) Module-3 Define Entrepreneur. Explain classification of Entrepreneur. (08 Marks) b. Differentiate Entrepreneur and Manager. (06 Marks) c. Briefly explain the stages of entrepreneurial process. (06 Marks) What are the barriers faced by Entrepreneurs to start an enterprise. (05 Marks) Distinguish between Intrapreneur and Entrepreneur. (05 Marks) Explain the different types of feasibility study in identification of Business opportunities. (10 Marks) Module-4 Define Project. Explain Project classification. (05 Marks) b. Explain in detail the contents of Project Report. (10 Marks) Discuss Project Identification and Selection. (05 Marks)

OR

Define ERP. Discuss functional areas of management with neat diagram. (10 Marks) 8 (10 Marks) Discuss the steps involved in report writing.

17CS51

Module-5

9 a. Explain characteristics and advantages of micro and small enterprises.

b. Explain the following:

(i) NSIC

(ii) SIDBI

(iii) KIADB

OR

10 a. Define IPR. Explain in detail the main forms of Intellectual Property Rights?

b. Write case study on:

(i) N. R. Narayana Murthy

(ii) Microsoft

(10 Marks)

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CBCS SCHEME

USN												17CS52
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Fifth Semester B.E. Degree Examination, Aug./Sept.2020 **Computer Networks**

Time: 3 hrs. Max. Marks: 100

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

Module-1

	b.	What are the different types of transport services provided by the internet?	(08 Marks)
	c.	With a general format, explain the HTTP Request and HTTP Response messages.	(06 Marks)
		OR	
2	a.	Explain FTP commands and replies.	(08 Marks)
	b.	What are the services provided by DNS?	(04 Marks)
	c.	Write a short note on:	
		i) Web caching	
		ii) SMTP.	(08 Marks)
		Module-2	
3	a.	Explain UDP segment structure.	(06 Marks)
	b.	With the help of FSM, describe the sender side and receiver side of rdt 2.0.	(08 Marks)
	c.	Explain Selective Repeat Protocol.	(06 Marks)

OR

- With a neat diagram, explain TCP segment structure and its fields. (08 Marks) Explain the way handshake and closing a TCP connection. (08 Marks)

Compare client-server and peer-to-peer architecture.

- Define the following:
 - Multiplexing ii) Demultiplexing
 - iii) TCP
 - iv) UDP.

(04 Marks)

(06 Marks)

Module-3

List and explain three switching techniques with a neat diagram. (10 Marks) (10 Marks)

OR

With the help of FSM, describe the sender side and receiver side of rdt 2.0.

- Write the algorithm for the following:
 - i) Link-state
 - ii) Distance vector.

(08 Marks)

- Write a short note on: b.
 - Broadcast routing
 - ii) Multicast routing.

(12 Marks)

Module-4 (08 Marks) Explain 3G system architecture. Explain the two different routing approaches to mobile node. (12 Marks) Define handoff. List the steps involved when a base station does decide to handoff a mobile 8 (10 Marks) user. Write a short note on: i) Agent discovery in mobile IP ii) Registration with the home agent in mobile IP. (10 Marks) Module-5 List and explain the types of multimedia networking application. (10 Marks) Briefly explain the following: i) RTP (10 Marks) ii) SIP. Write a short note on: 10 FIFO scheduling mechanism Priority queueing scheduling mechanism Round robin and weighted fair queuing scheduling mechanism. (20 Marks)

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GBGS SCHEME

USN						17CS53
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Fifth Semester B.E. Degree Examination, Aug./Sept.2020 Data Base Management Systems

Time: 3 hrs. Max. Marks: 100

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

Module-1

- 1 a. With a neat diagram, explain the components modules of DBMS and their interactions.

 (08 Marks)
 - b. Explain the main characteristics of the database approach versus the file processing approach. (08 Marks)
 - c. Define the following with example:
 - i) Value set
- ii) Data model
- iii) Metadata iv) Database.

(04 Marks)

OR

- 2 a. List the advantages and disadvantages of DBMS. Discuss any five advantages by comparing with file system. (08 Marks)
 - b. What are the structural constraints on a relationship type? Explain with an example.

(06 Marks)

c. Write a short note on Specialization and Generalization, with an example for each. (06 Marks)

Module-2

3 a. Consider the following schema and write the relational algebra:

Sailors (SID, Sname, Rating, Age)

BOATS (BID, Bname, Color)

RESERVE (SID, BID, Day)

- i) Retrieve the sailors name who have reserved red and green boats.
- ii) Retrieve the sailors name with age over 20 years and reserved black boat.
- iii) Retrieve the sailors name who have reserved green boat on Monday.
- iv) Retrieve the number of boats which are not reserved.
- v) Retrieve the sailors names who is the oldest sailor with rating 10.

