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R-19

Code: 19DF11T

M.C.A. I Semester Supplementary Examinations November 2020

Mathematical Foundations of Computer Science

Max. Marks: 60 Time: 3 Hours
 Answer all five units by choosing one question from each unit (5 x 12 = 60 Marks)

UNIT-I

- 1. a) List and Explain the Connectives with examples. 6M
- b) Construct the truth table for the following formula and verify whether it is a tautology or not 6M
 $\{P (Q R)\} \{(P Q) (P R)\}$

OR

- 2. a) Convert the following compound propositions into Disjunctive Normal Form 6M
 $\sim(P Q) (P Q)$
- b) Show that $R \sim Q, R S, S \sim Q, P Q$ by using Proof by Contradiction. 6M

UNIT-II

- 3. On a set $S = \{1, 2, 3, 4, 5\}$, find the equivalence relation on S, which generate the partition $\{ \{1, 2\}, \{3\}, \{4, 5\} \}$. Draw the graph of the relation. 12M

OR

- 4. a) Define a relation? Explain the representation of a relation. 6M
- b) What is Hasse diagram? Let $A=\{a, b, c\}$, Draw the Hasse diagram for the relation ' '. 6M

UNIT-III

- 5. a) Find the number of arrangements of the letters of TENNESSEE 6M
- b) In how many different ways can 6 people be seated in a committee room with 7 chairs? 6M

OR

- 6. a) What is the minimum number of students required in a class to be sure that at least 6 will receive the same grade if there are five possible grades A, B, C, D and F? 6M
- b) What are the applications of pigeonhole principle? 6M

UNIT-IV

- 7. Solve the recurrence relation $a_n + a_{n-1} - 8a_{n-2} - 12a_{n-3} = 0$ For $n \geq 3$ with $a_0=1, a_1=5, a_2=1$. 12M

OR

- 8. Find the generating function for the recurrence relation $a_{n+1} - a_n = 3^n, n \geq 0$ and $a_0=1$, Hence solve the relation. 12M

UNIT-V

- 9. a) Explain the following 6M
 (i) Complete graph (ii) Euler Circuit with suitable example
- b) Differentiate between BFS and DFS with an example? 6M

OR

- 10. Define Isomorphism and Explain it with examples 12M

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R-19

Code: 19DC11T

M.C.A. I Semester Supplementary Examinations November 2020

Probability and Statistics

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 12 = 60 Marks)

UNIT-I

1. a) A problem is given to four students A, B, C, and D. Probabilities of solving them independently are $\frac{2}{3}$, $\frac{2}{5}$, $\frac{1}{4}$, $\frac{3}{4}$. If all of them try to solve the problem, what is the probability that the problem is solved. 6M
- b) A businessman goes to hotels X, Y, Z, 20%, 50%, and 30% of the time respectively. It is known that 5%, 4%, 8% of the rooms in X, Y, Z hotels have faulty plumbing. What is the probability that the businessman's room having faulty plumbing is assigned to hotel Z? 6M

OR

2. A sample of 4 items is selected at random from a box containing 12 items of which 5 are defective. Find the expected number E of defective items. 12M

UNIT-II

3. a) Fit a Binomial distribution to the following data.

x	0	1	2	3	4	5
f	2	14	20	34	22	8

6M

- b) Using recurrence formula find the probabilities when $x=0, 1, 2, 3, 4$. If the mean of Poisson distribution is 3. 6M

OR

4. Find the mean and standard deviation of a normal distribution in which 7% of items are under 35 and 89% are under 63. 12M

UNIT-III

5. Find 95% confidence limits for the mean of a normality distributed population from which the following sample was taken 15, 17, 10, 18, 16, 9, 7, 11, 13, and 14 12M

OR

6. The mean of 2 large samples 1000 and 2000 members are 67.5 inches and 68.0 inches respectively. Can the samples be regarded as drawn from the same population of S.D is 2.5 inches. 12M

UNIT-IV

7. The following table gives the classification of 100 workers according to sex and nature of the work. Test whether the nature of work is independent of the sex of the worker. Use 5% level of significance?

