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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: MS-302 ***Subject: Principles of Management for Engineers***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt five questions in all including Q.No1 which is compulsory. Select one question from each unit.

Q1 Attempt all questions: **(2.5x10=25)**

a) Discuss the challenges for management in the new millennium.
b) Briefly explain different function of management.
c) What is the Importance of Planning?
d) Differentiate between policies and strategies
e) Explain Tools for measuring organizational Performance.
f) Define Qualities of successful leaders
g) Explain basic concepts of organization
h) Explain one benefit of delegation of authority for employee development and empowerment.
i) Briefly explain the concept of "work-life balance" and its significance in contemporary workplaces.
j) Explain how leaders are different from managers.

UNIT-I

Q2 a) What are the three levels of management? Briefly explain their functions **(6)**

b) Ashutosh Goenka was working in 'Axe Ltd.', a company manufacturing air purifiers. He found that the profits has started declining from the last six months. Profit has an implication for the survival of the firm, so he analyzed the business environment to find out the reasons for this decline.

1. Identify the level of management at which Ashutosh Goenka was working.
2. State three other functions being performed by Ashutosh Goenka. **(6.5)**

Q3 a) Explain Management as a Science and Art and Profession **(6)**

b) Sujata works as a designer in an export house. As per the terms of an order received by the export house, she has to get 1000 units of denim jackets made in 15 days @ Rs.2000 per jacket. She is able to complete her target production in 20 days because in order to complete the order in 15 days she would have made the workers work over time. As a result, the cost of production per jacket may have increased by Rs.100. In the context of the above case, is Sujata efficient in her work? Explain by giving a suitable reason in support of your answer. **(6.5)**

UNIT-II

Q4 a) What are the challenges organizations may face in the planning process, and how can they be overcome? **(6)**

b) Discuss how leadership theories have been evolved over time and the implications for contemporary leadership practices. **(6.5)**

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code:CIE-332T/IOT-330T ***Subject- Programming in Python***

Time: 3hours ***Max. Marks: 75***

Note : Attempt five questions in all including Q. No. 1 which is compulsory. Select one Question from each Unit. Assume suitable missing data if any.

Q1 Answer following in brief. **[5x5 = 25]**

(a) What is the role of data frame? How can data frames be merged?
(b) What are the features of Python Programming language?
(c) Differentiate between list, tuple and dictionary with example.
(d) Write a short note on different methods to read data from a file.
(e) How is exception handling implemented in python?

UNIT-I

Q2 (a) What are loop interruption statements? What is the difference between break, continue and pass? 17. Write a program that prints all integers lying between 1 and 50 that aren't divisible by either 2 or 3. **[6]**

(b) Explain the different numeric, assignment, augmented operators used in python. **[3]**

(c) Explain how operator precedence is used in evaluating expressions. **[3.5]**

Q3 (a) What are the commonly used operators in python? Explain operator overloading with the help of an example. **[6]**

(b) What is type conversion? Write a python program to demonstrate number type conversions. **[6.5]**

UNIT-II

Q4 (a) What are the different ways of string manipulation in python? WAP in python check whether the string is Symmetrical or Palindrome **[6]**

(b) What are functions in python? WAP in python to use Pythagoras theorem to calculate the length of the hypotenuse of a right-angled triangle where the other sides have lengths 3 and 4. **[6.5]**

Q5 (a) Define the following: find(), isalnum(), zfill(), strip(), split() and rindex(). **[6]**

(b) Write the definition of a function Reverse(X). WAP to display the elements in reverse order such that each displayed element is twice of the original element (element *2) of the List X. **[3]**

(c) Write a function mul ( ) which accepts list L, odd_L, even_L as its parameters. Transfer all even values of list L to even_L and all odd values of L to odd_L. **[3.5]**

UNIT-III

Q6 (a) Write a program that accepts filename as an input from the user. Open the file and count the number of times a character appears in the file. **[6]**

(b) What are files? Why do we need them? What are different access modes in which you can open file? **[6.5]**

Q7 (a) What is directory access? How do you walk through a directory tree? **[6]**

(b) Write a python program to merge two files and then change the content of this file to upper case letters. **[6.5]**

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code:CIE-356T **Subject- Web Technologies**

Time: 3hours **Max. Marks: 75**

Note : Attempt five questions including Q. No. 1 which is compulsory. Select one Question from each Unit. Assume suitable missing data if any.