(10 Marks)

- b. List Set theory operations, used in relational data model. Explain any two with an example.
 (06 Marks)
- c. Define the followings:
 - i) Relation state
- ii) Domain
- iii) Relation schema iv) Arity.

(04 Marks)

OR

- 4 a. Discuss the various types of JOIN operations with an example. Why is THETA join required? (06 Marks)
 - b. Describe the steps of an algorithm for ER to Relational mapping.

(10 Marks)

c. Describe any two characteristics of relations with suitable example for each.

(04 Marks)

Module-3

5 a. How is view created and dropped? What problems are associated with updating views?

(08 Marks)

b. Consider the schema for COMPANY database:

EMPLOYEE (SSN, Name, Address, Sex, Salary, SuperSSN, DNo)

DEPARTMENT (DNo. Dname, MgrSSN, MgrStartDate)

DLOCATION (DNo, DLoc)

PROJECT (PNo, PName, PLocation. DNo)

WORK ON (SSN, PNo, Hours)

Write the SQL queries to:

- i) Make a list of all project numbers for projects that involve as employee whose last name is 'Scott', either as a worker or as a manager of the department that controls the project.
- ii) Show the resulting salaries if every employee working on the 'IOT' project is given a 10% raise.
- iii) Find the sum of salaries of all Employees of the 'accounts' departments as well as the maximum salary, the minimum salary and the average salary in this department.
- iv) Retrieve the name of each Employee who works on all the projects controlled by department number 5 (Use NOT EXISTS Operator).
- v) For each department that has more than five employees, retrieve the department number and the number of its Employee who are making more than Rs 6,00,000. (12 Marks)

OR

- 6 a. Define Stored Procedure. Explain the creating and calling of stored procedure with suitable example. (08 Marks)
 - b. Explain three tier architecture, with a neat diagram.

(04 Marks)

c. Consider the schema for STUDENT database.

STUDENTS (SID, Sname, Major, GPA)

FACULTY (FID, Fname, Dept, Designation, Salary)

COURSE (CID, Cname, FID)

ENROL (CID, SID, GRADE)

Write the following query is SQL:

- 1) Give a 15% raise to salary of all faculty.
- 2) List all the departments having an average salary of above Rs 20,000.
- 3) List the names of all faculty members beginning with 'R' and ending with letter "U".
- 4) List the names of students enrolled for the course 'GS 53' and have received 'A' grade. (08 Marks)

Module-4

a. Explain informal design guidelines for relation schemes.

(06 Marks)

b. What is the need for normalization? Explain 1st, 2nd, 3rd normal forms, with an examples.

(14 Marks)

OR

8 a. Find the minimal cover of F.D.

 $E: \{B \rightarrow A, D \rightarrow A, AB \rightarrow D\}.$

(06 Marks)

- b. Consider R(A, B, C, D) with FD = $\{A \rightarrow B, B \rightarrow C, C \rightarrow D\}$.
 - i) Find the key ii) Indicate the highest normal form and convert the relation into BCNF.
 (08 Marks)
- c. Write an algorithm to find the closure of 'X' and 'F'.

(06 Marks)

Module-5

9 a. Explain the desirable properties of a transactions.

(08 Marks)

b. Explain with a neat diagram, the state transition diagram for a transaction.

(08 Marks)

c. What is two phase locking? Describe with the help of an example.

(04 Marks)

OR

10 a. Why concurrency control is needed demonstrate with example?

(10 Marks)

b. When deadlock and starvation problems occurs? Explain how these problems can be resolved? (10 Marks)



USN 17CS54

Fifth Semester B.E. Degree Examination, Aug./Sept. 2020 **Automata Theory & Computability**

Time: 3 hrs.

Max. Marks: 100

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

Module-1

Define DFA. What are the differences between DFA and NFA? 1

(06 Marks)

Construct the DFA for the following languages over $\sum = \{a, b\}$

Set of all strings ending with a and b.

Set of all strings not containing the substring "aab". (ii) Set of all strings with exactly three consecutive a's.

(09 Marks)

Construct the NDFA model for the following language:

 $L = \{ \omega \in \{a, b\}^* : \omega = \text{aba or } |\omega| \text{ is even} \}$

 $L = \{\omega : \text{there is a symbol } a_i \in \sum \text{not appearing in } \omega \} \text{ where } \sum = \{a, b, c, d\}$

(05 Marks)

Convert the following \in -NFA to DFA. (Ref. Fig. Q2 (a)).

