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15CS51

Fifth Semester B.E. Degree Examination, June/July 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. Define management. Explain the characteristics of management. **(05 marks)**
b. Explain the different roles of manager in an organization. **(06 marks)**
c. Explain the contribution of F.W. Taylor to management. **(05 Marks)**

OR

2 a. Define planning. Explain the general steps involved in planning. **(08 Marks)**
b. What is selection? Explain in detail the process of selection. **(08 Marks)**

Module-2

3 a. Explain the leadership styles in detail with its advantages and disadvantages. **(09 marks)**
b. What is motivation? Explain Herberg's motivation hygiene theory or the two-factor theory. **(07 Marks)**

OR

4 a. What is co-ordination? Explain the importance of co-ordination. **(06 Marks)**
b. Define control. Explain the different methods of establishing control. **(10 Marks)**

Module-3

5 a. Define entrepreneur. What are the characteristics of an entrepreneur? **(04 Marks)**
b. Explain the various stages of entrepreneurial process. **(08 Marks)**
c. What are the Barriers to entrepreneurship? **(04 Marks)**

OR

6 a. Explain in detail entrepreneurship in India. **(06 marks)**
b. Explain in detail identification of business opportunities with various types of feasibility study. **(10 Marks)**

Module-4

7 a. Explain the need and significance of project report. **(06 marks)**
b. What is project report? Explain the guidelines provided by planning commission for preparation of project report. **(10 Marks)**

OR

8 a. Explain the supply chain management in detail. **(06 Marks)**
b. Explain in detail, Human resource management. **(10 Marks)**

Module-5

9 a. Explain the steps involved in establishing micro and small enterprises. **(08 marks)**
b. Discuss the case study of N.R. Narayana Murthy and Infosys. **(08 Marks)**

OR

10 a. Explain the objectives and functions of SIDBI and KIADB. **(08 Marks)**
b. Discuss the case study of Microsoft. **(08 Marks)**

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15CS52

Fifth Semester B.E. Degree Examination, June/July 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. Describe in detail the services offered by DNS and explain the DNS message format. **(08 Marks)**

b. Illustrate the basic operation of SMTP and FTP. **(08 Marks)**

OR

2 a. Explain the persistent and non-persistent connection of HTTP. **(08 Marks)**

b. Define a socket. Describe the socket programming using TCP. **(08 Marks)**

Module-2

3 a. Draw and explain the FSM for sender and receiver side of rdt 2.1 protocol. **(08 Marks)**

b. Elaborate the three-way handshaking procedure used in TCP. **(04 Marks)**

c. Suppose that 2 measured sample RTT values are 106 ms and 120 ms. Compute

(i) Estimated RTT after each of these sample RTT value is obtained, Assume $\alpha = 0.125$ and estimated RTT is 100 ms just before first of the sample obtained.

(ii) Compute DevRTT, Assume $\beta = 0.25$ and DevRTT was 5 msec before first of these samples are obtained. **(04 Marks)**

OR

4 a. With an FSM, explain the three phases of congestion control. **(08 Marks)**

b. Write the TCP segment structure and explain its fields. **(04 Marks)**

c. Elaborate the working of Go-Back N protocol. **(04 Marks)**

Module-3

5 a. Give the format of IPV6 datagram and explain the fields. **(06 Marks)**

b. What are the message types used in IGMP? **(03 Marks)**

c. Write the link state routing algorithm and apply it to the following graph with source node [Refer Fig.Q5(c)] is 'u'. **(07 Marks)**

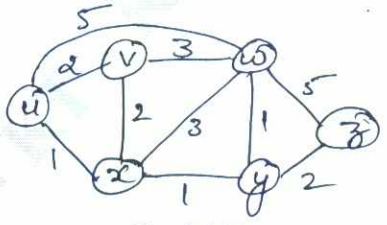

Fig.Q5(c)

OR

6 a. What is routing? Write the structure of a router. **(07 Marks)**

b. List the broadcast routing algorithms? Explain any one of them. **(04 Marks)**

c. Describe the intra-AS routing protocols in detail **(05 Marks)**

Module-4

7 a. Illustrate the two different approaches for routing to a mobile node. (08 Marks)

b. With a neat diagram, bring out the steps for mobile node registration to home agent. (08 Marks)

OR

8 a. Bring out the components of 3G Cellular Network architecture. (08 Marks)

b. State handoff? What are the steps involved in accomplishing handoff. (05 Marks)

c. Explain the three phases of mobile IP. (03 Marks)

Module-5

9 a. Bring out the leaky bucket mechanism for traffic policing. (07 Marks)

b. Classify the multimedia network applications. (03 Marks)

c. Describe the link scheduling mechanisms. (06 Marks)

OR

10 a. List the categories of streaming stored video. Explain any one of them. (08 Marks)

b. Explain the working of CDN. (08 Marks)