Q1 Answer the following: **(5x5=25)**

a) What is Javascript ?
b) What is XML?
c) What is an event in javascript?
d) How can you set background images in HTML?
e) What are the form elements in HTML?

UNIT-I

Q2 a) How many types of list in HTML and Explain with HTML Code. **(6.5)**

b) What are the XHTML and DHTML? **(6)**

Q3 a) Write a program- **(6.5)**
i) To add a button on a form.
ii) To add an order list in page.

b) Write a program, to create a frame using Percentage(%). **(6)**

UNIT-II

Q4 a) What is CSS and why it is so useful rather than simple HTML and Explain with suitable examples. **(6.5)**

b) How to convert HTML into XHTML. **(6)**

Q5 a) Define Cookies and what is a cookie servlet. **(6.5)**

b) What is HTML and what types of pages are created with the help of HTML. How are these pages different? **(6)**

UNIT-III

Q6 a) Explain the concept of session define session tracking and session hijacking. **(6.5)**

b) Explain the difference between servlet and applets. **(6)**

Q7 a) What is JDBC and DTD? **(6.5)**

b) What are the types of JSP directives? **(6)**

UNIT-IV

Q8 a) Explain JSP in detail. **(6.5)**

b) Explain variables in PHP. **(6)**

Q9 a) Write a program in PHP using Array. **(6.5)**

b) Explain the exception handling in PHP **(6)**

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: ETCS-312/310 **Subject: Artificial Intelligence**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt five questions in all including Q.No.1 which is compulsory. Select one question from each unit. Assume missing data, if any.

Q1 a) Write short note on applications of AI. **(5)**

b) Write names of various informed and uninformed search strategies. **(5)**

c) How is unification used in resolution? **(5)**

d) Discuss expert systems in detail. **(5)**

e) Explain computational learning theory in detail. **(5)**

UNIT-I

Q2 a) Explain Missionary-Cannibal problem in detail. **(6.5)**

b) Discuss 8 puzzle problem using A* search algorithm. **(6)**

Q3 Explain constraint satisfaction problem. Solve crypt-arithmetic Puzzles given below: **(12.5)**

i)
```
  SEND
+ MORE
 MONEY
```

ii)
```
  SOME
+TIME
 SPENT
```

UNIT-II

Q4 a) Discuss FOPL in detail. **(6)**

b) Compare forward chaining with backward chaining. **(6.5)**

Q5 a) Represent the following facts as predicates. **(8)**

i) Marcus was man.
ii) Marcus was a Pompeian
iii) All Pompeian were Roman
iv) Caesar was ruler
v) All romans were either loyal to Caesar or hated him.
vi) Everyone is loyal to someone.
vii) People only try to assassinate Caesar.

b) Was Marcus loyal to Caesar? If yes, construct the proof by backward chaining. **(4.5)**

UNIT-III

Q6 a) Write short note on Explanation based learning. **(6.5)**

b) Explain min-max search algorithm and discuss alpha beta cut-off briefly. **(6)**

Q7 a) Explain different methods of theorem proving. **(6)**

b) Explain different tasks that must be performed for Natural Language Understanding. **(6.5)**

UNIT-IV

Q8 Explain different types of learning with examples. **(12.5)**

Q9 Write short notes on:

a) Robotics **(6)**

b) K means clustering **(6.5)**

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: FSD -322T **Subjects: Web Development using MERN Stack**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q. No 1 which is Compulsory. Select one question from each unit.

Q1 Attempt all the questions. **[3x5=15]**

(a) Explain the three-tier architecture of Mern Stack with diagram.
(b) Differentiate between: Shadow Dom and Virtual Dom.
(c) Describe the building blocks of React?
(d) What is meant by "Callback" and "Callback Hell" in Node JS?
(e) How to explain closures in JavaScript and when to use it?