(08 Marks)



Minimize the following automata: (Ref. Fig. Q2 (b))

(08 Marks)

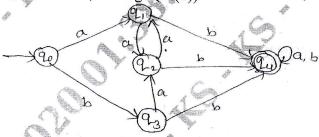


Fig. Q2 (b)

Different between Mealy machine and Moore machine with example.

(04 Marks)

Module-2

Define Regular expression. Convert the following automation to a regular expression.

(08 Marks)

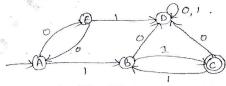


Fig. Q3 (a)

Construct the NFA for the following regular expression (04 Marks)

State and prove the pumping lemma for regular languages.

(08 Marks)

OR

Show that $L = \{O^n \mid n \text{ is prime}\}\$ is not regular?

(06 Marks)

- State and prove that regular languages are closed under complement, intersection difference, reverse and letter substitution. (08 Marks)
- Write the regular expression for the following languages:

 $L = \{a^n b^m \mid m + n \text{ is even}\}\$

$$L = \{a^n b^m \mid m > 1, n \ge 1 \text{ nm} \ge 3\}$$

(06 Marks)

Module-3

Define Regular Grammar? Write CFG for the following languages: 5

 $L = \{0^{n}1^{n} \mid n \ge 1\}$

 $L = \{ \text{ strings of a's and b's with equal no. of a's and b's } \}$

(05 Marks)

b. Define ambiguous grammar and show that following expression grammar is ambiguous over the string id + id * id . Write equivalent unambiguous grammar for the same? Grammar

 $E \rightarrow E + E$

 $E \rightarrow E - E$

 $E \rightarrow E * E$

 $E \rightarrow E/E$

 $E \rightarrow id$

(05 Marks)

c. Define PDA. Obtain a PDA to accept the following language:

 $L = \{n_a(\omega) = n_b(\omega) \text{ where } n \ge 1\}$

Draw the transition diagram for PDA. Also show the moves made by the PDA for the string "aabbab". (10 Marks)

Obtain the following grammar in CNF

 $S \rightarrow ABC$

 $A \rightarrow aC/D$

 $B \rightarrow bB/E/A$

 $C \rightarrow Ac/E/Cc$

 $D \rightarrow aa$

(10 Marks)

Define inherently ambiguous language with example.

(04 Marks)

Let G be the grammar.

 $S \rightarrow aB/bA$

 $A \rightarrow a/aS/bAA$

 $B \rightarrow b/bS/aBB$

For the string aaabbabbba find

- Left most derivation. (i)
- Right most derivation. (ii)
- (iii) Parse tree.

(06 Marks)

Module-4

State and prove the pumping theorem for Context Free Languages.

Show that $L = \{a^n b^n c^n \mid n \ge 0\}$ is not content free.

(12 Marks)

Define Turing machine and explain with neat diagram, the working of a basic turing machine. (08 Marks)

OR

- 8 a. Design a TM to accept {0ⁿ1ⁿ2ⁿ | n ≥ 1} and show the moves made by the machine for the string 000111222?
 b. Describe in detail decidable languages.
 (10 Marks)
 (05 Marks)
 - c. Briefly explain the technique for Turing machine construction?

(05 Marks)

Module-5

- 9 a. Explain the following:
 - (i) Non deterministic Turing Machine.
 - (ii) Multitape Turing Machine.

(10 Marks)

- b. Discuss the following:
 - (i) Recersively enumerable language.
 - (ii) Post correspondence problem.

(10 Marks)

OR

- Write short note on the following:
 - a. Quantum computer.
 - b. Class NP.
 - c. Church Turing Thesis.
 - d. Model of linear bounded automation.
 - e. Halting problem of Turing Machine.

(20 Marks)



USN													17CS553
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Fifth Semester B.E. Degree Examination, Aug./Sept. 2020 Advanced Java and J2EE

Time: 3 hrs. Max. Marks: 100

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

Module-1

- a. Compare and contrast auto boxing and unboxing in Java with an example. (06 Marks)
 - b. Build a Java program to create an enumeration class of seasons and demonstrate usage of values () and valueOf() methods. (08 Marks)
 - c. What is an Annotation? Explain various retention policies for annotation in Java. (06 Marks)

OF

- 2 a. Explain the following methods of java.lang.Enum with an example
 - i) Ordinal()
 - ii) compareTo()
 - iii) equals ()

(06 Marks)

b. What do you mean by Type Wrapper? Explain numeric type wrapper with an example.