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15CS53

Fifth Semester B.E. Degree Examination, June/July 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. Define DBMS. Discuss the advantages of DBMS over the traditional file system. **(08 Marks)**

b. Explain the component modulus of DBMS and their interaction, with the help of a diagram. **(08 Marks)**

OR

2 a. Define the following with an example :
i) Weak entity type ii) Participation constraints
ii) Cardinality ratio iv) Recursive relationship. **(08 Marks)**

b. Draw an ER diagram of Banking system taking into account atleast five entities, indicate all keys, constraints and assumptions that are made. **(08 Marks)**

Module-2

3 a. What is meant by Integrity Constraint? Explain the importance of referential integrity constraint. How referential integrity constraint is implemented in SQL? **(08 Marks)**

b. Consider the following Movie database ;
Movie (Title , director , Myear , Rating)
Actors (Actor , Aage)
Acts (Actor , title)
Directors (Director , dage)
Write the following queries in relational algebra on the database given ;
i) Find movies made by "Hanson" after 1997.
ii) Find all actors and directors.
iii) Find "Coen's" movie with "Mc Dormand".
iv) Find (director , actor) pairs where the director is younger than the actor. **(08 Marks)**

OR

4 a. Discuss insulation , deletion and modification anomalies. Why are they considered bad? Illustrate with an example. **(08 Marks)**

b. Write the SQL queries for the following relational schema ;
Sailors (Sid , Sname , Rating, Age)
Boats (Bid , Bname , color)
Reserve (Sid , Bid , Day)
i) Retrieve the Sailor's name who have reserved red and green boat.
ii) Retrieve the no : of boats which are not reserved.
iii) Retrieve the Sailors name who have reserved boat number 103.
iv) Retrieve the Sailors name who have reserved all boats. **(08 Marks)**

Module-3

5 a. How are triggers and assertions defined in SQL? Explain. **(08 Marks)**

b. How are views created and dropped? Explain how the views are implemented and updated. **(08 Marks)**

OR

6 a. Explain the Single – tier and Client – server architecture, with a neat diagram. **(08 Marks)**

b. Explain the following :

i) Embedded SQL ii) Database stored procedure. **(08 Marks)**

Module-4

7 a. Which Normal form is based on the concept of transitive functional dependency? Explain the same with an example. **(08 Marks)**

b. What is the need for normalization? Consider the relation :

Emp – proj = {SSn , Pnumber , Hours , Ename , Pname , Plocation}.

Assume {SSn , Pnumber} as primary key.

The dependencies are ;

{SSn , Pnumber} → Hours

SSn → Ename

Pnumber → {Pname , Plocation}

Normalize the above relation to 3NF. **(08 Marks)**

OR

8 a. What is Functional Dependency? Find the minimal cover using the minimal cover algorithm for the following functional dependency.

F = {AB → D , B → C , AE → B , A → D , D → EF}. **(08 Marks)**

b. Consider two sets of functional dependency.

F = {A → C , AC → D , E → AD , E → H} and G = {A → CD , E → AH}.

Are they equivalent? **(08 Marks)**

Module-5

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

b. Why Concurrency control is needed? Demonstrate with an example. **(12 Marks)**

OR

10 a. Discuss the UNDO and REDO operations and the recovery techniques that use each. **(06 Marks)**

b. Discuss the time – stamp ordering protocol for concurrency control. **(05 Marks)**

c. Explain how shadow paging helps to recover from transaction failure. **(05 Marks)**

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15CS/IS54

Fifth Semester B.E. Degree Examination, June/July 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 : i) string ii) alphabet iii) language. **(06 Marks)**

b. Design a deterministic finite state machine for the following language over $\sum = \{a, b\}$.

i) $L = \{W \mid |W| \bmod 3 > |W| \bmod 2\}$

ii) $L = \{w \mid W$ ends either with ab or ba$\}$. **(10 Marks)**

OR

2 a. Write a note on finite state transducers. **(07 Marks)**

b. Define DFSM? Minimize the following FSM. [Refer Fig.Q2(b)]

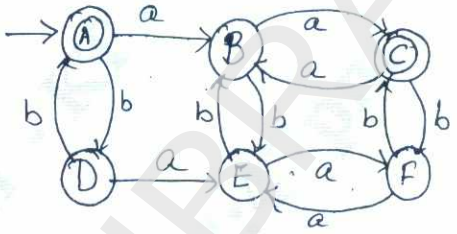

Fig.Q2(b) **(09 Marks)**

Module-2

3 a. Write the equivalent Regular Expression for the given Finite state machine. [Refer Fig.Q3(a)] **(08 Marks)**

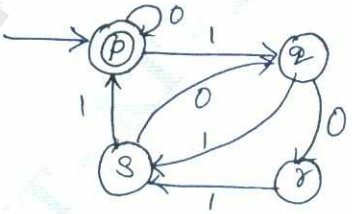

Fig Q3(a)

b. Write the Regular Expression for the following language.

