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18CS51

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 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

- 1 a. What is management? List the functional areas of management and explain any two in detail. (10 Marks)
- b. Explain the managerial skills and the skill-mix required at various levels of management. (06 Marks)
- c. Write a note on need and importance of staffing. (04 Marks)

OR

- 2 a. Discuss the importance of planning. Briefly explain the general steps involved in planning. (10 Marks)
- b. Briefly explain the different approaches of management. (06 Marks)
- c. Define recruitment. List sources of recruitment. (04 Marks)

Module-2

- 3 a. What is motivation? Explain Maslow's need hierarchy theory of motivation. (10 Marks)
- b. Explain major approaches of leadership. (06 Marks)
- c. Differentiate between co-ordination and co-operation. (04 Marks)

OR

- 4 a. Define control. Briefly explain the methods of establishing control. (08 Marks)
- b. Explain Herzberg's motivation - hygiene theory. (08 Marks)
- c. Write a note on importance of communication. (04 Marks)

Module-3

- 5 a. Define entrepreneur. Explain the functions of entrepreneur. (08 Marks)
- b. What are the barriers of an entrepreneur? (06 Marks)
- c. Write a note on market and financial feasibility study. (06 Marks)

OR

- 6 a. Explain different type of entrepreneur. (08 Marks)
- b. Discuss the growth of industrial entrepreneurship in India. (06 Marks)
- c. Write a note on technical and social feasibility study. (06 Marks)

Module-4

- 7 a. What is a project? Explain in detail the various ways of project identification. (08 Marks)
- b. Explain the significance of project report. List down the guidelines by planning commission. (06 Marks)
- c. Write a note on functional areas of management—finance and accounting and human resources. (06 Marks)

OR

- 8 a. What is ERP? Explain the importance and need of a ERP for an organization. (08 Marks)
b. Explain the factors involved in selection of a project. (06 Marks)
c. Write a note on functional areas of management – marketing/sales and supply chain management. (06 Marks)

Module-5

- 9 a. Explain the steps involved in establishing micro and small enterprises. (10 Marks)
b. Discuss the case study of air Deccan (Captain G.R Gopinath). (06 Marks)
c. What is patent? List different types of patents. (04 Marks)

OR

- 10 a. Explain the following institutions :
i) KIADB
ii) KSSIDC
iii) NSIC
iv) KSFC
v) DIC.
b. Discuss the case study of Infosys (N.R. Narayana Murthy) (10 Marks)
c. List the advantages of micro and small enterprises. (06 Marks)
(04 Marks)

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18CS52

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 Computer Networks and Security

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. What are the different transport services available to applications? Explain. (07 Marks)
- b. Explain HTTP request and response message format. (08 Marks)
- c. Write a note on FTP and discuss about FTP command and replies. (05 Marks)

OR

- 2 a. What are the steps involved between client and server in order to fetch 10 JPEG images, which are residing in the same server by using non-persistent HTTP connection. The URL for base HTML file is <http://www.xyz.edu/department/base.index>. (07 Marks)
- b. With a neat diagram and explain, explain how DNS server will interact to various DNS server hierarchically. (05 Marks)
- c. Illustrate how user1 can send mail to user2, and how user2 receives the mail by using SMTP. (08 Marks)

Module-2

- 3 a. How multiplexing and demultiplexing for a connectionless oriented will be performed at transport layer? (06 Marks)
- b. Describe the various fields of UDP segment and also explain about UDP checksum with an example. (07 Marks)
- c. Explain how TCP provides a flow control service by using different variables. (07 Marks)

OR

- 4 a. Explain the operation of selective repeat protocol. (06 Marks)
- b. Explain all the fields in a TCP segment. (07 Marks)
- c. How TCP connection management is done for three way handshake by the client and server for establishing and closing a connection. Explain. (07 Marks)

Module-3

- 5 a. Explain distance vector algorithm with an example. (08 Marks)
- b. Explain the three switching techniques in a router. (06 Marks)
- c. Draw IPV₆ datagram format, mention the significance of each fields. (06 Marks)