(06 Marks)

c. Explain the following Built-in Annotations with a Java code i) Override
iii) Retention.

(08 Marks)

Module-2

- 3 a. What is collection framework? Explain any four methods defined by the collection interface.
 (10 Marks)
 - b. Define legacy class vector with syntax declaration and demonstrate various vector operations. (06 Marks)
 - c. Explain the constructors of TreeSet with example.

(04 Marks)

OR

- 4 a. Create a class EMPLOYEE with two private string members: employee_id, employee_Name. Using LinkedList class, develop a Java program to add atleast 3 objects of above EMPLOYEE class and display the data in neat format. (08 Marks)
 - b. Demonstrate ArrayList class for collection with an example. (06 Marks)
 - c. Write the syntax declaration of Queue interface and explain any four methods defined by Queue. (06 Marks)

Module-3

- 5 a. Define String. Explain the different ways constructing string object. (06 Marks)
 - b. Explain and make use of the following string handling methods to modify a string.
 - i) substring ()
 - ii) concat ()
 - iii) replace ()
 - iv) trim() (08 Marks)
 - c. Develop a Java program to count the occurrence of character in a given string. (06 Marks)

		OR	
6	a.	Differentiate between string and string Buffer explain reverse () method of s with an example.	(08 Marks)
	b.	Explain the following character extraction methods: i) charAt() ii) to charArry() . (06 Marks)
	c.	Explain insert () and append () stringBuffer methods with an example.	(06 Marks)
		Module-4	(04 Marks)
7	a. b.	Explain the life cycle of a servlet. Write a Java Servlet program to accept two parameters from webpage, find the stand display the result in webpage. Also give necessary html script to create web page.	um of them
		Explain how cookies can be handled using servlets.	(06 Marks)
	C.	Explain how cookies can be handled using services.	
		OR	
		Define JSP. Explain the different types of JSP tags by taking suitable example.	(10 Marks)
8	a.	What are Cookies? How Cookies are handled in JSP? Write a program create	
	b.	"Username" and Cookie value "abc". Also display stored Cookie in webpage.	(10 Marks)
		Module-5	
9	a.	Explain the different step involved in JDBC process with a code snippet.	(08 Marks)
7	b.	Explain the four types of JDBC drivers.	(08 Marks)
		List and explain the three kinds of exceptions occurred in JDBC.	(04 Marks)
	c.	List and explain the three kinds of exceptions occurred in \$25 c.	,
		OR	
10	a.	Write a program to connect to database with following information:	
		Driver : JDBC/ODBC bridge	
		URL : "jdbc.odbc:Ex"	
		username "xyz"	
		passward : "123"	*
		Retrieve all rows with marks > 60.	
		Assume the following table:	8.0
		Table Name: STUDENT	
		Fields : USN Varchar (20), Marks_int, Name_Varchar (25)	
		1 icius . Obri_ rarbitat (20); frianci_ rarbitat (20)	(10 Marks)
	b.	Explain the different types of statement object with example.	(06 Marks)
	υ.	Discuss the Caralleble Posult set in IDRC	(04 Marks)

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HSN						17CS562
USIN						380

		Fifth Semester B.E. Degree Examination, Aug./Sept. 2020	. 9
		Artificial Intelligence	
Tir	ne: 3	3 hrs. Max. M	arks: 100
N	ote:	Answer any FIVE full questions, choosing ONE full question from each module	2. ·
		Module-1	
1.	a.	Solve the following cryparithmatic problem DONALD + GERALD = ROBERT.	(10 Marks)
			(10 Marks)
	b.	Develop AO* algorithm for AI applications.	
		OR	
2	a.	Solve water jug problem using production rule system.	(10 Marks)
	b.	Explain problem characteristics with respect to heuristic search.	(10 Marks)
		Module-2	
3	a.	Consider the following set of well formed formulas in predicate logic:	
	* .	i) Man (Marcus)	, 4
		ii) Pompeian (Marcus) iii) $\forall x : Pompeian (x) \rightarrow Roman (x)$	81 a g
		iv) Ruler (Caesar)	
		v) $\forall x : \text{Roman}(x) \rightarrow \text{layalto}(x, \text{Caesar}) \text{ V hate}(x, \text{Caesar})$	
		vi) $\forall x : y \text{ loyalto } (x, y)$	
		vii) : $\forall t_1 : \forall y : Man(x) \land Ruler(y) \land tryassassinate(x, y) \rightarrow loyatto(x, y)$	
		viii) Tryassassinate (Marcus, Caesar)	(10 Marks)
	b.	Write the propositional Resolution algorithm.	(10 Marks)
		OR	
4	a.	Write the algorithm for conversion to clause form.	(10 Marks)
	b.	Distinguish forward and backward reasoning with an example.	(10 Marks)
		Module-3	
5	a.	Propose implementation of DFS and BFS in the context of reasoning.	(10 Marks)
	b.	Explain Bayesian Networks.	(10 Marks)
		OR	
6	a.	Explain certainity factors and rule based system in statistical reasoning.	(10 Marks)
	b.	Explain property inheritance algorithm for frames.	(10 Marks)
		Module-4	
7	a.	Explain CYC.	(10 Marks)
	b.	Explain conceptual Dependency along with its goals and representation.	(10 Marks)
		OR	
8	a.	Write the algorithm for minimax (position, depth, players) and explain.	(10 Marks)
	b.	Write a note on global ontology.	(10 Marks)
		Module-5	(10 M1)
9	a.	Explain spell checking technique.	(10 Marks) (10 Marks)
	b.	Explain Winston's learning program.	(IU WINIKS)