i) $\{w \in \{a, b\}^*$ with atmost one a$\}$

ii) $\{w \in \{a, b\}^*$ does not end with ba$\}$

iii) $\{w \in \{0, 1\}^*$ has substring 001$\}$

iv) $\{w \in \{0, 1\}^* \mid W|$ is even$\}$. **(08 Marks)**

OR

4 a. State and prove the pumping theorem for regular language. **(08 Marks)**

b. Show that the language $L = \{a^n b^n \mid n \geq 0\}$ is not regular. **(08 Marks)**

Module-3

5 a. Define grammar. Write the CFG for the following language.
i) $L = \{ w \in \{a, b\}^* \mid n_a(w) = n_b(w) \}$
ii) $L = \{ a^i b^j \mid i = j+1 \}$. **(08 Marks)**

b. What is inherent ambiguity? Show that the language given is inherently amtriguous?
$L = \{ a^n b^n c^m \mid n, m \geq 0 \} \cup \{ a^n b^m c^n \mid n, m \geq 0 \}$. **(08 Marks)**

OR

6 a. Define PDA? Design PDA for the language $L = \{ a^n b^m a^n \mid n, m \geq 0 \}$. **(06 Marks)**

b. Convert the following language from CFG to PDA $L = \{ ww^R \mid w \in \{0, 1\}^* \}$. **(06 Marks)**

c. Convert the following CFG to CNF $E \rightarrow E + E \mid E * E \mid (E) \mid id$. **(04 Marks)**

Module-4

7 a. Prove that the language $L = \{ a^n b^n c^n \mid n \geq 0 \}$ is not context free. **(08 Marks)**

b. Prove that CFL are not closed under intersection, complement or difference? **(08 Marks)**

OR

8 a. Design a Turing machine to accept $L = \{ a^n b^n c^n \mid n \geq 0 \}$. **(08 Marks)**

b. Define a turning machine. Explain the working of a turning machine. **(05 Marks)**

c. Write a note on multitape machine. **(03 Marks)**

Module-5

9 Write a short notes on :

a. Growth rate of function **(05 Marks)**

b. Church-turning thesis **(06 Marks)**

c. Linear bounded automata. **(05 Marks)**

OR

10 Write a short notes on :

a. Post correspondence problem **(05 Marks)**

b. Halting problem in turning machine **(05 Marks)**

c. Various types of turning machine. **(06 Marks)**

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Fifth Semester B.E. Degree Examination, June/July 2019
Dot Net Framework 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. What is a console application? Explain the steps to create a console application in visual studio 2015. **(07 Marks)**

b. Explain the purpose of namespaces and assemblies. **(04 Marks)**

c. Explain the steps to create a graphical application and create a user interface to print the greeting message. **(05 Marks)**

OR

2 a. Define local scope and class scope. **(02 Marks)**

b. Create a method that calculates all arithmetic operations (+, –, *, /, %(mod)) and explain the procedure to generate a method stub wizard that help you to write methods. Explain the use of visual studio 2015 debugger to step in and step out of method call as they run. **(10 Marks)**

c. Explain the exception handling using try and catch statements. **(04 Marks)**

Module-2

3 a. Explain the propose of encapsulation and define a class and control the accessibility of members in a class, illustrate with an example? **(07 Marks)**

b. What is a constructor? Explain the object creation that invoke the constructor, write and call your own constructor by explaining with an example. **(05 Marks)**

c. Explain in detail anonymous classes with an example. **(04 Marks)**

OR

4 a. Explain ref and out parameters with an example. **(06 Marks)**

b. Give the differences between a structure and class. **(04 Marks)**

c. Write a method that can accept any number of arguments of any type by using the params keyword. **(06 Marks)**

Module-3

5 a. What is inheritance? Discuss about method hiding and overriding by using the new, virtual and override keywords. **(08 Marks)**

b. Define an interface by specifying the signatures and return type of methods and implement an interface in a structure and class. **(08 Marks)**

OR

6 a. Explain in detail how garbage collection works. **(08 Marks)**

b. Given the purpose dispose method and explain the calling of dispose method from destructor. **(08 Marks)**

Module-4

7 a. Explain the use of get and set assessors. **(06 Marks)**

b. Describe an interface containing properties by using structure and classes. **(04 Marks)**

c. What is an indexer? Differentiate between indexers and arrays. **(06 Marks)**

OR

8 a. Explain in detail about generics. **(02 Marks)**

b. Explain the functionality provided in the different collection classes available within the •NET frame work. **(14 Marks)**

Module-5

9 a. Define an enumerator that can be used to iterate over the elements in a collection. **(04 Marks)**

b. Explain the use of delegates and given examples of delegates in the •NET framework class library. **(12 Marks)**