OR

- 6 a. Explain link state algorithm with an example. (08 Marks)
- b. Describe the intra-AS routing protocol : RIP in detail. (06 Marks)
- c. Discuss about uncontrolled flooding and controlled flooding in broadcast routing algorithm. (06 Marks)

Module-4

- 7 a. Classify the different network attacks and explain denial of service attack. (07 Marks)
b. What are the two different techniques used to protect network from attacks? Explain. (07 Marks)
c. Write the steps involved in Data Encryption Standard (DES) along with a diagram. (06 Marks)

OR

- 8 a. Explain key generation, encryption and decryption phases in RSA algorithm. Illustrate with an example. (07 Marks)
b. Explain the technique involved in Hash function for authentication along with a diagram. (07 Marks)
c. Discuss about packet filtering and proxy server with respect to firewalls. (06 Marks)

Module-5

- 9 a. What are the classification in multimedia network applications? Explain. (08 Marks)
b. What are the two types of loss anticipation schemes? Explain. (07 Marks)
c. What do you mean by a Jitter and how to remove the Jitter at the receiver for audio by fixed and adaptive play out delay? (05 Marks)

OR

- 10 a. Explain the working of CDN. (08 Marks)
b. Explain about HTTP streaming in case of streaming stored video. (07 Marks)
c. Discuss about the properties of audio and video in multimedia networking. (05 Marks)

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18CS53

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 Database Management System

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define the following terms :
- i) Database
 - ii) DBMS catalog
 - iii) Entity
 - iv) Snapshot
 - v) Degree of a relationship. (05 Marks)
- b. Explain types of end-users with suitable examples. (05 Marks)
- c. List and explain advantages of using DBMS approach. (10 Marks)

OR

- 2 a. Define the following terms
- i) Cardinality
 - ii) Weak entity
 - iii) Program data independence
 - iv) Total participation
 - v) Value sets. (05 Marks)
- b. Describe three schema architecture. Why do we need mappings between schema levels? (05 Marks)
- c. Explain different types of attributes in ER model with suitable examples for each. (10 Marks)

Module-2

- 3 a. Explain the entity integrity and referential integrity constraints. Why is each considered important. Give examples. (05 Marks)
- b. Discuss equijoin and natural join with suitable examples using relational algebra notation. (05 Marks)
- c. Given the schema :
- Passenger (pid, pname, pgender, pcity)
 - Agency (aid, anme, acity)
 - Flight (fid, fdate, time, src, dest)
 - Booking (pid, aid, fid, fdate)
- Give relation algebra expression for the following :
- i) Get the complete details of all flights to new Delhi
 - ii) Find only the flight numbers for passenger with paid 123 for flights to Chennai before 06/11/2020
 - iii) Find the passenger names for those who do not have any bookings in any flights
 - iv) Get the details of flights that are scheduled on both dates 01/12/2020 and 02/12/2020 at 16:00 hours
 - v) Find the details of all male passengers who are associated with jet agency. (10 Marks)

OR

- 4 a. Explain the ER to relational mapping algorithm with suitable example for each step. (10 Marks)
- b. Write SQL query for the following database scheme :
 Employee(employee_name, street, city)
 Works (employee_name, company_name, salary)
 Company(company_name, city)
 Manages(employee_name, manager_name)
- i) Find the names, street address, and cities of residence for all employees who work for 'First Bank Corporation' and earn more than \$10,000
- ii) Find the names of all employees in the database who do not work for 'First Bank Corporation'. Assume that all people work for exactly one company
- iii) Find the names of all employees in the database who earn more than every employee of 'Small Bank Corporation'. Assume that all people work for at most one company
- iv) Find the name of the company that has the smallest payroll
- v) Find the names of all employees in the database who live in the same cities and on the same streets as do their managers. (10 Marks)

Module-3

- 5 a. Explain cursors and its properties in embedded SQL with suitable example. (05 Marks)
- b. How are triggers defined in SQL? Explain with example. (05 Marks)
- c. Illustrate insert, delete, update, alter and drop statements in SQL. (10 Marks)