OR

Explain the Augmented Transition Network with an example. (10 Marks) 10 Explain three types of automated discovery systems in the context of learning. (10 Marks)

CECS SCHEME

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USN				
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				2700004

Fifth Semester B.E. Degree Examination, Aug./Sept.2020 **Dot net Framework for Application Development**

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- List and discuss the issues which arises when namespace is not used. With example explain 1 how it can be solved using namespace. (08 Marks)
 - What is implicit variable? Explain with example how implicit variables are declared.
 - c. Write a C# program to find sum, difference, product and quotient of two input numbers using expression bodied method. In Main() method read 2 numbers from the users and print results on the screen after calling sum(), differences() product() and quoticut() method.

(07 Marks)

OR

List and explain different binary operators available in C#. 2

(07 Marks)

Explain with example checked and unchecked statement.

Develop a C# program with method named DayName(int day), which accepts day number as parameter and returns day name {Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday} as return value. Method throws an exception if day value is less than I and greater than 7. Program should also contain "Main()" method which displays day name on the screen. (09 Marks)

Module-2

- Define encapsulation. Explain the purpose of encapsulation with an example.
 - b. What is a constructor? Explain the necessity of constructor. Write a program to demonstrate the constructor overloading. (10 Marks)
 - Explain the differences between a structure and class with example.

(05 Marks)

OR

- Illustrate with the program how to control the accessibility of members by using the public and private keywords.
 - b. Explain with an example how to create a multidimensional array. Distinguish how jagged arrays are better than multidimensional arrays with example. (08 Marks)
 - Illustrate with neat diagram what is boxing and unboxing.

(06 Marks)

Module-3

a. Differentiate between optional parameters and params array.
 b. Explain how to control method hiding and overriding by using the new, virtual and override keywords with example.

c. Demonstrate with an example program the concept of dynamic polymorphism. (06 Marks)

OR

6 a. Define interface list out the interface restriction. (05 Marks)
b. Write a program with a class named 'Box' with data members length, breadth and height and a constructor to initialize data members, volume() method to calculate volume (length * breadth * height). Create another class called "BoxWeight" derived from "Box" class. "BoxWeight" class contains a data member weight and two method: constructor and DisplayWeight() to initialize and to display weight respectively. Last class named "Demo" should contain Main() method which creates object and display data on the screen.

(10 Marks)

c. List the steps followed by garbage collector to de-allocate unreachable objects. (05 Marks)

Module-4

7 a. Define properties. Explain how to create and use properties to provide controlled access to data in an object with example. (06 Marks)

b. What are the problems with the object type? How can you solve these problems using generic class with example? (08 Marks)

c. Explain how to create automatic properties. (06 Marks)

OR

8 a. Define an indexer. List and explain set of operators provided by a C# that can be used to access and manipulate bits in a int. (10 Marks)

b. What is generic method? Implement a generic method which is independent of the type of data on which it operates to swap two data. In Main() method display the value of data before swapping and after swapping. Demonstrate program for 'char' and int type values.

(10 Marks)

Module-5

- 9 a. Define a simple iterator. Explain how to define a simple enumerator that can be used to iterate over the elements in a collection. (08 Marks)
 - b. Explain how to handle an event by using a delegate. (07 Marks)
 - c. List the rules that operators implemented automatically fall into a well-defined framework in C#. (05 Marks)

OR

10 a. Define Language Integrated Query(LINQ) queries to examine contents of enumerable collection with example. (10 Marks)

b. Write a C# program that adds and subtracts two instance of hours by overloading + and -