UNIT –I

Q2 (a) In How many ways an HTML element can be accessed in Java Script code? What is the 'this' keyword in JavaScript? **[5]**

(b) Discuss the different CSS link states? Can elements be overlapped in CSS. Justify this. **[5]**

(c) Differentiate between: **[2x2.5=5]**
(i) Block elements and inline elements
(ii) tag and <i> tag

Q3 (a) How to handle JavaScript Events in HTML? Explain with example. **[7]**

(b) Write short notes on (any **two**): **[2x4=8]**
(i) Call Method( ) and Apply Method( )
(ii) CSS Box Model
(iii) Document Trees

UNIT –II

Q4 (a) Explain the components in React JS. Write the differences between class and functional components with example? **[8]**

(b) Define React Hooks. Demonstrate the useState hook and useEffect hook in react? **[7]**

Q5 (a) Explain State and Props in React JS. Give an example to update the state of component. **[7]**

(b) Describe in brief (any **two**): **[2x4=8]**
(i) React Router
(ii) Redux
(iii) Unit Testing

UNIT –III

Q6 (a) Explain the significance of Node.js in backend development. How Node.js differs from traditional server-side technologies. **[5]**

(b) Illustrate the process of handling HTTP requests and responses using Express.js. **[5]**

(c) Explain the Node.js event loop mechanism. How does it help in handling asynchronous operations efficiently? **[5]**

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Q7 (a) Discuss the concept of middleware in Express.js. Give two examples of middleware functions and write their purposes. **[7]**

(b) Give brief description on following: **[2x4=8]**
(i) Streams in Node JS
ii) Express.js Scaffolding

UNIT -IV

Q8 (a) Write the features of MongoDB. How does MongoDB differ from traditional relational databases? **[7]**

(b) Perform with code (any **two**): **[2x4=8]**
(i) Add data in MongoDB?
(ii) Delete a Document?
(iii) Update a Document?

Q9. (a) Describe the process of sharding in MongoDB. How does MongoDB ensure high availability? **[7]**

(b) Explain with code (any **two**): **[2x4=8]**
(i) Document in MongoDB
(ii) Collection in MongoDB
(iii) Databases in MongoDB

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: FSD-320T ***Subject: Web Development using MEAN stack***

Time: 3 Hours ***Maximum Marks:75***

Note: Attempt all questions as directed. Internal choice is indicated.

Q1 Attempt **any Five** of the following questions: **(5x5 25)**

(a) Explain data binding.
(b) What is the difference between parse and eval?
(c) What are the features of JavaScript?
(d) What is the difference between res.send() and res.json() in Express.js?
(e) Explain the key features of Express.js.
(f) Explain CRUD operations.

Q2 (a) What is the difference between Express.js and Node.js? **(6.5)**
(b) Create a sample angular script with components. **(6)**

OR

Q3 (a) Explain asynchronous and non-blocking APIs in Node.js. **(6.5)**
(b) Write steps with code to implement async in Node.js **(6)**

Q4 (a) Distinguish the difference between ES5 and ES6. **(6)**
(b) What are the security considerations for MEAN stack applications? **(6.5)**

OR

Q5 (a) How to implement file uploading and downloading with Express code? **(6)**
(b) What are Prerequisites and steps to create Folder structure for a Node JS project. **(6.5)**

Q6 Create a dynamic form using Angularjs. **(12.5)**

OR

Q7 Explain model in MVC with diagram. **(12.5)**

Q8 (a) What is MongoDB. And compare it with MySQL. **(6)**
(b) Create a new database in Mongodb with steps. **(6.5)**

OR

Q9 (a) Explain the basic commands limit and sort in MongoDB. **(6)**
(b) Explain the concept on indexing and types of indexing. **(6.5)**

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: DA-304T ***Subject: Statistics, Statistical Modelling & Data Analytics***

Time: 3 Hours **Maximum Marks:75**

Note: Attempt five questions in all including Q.No. 1 which is compulsory. Select one question from each unit.

Q1 Attempt All **[3x5=15]**

a) State Gauss-Markov theorem in detail.

b) Define open set and closed set. Also give examples.

c) State Cayley- Hamilton theorem and why it is useful.

d) A variate X has the probability distribution

X	-3	6	9
P(X=x)	1/6	½	1/3

Find E(X) and $E(X^2)$. Hence evaluate Var(X).

e) Two bolts are drawn from a box containing 6 good and 8 defective bolts. Find the probability that the second bolt is good if the first one is found to be defective.

UNIT-I

Q2 a) A manufacturer knows that the condensers he makes, contain on an average 1% defective. He packs them in boxes of 100. What is the probability that a box selected at random will contain 3 or more defective condensers? **(5)**

b) Calculate the mean and standard deviation for the following: **(5)**

Size of item	6	7	8	9	10	11	12
Frequency	3	6	9	13	8	5	4

c) A sample of 100 iron bars is said to be drawn from a large number of bars whose lengths are normally distributed with mean 4 feet and S.D. 0.6 feet? If the sample mean is 4.2 feet, can the sample be regarded as a truly random sample? **(5)**

Q3 a) Define chi-square test as goodness of fit. A random number table of 250 digits showed the following distribution of digits 0,1,2,3,4,5,6,7,8,9.