OR

- 6 a. With an example, explain stored procedures In SQL. (05 Marks)
- b. Briefly explain types of JDBC drives. (05 Marks)
- c. Illustrate aggregate functions in SQL. (10 Marks)

Module-4

- 7 a. Explain types of update anomalies with examples. (05 Marks)
- b. Explain Armstrong inference rules. (05 Marks)
- c. What is the need for normalization? Explain 1NF, 2NF and 3NF with examples. (10 Marks)

OR

- 8 a. What is functional dependency? Write an algorithm to find minimal cover for set of functional dependencies. Construct minimal cover m for set of functional dependencies which are : $E : \{B \rightarrow A, D \rightarrow A, AB \rightarrow D\}$ (10 Marks)
- b. Consider the schema $R = ABCD$, subjected to FDs $F = \{A \rightarrow B, B \rightarrow C\}$, and the non-binary partition $D1 = \{ACD, AB, BC\}$. State whether D1 is a lossless decomposition? [give all steps in detail]. (10 Marks)

Module-5

- 9 a. Define transaction. Discuss ACID properties. (05 Marks)
- b. With a neat diagram explain transition diagram of a transaction. (05 Marks)
- c. Why concurrency control and recovery are needed in DBMS? Explain types of problems that may occur when two simple transactions run concurrently. (10 Marks)

OR

- 10 a. When deadlock and starvation problem occur? Explain how these problems can be resolved. (10 Marks)
- b. Briefly discuss the two-phase locking techniques for concurrency control. (10 Marks)

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Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 Automata Theory and Computability

Time: 3 hrs.

Max. Marks: 100

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) Symbol (04 Marks)
- b. Design a DFSM to accept each of the following language;
 - i) $L = \{w \in \{a, b\}^* ; w \text{ has all strings that ends with sub string } abb \}$
 - ii) $L = \{w; \text{ where } |w| \bmod 3 = 0 \text{ where } \Sigma = \{a\}\}$
 - iii) $L = \{w \in \{a, b\}^* \text{ every a region in } w \text{ is of even length.}\}$ (09 Marks)
- c. Construct an equivalent DFA from the following given NFA using subset construction method. (Refer Fig.Q.1(c)) (07 Marks)

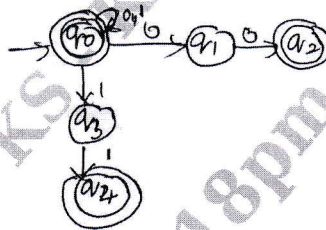


Fig.Q.1(c)

OR

2. a. Construct a minimum state automation equivalent to the FA given table

States	0	1
→q ₀	q ₁	q ₅
q ₁	q ₆	q ₂
⊙q ₂	q ₀	q ₂
q ₃	q ₂	q ₆
q ₄	q ₇	q ₅
q ₅	q ₂	q ₆
q ₆	q ₆	q ₄
q ₇	q ₆	q ₂

(10 Marks)

- b. Consider the following NFA with ϵ -moves construct on equivalent DFA.

(10 Marks)

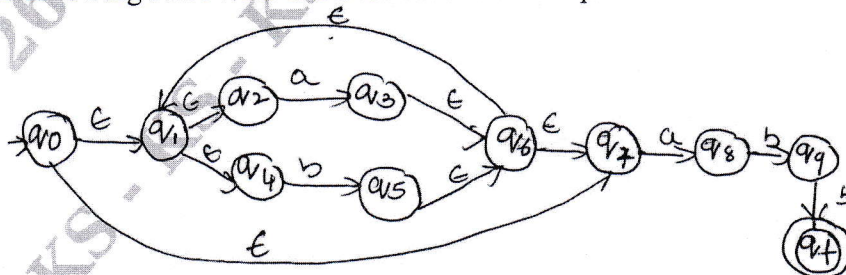


Fig.Q.2(b)

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.