	Stable	Unstable	Total
Males	40	20	60
Females	10	30	40
Total	50	50	100

12M

OR

8. In a sample of 600 men from a certain large city 450 are found to be smokers. In one of 900 from another city 450 are smokers do the data indicate that the cities are significantly different with respect to prevalence of smoking among men? 12M

UNIT-V

9. Barber A takes 15 minutes to complete one haircut. Customers arrive in his shop at an average rate of one every 30 minutes. Barber B takes 25 minutes to complete one haircut and customers arrive at his shop at an average rate of one every 50 minutes. The arrival processes are Poisson and the service firms follow an exponential distribution.
- (a) Where would you expect a bigger Queue?
- (b) Where would you require more time waiting included to complete a haircut? 12M

OR

10. Explain Pure birth and death process of queueing theory and Characteristics of (M/M/1) model. 12M

		CO	Blooms Level
1.	a)	CO1	L1
	b)	CO1	L1
2.		CO1	L1
3.	a)	CO2	L2
	b)	CO2	L2
4.		CO2	L2
5.		CO3	L3
6.		CO3	L3
7.		CO4	L4
8.		CO4	L4
9.		CO5	L1
10.		CO5	L1

Code: 19DF12T

M.C.A. I Semester Supplementary Examinations November 2020

Problem Solving with 'C'

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 12 = 60 Marks)

UNIT-I

1. a) Discuss about different data types in C 8M
 b) How a negative integer is stored. Explain 4M
OR
2. a) Explain about increment and decrement operators in C 4M
 b) Write an algorithm and draw the flow chart to swap the values of two variables without using temporary variable 8M

UNIT-II

3. a) Compare and contrast the difference between while and do-while 6M
 b) Write a program to check whether the given number is a palindrome or not 6M
OR
4. a) Explain about character and string input /output functions used in C Programming with examples 6M
 b) A farm produces several food grains, namely wheat, barley, oats and flax. The monthly production details (in Kg) and price per Kg (in INR) received during the year are recorded. Read the production details and price of the food grains and print its details through your C program 6M

UNIT-III

5. a) Define array. Write the advantages and disadvantages of using arrays 6M
 b) Write a program to store and display the elements in single dimensional array 6M
OR
6. AITS University, Rajampet Academic Section is maintaining student's details with full name (First name and Last name separated by space) in the database. Due to inconvenience in printing the names, they have decided to display it in short, as follows:

<u>Full Form:</u>	First Name	Last Name
	Arun	Tiwari

Short Form: **Arun T**

Write a program

12M

UNIT-IV

7. a) What is a function? Explain different types of functions in C? 6M
 b) Write a program to implement the call by value and call by reference technique 6M
OR
8. a) Define structure? How to access the elements in the structure 6M
 b) What is self-referential structure? Give Example 6M

UNIT-V

9. Write a program to copy the contents of one file into another 12M
OR
10. What is a pointer? How memory is allocated and deallocated dynamically? Explain with an example 12M

		CO	Blooms Level
1.	a)	CO3	L2
	b)	CO1	L2
2.	a)	CO1	L2
	b)	CO2	L3
3.	a)	CO1	L3
	b)	CO4	L3
4.	a)	CO4	L2
	b)	CO4	L4
5.	a)	CO1	L2
	b)	CO2	L3
6.		CO4	L3
7.	a)	CO1	L2
	b)	CO4	L3
8.	a)	CO3	L2
	b)	CO3	L2
9.		CO5	L3
10.		CO5	L2

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R-19

Code: 19DC12T

M.C.A. I Semester Supplementary Examinations November 2020

Technical Communication

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 12 = 60 Marks)

UNIT-I

1. Explain the barriers to communication and how can organizational barriers be overcome in an organization? 12M

OR

2. Explain the traits of a good listener and explain how you can make out if the other person is listening to you properly or not. 12M

UNIT-II

3. What is non-verbal communication? Do you think you can manage any communication situation just with non-verbal cues? Discuss with situational examples. 12M

OR

4. Discuss the points you would bear in mind while making a professional presentation. Provide examples to substantiate your views. 12M

UNIT-III

5. Explain different types of business letters and explain the significance of the five stages in writing effective business letters. 12M