Digit	0	1	2	3	4	5	6	7	8	9
Observed Frequency	17	31	29	18	14	20	35	30	20	36
Expected Frequency	25	25	25	25	25	25	25	25	25	25

Does the observed distribution differ significantly from expected distribution using a significance level of 0.01? Given that $\chi^2_{0.99}$ for a degree of freedom is 21.7. **(7.5)**

b) X is a normal variate with mean 30 and standard deviation is 5. Find the probability that: i) $26 \le X \le 40$ ii) $X \ge 45$ iii) $|X-30|>5$.
(Given that $P(0 \le z \le 1) = 0.3413$, $P(0 \le z \le 2) = 0.4772$, $P(0 \le z \le 0.8) = 0.2881$, $P(0 \le z \le 3) = 0.4986$). **(7.5)**

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: CIE-306T / FSD-318T **Subject: Advanced Java Programming**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt five question in all including Q.No1 which is compulsory. Select one question from each unit.

Q1 All Question are compulsory

(a) Differentiate between core java and advanced java. **(5)**

(b) State and explain the types of cookies in servlets. **(5)**

(c) List out and explain the features of JSP. **(5)**

(d) How JSP is more advantageous than Servlet. **(5)**

(e) Explain Hibernate framework and how it is related to ORM tool. **(5)**

UNIT-I

Q2 (a) Write a java program to demonstrate the concept of socket programming. **(6.5)**

(b) Discuss the advantages, disadvantages and hierarchy of applets. **(6)**

Q3 (a) Explain the basic steps of implementing a server with basic methods used in each step. **(6.5)**

(b) Write a program in java to demonstrate the concept of applets. **(6)**

UNIT-II

Q4 (a) Explain the lifecycle of a servlet with an example. **(6.5)**

(b) Write a java program to demonstrate the use of Java Beans. **(6)**

Q5 Discuss the types of Java Beans with a diagram of each type. **(12.5)**

UNIT-III

Q6 Explain the lifecycle of a JSP page with a diagram. **(12.5)**

Q7 Illustrate about any five implicit objects of JSP with example. **(12.5)**

UNIT-IV

Q8 Discuss the steps to write a RMI program with an example of each step. **(12.5)**

Q9 Draw the architecture diagram of Hibernate framework and also explain its elements. **(12.5)**

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END TERM EXAMINATION

SIXTH SEMESTER [B.TECH] JUNE 2024

Paper Code: OAE-316T ***Subject: Cloud Computing***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt all questions including Q.No1 which is compulsory. Internal Choice is indicated.

Q1 Attempt **any five** of the following questions: **(5x5=25)**

(a) Differentiate between Parallel and distributed computing.
(b) What are the core characteristics that define cloud computing?
(c) How does cloud computing benefit organizations in terms of scalability and cost efficiency?
(d) What is Data-Intensive Computing?
(e) How do virtualization environments ensure resource optimization and scalability?
(f) Describe the various types of cloud deployment models.
(g) What is task computing, and how does it differ from other computing paradigms?
(h) Describe how cloud computing in business helps to improve efficiency and reduce costs.

Q2 What are the fundamental elements of parallel computing and how do they contribute to performance improvement? Explain the concept of Amdahl's Law in the context of parallel computing. **(12.5)**

OR

Q3 What are the essential components required to build a cloud computing environment? **(12.5)**

Q4 Define Virtualization and what are the pros and cons of Virtualization. List and discuss different types of virtualizations. **(12.5)**

OR

Q5 Explain the Cloud Reference Model and its significance in understanding cloud architecture. What are the different layers in the Cloud Reference Model and what functions do they serve? **(12.5)**

Q6 Elaborate the working of Map Reduce with an example. **(12.5)**

OR

Q7 Compare and contrast Hadoop and Spark as technologies for data-intensive computing. What are their respective strengths and use cases? **(12.5)**

Q8 Why is energy efficiency important in cloud computing environments? What techniques and technologies are used to improve energy efficiency in cloud data centres? **(12.5)**

OR

Q9 Explain the concept of market-based management of clouds. How do market-based mechanisms influence resource allocation and pricing in cloud computing? **(12.5)**

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