Module-2

- 3 a. Define Regular expression. Write RE for the following languages:
- $L = \{a^n b^m \mid m + n \text{ is even}\}$
 - $L = \{a^n b^m \mid m \geq 1, n \geq 1, nm \geq 3\}$
 - $L = \{a^{2n} b^{2m} \mid n \geq 0, m \geq 0\}$
- (10 Marks)
- b. Construct an ϵ - NFA for the regular expression $0 + 01^*$ (05 Marks)
- c. Construct on FA for the regular expression $10 + (0 + 11)0^*1$ (05 Marks)

OR

- 4 a. State and prove pumping lemma theorem for regular languages. (08 Marks)
- b. Prove that $L = \{a^p \mid p \text{ is a prime}\}$ is not a regular. (08 Marks)
- c. List out closure properties of regular sets. (04 Marks)

Module-3

- 5 a. Define CFG. Write a CFG to specify
- all string over $\{a, b\}$ that are even and odd palindromes.
 - $L = \{a^n b^{2n} \text{ over } \Sigma = \{a, b\}, n \geq 1\}$
- (10 Marks)
- b. Write the procedure for removal of ϵ -productions. Simplify the following grammar.
- $S \rightarrow aA \mid aBB$
 $A \rightarrow aAA \mid \epsilon$
 $B \rightarrow bB \mid bbC$
 $C \rightarrow B$
- (10 Marks)

OR

- 6 a. Define PDA. Design a PDA for the language that accepts the string with $n_a(w) < n_b(w)$ where $w \in (a + b)^*$ and show the instantaneous description of the PDA on input $abbab$. (10 Marks)
- b. What is CNF and GNF? Convert the following grammar into GNF.
- $S \rightarrow AA \mid a$
 $A \rightarrow SS \mid b$
- (10 Marks)

Module-4

- 7 a. With a neat diagram, explain variant of turning machine. (10 Marks)
- b. Construct a Turning machine that accept the language $0^n, 1^n$ where $n > 1$ and draw transition graph for Turning Machine. (10 Marks)

OR

- 8 a. Define Turning Machine with its tuples. (04 Marks)
- b. Explain the working principle of Turning Machine with diagram. Design a Turing Machine to accept strings formed on $\{0, 1\}$ and ending with 000. Write transition diagram and ID for $w = 101000$. (16 Marks)

Module-5

- 9 a. Explain restricted turing machines. (08 Marks)
- b. Explain the following with example:
- Decidability
 - Decidable languages
 - Undecidable languages. (12 Marks)

OR

- 10 Write a short note on:
- Post correspondence problem
 - Halting problems in Turning Machine
 - Linear Bound Automation (LBA)
 - Classes of P and NP
- (20 Marks)

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18CS55

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 Application Development using Python

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Demonstrate with example print(), input() and string replication. (06 Marks)
- b. Explain elif, for, while, break and continue statements in python with examples for each. (10 Marks)
- c. Write a Python program to check whether a given number is even or odd. (04 Marks)

OR

- 2 a. How can we pass parameters in user defined functions? Explain with suitable example. (05 Marks)
- b. Explain local and global scope with local and global variables. (08 Marks)
- c. Demonstrate the concept of exception. Implement a code which prompts the user for Celsius temperature, convert the temperature to Fahrenheit, and print out the converted temperature by handling the exception. (07 Marks)

Module-2

- 3 a. What is list? Explain append(), insert() and remove() methods with examples. (08 Marks)
- b. How is tuple different from a list and which function is used to convert list to tuple. (05 Marks)
- c. Create a function to print out a blank tic – tac – toe board. (07 Marks)

OR

- 4 a. Discuss get(), item(), keys() and values() Dictionary methods in python with examples. (08 Marks)
- b. With example code explain join() and split() string methods. (06 Marks)
- c. Develop a program to accept a sentence form the user and display the longest word of that sentence along with its length. (06 Marks)

Module-3

- 5 a. What are regular expression? Describe question mark, star, plus-and dot Regex symbols with suitable python code snippet. (09 Marks)
- b. With code snippet, explain saving variables using the shelve module and PPrint Pformat() functions. (06 Marks)
- c. Write a program that reads a string with five characters which starts with 'a' and ends with 'z'. Print search successful if pattern matches string. (05 Marks)