OR

6. What are the common problems encountered by email users? Provide examples to support your points besides suggesting ways to overcome these. 12M

UNIT-IV

7. What do you mean by a formal report? Discuss its various features at length. 12M

OR

8. Prepare and write a Feasibility Report upon introducing cooking gas in place of petrol and diesel in Automobiles. 12M

UNIT-V

9. Explain briefly the various formats of a resume. 12M

OR

10. "Different types of interviews need different preparation." Discuss. 12M

	CO	Blooms Level
1.	CO1	L3
2.	CO1	L2
3.	CO2	L4
4.	CO2	L2
5.	CO1	L1
6.	CO1	L2
7.	CO2	L3
8.	CO1	L4
9.	CO2	L2
10.	CO2	L3

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R-19**Code: 19DE11T**

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Accounting and Financial Management

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 12 = 60 Marks)

UNIT-I

1. "Accounting principles act as a guidelines to prepare the financial statements". Discuss. 12M
- OR**
2. From the following Trial Balance extracted from the books of Red Roses Ltd Prepare Final Accounts.

Debit Balances	Rs	Credit Balances	Rs
Salaries	2,000	Bills Payable	5,000
Bills Receivable	5,000	Discount received	700
Wages	1,500	Capital	20,000
Carriage Inwards	200	Sales	10,000
Bad Debts	500		
Miscellaneous expenses	1,000		
Purchase of Raw materials	12,000		
Furniture	1,500		
Insurance premium	6,000		
Depreciation	1,000		
Closing stock	5,000		
	35,700		35,700

12M

UNIT-II

3. From the following information relating to Adithya Company Ltd., you are required to calculate
- a. P/V ratio b. Break Even Point in Volume
- c. Break Even Point in Rupees d. Margin of Safety.
- Total fixed cost Rs 80,000. Variable cost per unit Rs 4.
- Estimated sales Rs 2,00,000. Selling price per unit Rs.20. 12M

OR

4. How Break Even Analysis helps in attaining the organizational objective? 12M

UNIT-III

5. The Balance sheet of Smile guard Ltd., as at 31st March 2018 is as follows

Liabilities	Rs	Assets	Rs
Equity Capital	14,00,000	Goodwill	12,00,000
Debentures	2,50,000	Fixed Assets	4,00,000
Outstanding Expenses	1,50,000	Stock	2,00,000
Sundry Creditors	8,00,000	Debtors	2,00,000
Reserves and Surplus	2,00,000	Cash	2,00,000
Bank OD	2,00,000	Marketable securities	8,00,000
	30,00,000		30,00,000

Net sales Rs 5,00,000; Cost of goods sold Rs. 2,00,000. Opening balances of stock, debtors and creditors are Rs1,00,000, Rs,60,000 and Rs.4,00,000 respectively. Analyse the Solvency and Turnover position of the company. 12M

OR

6. 'Ratio analysis acts as a 360 degree measure to evaluate the firm's performance'. Elaborate. 12M

UNIT-IV

7. In what respect is the objective of wealth maximisation superior to profit maximisation? 12M

OR

8. 'The source of finance chosen by a financial manager will depend on a number of factors'. Discuss in detail. 12M

UNIT-V

9. Compare the differences between traditional methods and Discounted cash flow methods. 12M

OR

10. Delta Inside Ltd are thinking of investing in a project costing Rs 20 Lakhs. The life of the project is 5 years and the estimated salvage value of the project is zero. Cost of capital is 10%. Straight line method of depreciation is followed. The tax rate is 50%. The expected cashflows before tax are as follows:

Year	Estimated cash flow before depreciation and tax (Rs in Lakhs)
1	4
2	6
3	5
4	6
5	4

You are required to calculate

- a) Payback period. b) ARR c) Net Present Value d) Profitability Index 12M

	CO	Blooms Level
1.	CO1	L6
2.	CO3	L3
3.	CO3	L4
4.	CO1	L1
5.	CO3	L4
6.	CO3	L6
7.	CO2	L1
8.	CO3	L6
9.	CO4	L4
10.	CO4	L5