OR

10 a. Declare an event. Explain in detail about raising an event and handling an event by using a delegate. **(06 Marks)**

b. Define Language–Interred Query (LINQ) queries to examine the contents of enumerable collections. **(10 Marks)**

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15CS551

Fifth Semester B.E. Degree Examination, June/July 2019
Object Oriented Modeling and Design

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 OO development? What are OO themes explain? **(06 Marks)**
b. Define model. Mention its purposes. Explain types of models. **(05 Marks)**
c. Explain multiplicity with class model. **(05 Marks)**

OR

2 a. Explain generalization and inheritance with example. **(06 Marks)**
b. What is aggregation explain with example? **(05 Marks)**
c. Write a class model of windowing system. **(05 Marks)**

Module-2

3 a. Define use case and actor. Explain use case diagram for order process and scenarios. **(06 Marks)**
b. Define the System Sequence Diagram (SSD). Explain the simple system sequence diagram. **(05 Marks)**
c. Write simplified activity diagram of the telephone order scenario. **(05 Marks)**

OR

4 a. Define state chart. Explain simple state chart for a printer. **(06 Marks)**
b. Write and explain state chart for order item. **(05 Marks)**
c. Explain nested states and concurrency. **(05 Marks)**

Module-3

5 a. Define process overview and explain software development process. **(08 Marks)**
b. Explain system conception and elaborate with ATM example. **(08 Marks)**

OR

6 a. Describe the steps for construction domain class model of an ATM system. **(08 Marks)**
b. Describe data dictionaries for an ATM. **(08 Marks)**

Module-4

7 a. Describe: i) Design class notation ii) Fundamental design principles. **(08 Marks)**
b. Explain developing the first-cut RMO design class diagram for order item. **(08 Marks)**

OR

8 a. Explain designing the first cut sequence diagram for the look up item availability use case and mention its guidelines. **(08 Marks)**
b. Describe the symbols of the communication diagram. Write a communication diagram for look up item availabilities. **(08 Marks)**

Module-5

9 a. What is design pattern? Describe design patterns. **(08 Marks)**
b. How design patterns solve design problems? Explain. **(08 Marks)**

OR

10 Write a note on: i) Prototype and singleton ii) Adaptor and proxy. **(16 Marks)**

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15CS553

Fifth Semester B.E. Degree Examination, June/July 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 are enumerations? How to use an enum constructor, instance variable and method? Explain with example. **(06 Marks)**

b. What is Autoboxing? Write a Java program that demonstrates autoboxing/unboxing occurs inside expressions. **(06 Marks)**

c. Demonstrate marker annotations with an example. **(04 Marks)**

OR

2 a. Explain the various type wrappers used in Java. **(05 Marks)**

b. What is Annotation? Explain various retention policies for annotations in Java. **(05 Marks)**

c. Explain how to obtain annotations at run-time by use of reflection? **(06 Marks)**

Module-2

3 a. Explain the following collection interfaces: i) Queue ii) SortedSet. **(08 Marks)**

b. Demonstrate ArrayList class for collections with an example. **(08 Marks)**

OR

4 a. Explain the following Map classes : i) HashMap ii) TreeMap. **(08 Marks)**

b. Define legacy class-vector. Write a Java program to demonstrate various vector operations. **(08 Marks)**

Module-3

5 a. Explain the following string comparison methods with examples :
i) equals( ) ii) regionMatches( ) iii) startsWith iv) endsWith( ). **(08 Marks)**

b. Explain the various string constructors used in Java with examples. **(08 Marks)**

OR

6 a. Explain the following methods of StringBuffer class with examples :
i) capacity( ) ii) reverse( ) iii) deleteCharAt( ) iv) charAt( ). **(08 Marks)**

b. How compareTo( ) method differs from compareToIgnoreCase( ) method? Write a Java program to sort an array of string in descending order by ignoring the case. **(08 Marks)**

Module-4

7 a. Explain the life cycle of servlets. **(04 Marks)**

b. How to handle HTTP GET requests and HTTP Post requests? Explain with examples. **(08 Marks)**

c. Write a servlet program that demonstrates how to use session state. **(04 Marks)**

OR

8 a. What is JSP? Explain the various types of JSP tags with examples. **(10 Marks)**

b. What is a cookie? Write a JSP program to create and read a cookie. **(06 Marks)**

Module-5

9 a. List and explain the different types of JDBC drives types. **(06 Marks)**

b. Write a Java program to execute a database transaction. **(06 Marks)**

c. List and explain the three kinds of exceptions occurred in JDBC. **(04 Marks)**

OR

10 a. Explain the various steps of JDBC with code snippets. **(08 Marks)**

b. Explain the following statement objects with examples :

i) PreparedStatement object

ii) CallableStatement object. **(08 Marks)**

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