OR

- 6 a. Explain functions of Shutil Module with examples. (08 Marks)
- b. Explain buttons in the Debug control widow. (05 Marks)
- c. What is meant by compressing files? Explain reading, extracting and creating ZIP files with code snippet. (07 Marks)

Module-4

- 7 a. What is class, object, attributes. Explain copy-copy() with an example. (06 Marks)
b. Demonstrate pure functions and modifiers with examples. (08 Marks)
c. Use the datetime module to write a program that gets the current date and prints that day of the week. (06 Marks)

OR

- 8 a. Explain operator overloading and polymorphism with examples. (08 Marks)
b. Illustrate the concepts of inheritance and class diagrams with examples. (08 Marks)
c. Write a function called print time that takes a time object and print it in the form hour : minute : second. (04 Marks)

Module-5

- 9 a. Explain parsing HTML with the BeautifulSoup Module with code snippet for creating finding an element and getting data. (09 Marks)
b. What methods do Selenium's web element object have for simulating mouse clicks and keyboard keys. Explain with python code snippet. (06 Marks)
c. Write a python program to access cell in a worksheet. (05 Marks)

OR

- 10 a. Write a program to get a list of all files with the .pdf extension in the current working director and sort them. (06 Marks)
b. Demonstrate the json module with python program. (06 Marks)
c. What are the advantages of CSV files? Explain the Reader objects and Writer objects with python code. (08 Marks)

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18CS56

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 UNIX Programming

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain with a neat diagram a architecture of UNIX operating system. (10 Marks)
b. List and explain the silent features of UNIX operating system. (10 Marks)

OR

- 2 a. What is a parent child relationship? With the help of neat diagram, explain UNIX file system. (06 Marks)
b. Explain any five file related commands with an example. (10 Marks)
c. With suitable example, bring out the differences between absolute and relative pathnames. (04 Marks)

Module-2

- 3 a. Which command is used for listing of file attributes? Explain the significance of each field. (08 Marks)
b. File current permissions are rw_r_xr_ specify chmod expression required to change for the following using both relative and absolute methods:
(i) rwxrwxrwx (ii) r_r_ (iii) _____
(iv) ___r__r__ (v) _____x_w_ (10 Marks)
c. What is a shell? Briefly give the shell interpretive cycle. (02 Marks)

OR

- 4 a. With the help of an example, explain grep command with all the options. (10 Marks)
b. Explain three standard files supported by UNIX. (06 Marks)
c. What is the output for the following:
(i) `ls [ijk]*doc` (ii) `[A-Z] ????*` (iii) `*[!s][!h]` (iv) `*[!0-9]` (04 Marks)

Module-3

- 5 a. Describe general UNIX file API's with syntax and explain each field in detail. (10 Marks)
b. Explain with a neat diagram memory layout of a C program and briefly discuss the different functions used for memory allocation. (10 Marks)

OR

- 6 a. Explain the UNIX Kernal support for process considering parent – child process show the related data structures. (10 Marks)
b. Bring out the differences between fork and vfork functions. (05 Marks)
c. Explain getrlimit and setrlimit function with prototype. (05 Marks)

Module-4

- 7 a. Explain setuid and setgid functions with example and explain various ways to change user ids. (06 Marks)
- b. What are pipes? What are its limitations? Write a program to send data from parent to child over a pipe. (08 Marks)
- c. What are Interpreter Files? Give the difference between interpreter files and interpreter. (06 Marks)

OR

- 8 a. What is a FIFO? With a neat diagram, explain client server communication using FIFO. (08 Marks)
- b. What are stream pipe? What are the different ways to view stream pipes? (04 Marks)
- c. Explain briefly with example: (i) message queue (ii) semaphores (08 Marks)

Module-5

- 9 a. What are signals? Mention different source of signals? Write a program to setup signal handlers for SIGINIT and SIGALRM. (10 Marks)
- b. What are Daemon process? Enlist their characteristics. Also write a program to transform a normal user process into a Daemon process. (10 Marks)

OR

- 10 a. Explain the kill() API and alarm() API. (10 Marks)
- b. Explain the Sigsetjmp and Siglongjmp functions with an example. (10 Marks)
