Hall Ticket Number :										

Code: 7P2A14

R-17

M.C.A. I Semester Supplementary Examinations June 2018

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)

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UNIT–I

1. What are the accounting concepts and convention? Explain them with examples.

OR

2. Prepare Trading and Profit and Loss a/c and a Balance Sheet as on 31.3.2018 from the following Trial Balance :

Debit Balances	Rs.	Credit Balances	Rs.
Salaries	6,000	Capital	25,000
Purchases	26,000	Sales	50,000
Wages	8,800	Creditors	22,000
Carriage inwards	400	Bills payable	7,800
Office expenses	500	Bank overdraft	5,000
Commission	600	Discount	200
Bad debts	1,200		
Debtors	30,000		
Furniture	5,000		
Machinery	12,000		
Bills receivable	7,000		
Insurance	1400		
Opening stock	7,000		
Cash in hand	500		
Cash at bank	3,600		
	1,10,000		**1,10,000**

Adjustments :

1. Closing stock Rs.11,000
2. Outstanding wages Rs.2,000
3. Prepaid insurance Rs.400
4. Depreciate machinery and furniture @ 10%.

UNIT–II

3. Explain the significance, assumptions and limitations of break even analysis.

OR

4. A company producing a single product sells it at Rs.50 per unit. Units variable cost is Rs.35 and fixed cost amounts to Rs.12 lakhs per annum. With this data you are required to calculate (a) P/v ratio and Break-even Sales in both units and rupees (b) New break-even sales if variable cost increases by Rs.3 per unit, without increase in selling price.

UNIT–III

5. Define ratio analysis. "Ratio analysis is the tool of decision making"- explain the statement with the limitation of ratio analysis.

OR

6. Following is the balance sheet and profit and loss account of ABC Ltd

Balance Sheet as on 31-12-20017

Liabilities	Rs.	Assets	Rs.
Share Capital	100,000	Fixed Assets	55000
Reserve and surplus	20,000	Investments Long term	20,000
Sundry Creditors	15,000	Cash	10,000
Bills payable	8,000	Bills Receivable	6,000
Bank overdraft	35,000	Debtors	40,000
Outstanding expenses	2,000	Inventories	44,000
		Prepaid expenses	5,000
	180,000		**180,000**

Profit and Loss account for the year ending on 31-12-2017

Particulars	Rs.	Particulars	Rs.
To Opening stock	2,00, 000	By Sales	16,00,000
To Purchases	12,00,000	By Closing Stock	3,20,000
To Gross Profit c/d	5,20, 000		
	19,20,000		**19,20,000**
To Administration expenses	1,20,000	By Gross profit	5,20,000
To Selling Expenses	80,000		
To Finance Expenses	40,000		
To Net profit	2,80,000		
	5,20,000		**5,20,000**

calculate the (a) current ratio (b) Quick ratio (c) Gross Profit ratio (d) Net Profit ratio

UNIT–IV

7. Define financial management. List out key functions of financial management

OR

8. Explain the various sources of financing

UNIT–V

9. What is capital budgeting? Discuss the nature and significance of capital budgeting

OR

10. Which project Would you selected under NPV method?

Particulars	Project -A	Project -B
Cash outflow(Investment)	2,00,000	3,00,000
Cash inflows at the end of		
Year 1	60,000	40,000
Year 2	50,000	50,000
Year 3	50,000	60,000
Year 4	40,000	90,000
Year 5	30,000	1,00,000

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Hall Ticket Number :										

Code: 7P2B11

R-17

M.C.A. I Semester Supplementary Examinations June 2018

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)

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UNIT–I

1. a) Show that $r \rightarrow \neg q$, $r \vee s$, $s \rightarrow \neg q$, $p \rightarrow q$ by using proof by contradiction. 6M

   b) Obtain the principal conjunctive normal form of the formula S given by $(\neg P \rightarrow R) \wedge (Q \leftrightarrow P)$. 6M

OR

2. a) Verify whether $(P \wedge (P \leftrightarrow$ tautology. 6M

   b) Find principal disjunctive normal form of $P \rightarrow ((P \rightarrow \neg(\neg Q \vee \neg P))$. 6M

UNIT–II

3. a) Define equivalence relation. Prove that the relation given below is an equivalence relation. Let X = {1,2,....., 7} and R = { (x,y) / x-y is divisible by 3}. 6M

   b) Let A = {a,b,c,d} and P(A) be power set of A. Draw Hasse diagram for < P(A), $\subseteq$ > , where $\subseteq$ is inclusion relation on the elements of A. 6M

OR

4. a) Consider the following relations on A={1,2,3} The relations are R1={(1,1)(1,2)(1,3)(3,3)}, R2-{(1,1)(1,2)(2,2)(2,3)},R3={(1,1)(1,2)(2,3)(1,3)}. Determine whether the above relations of A are reflexive, symmetric, transitive and anti-symmetric. 6M

   b) Draw Hasse diagram representing the positive divisor of 36. 6M

UNIT–III

5. a) Define Pigeonhole principle. How many persons must be chosen in order that at least five of them will have birth days in the same calendar month? 6M

   b) Find the coefficient of $x^{11}y^4Z^2$ in the expansion of $(2x^3 - 3xy^2 + x^2)^6$ 6M

OR

6. a) State and prove Principle of Inclusion-Exclusion? 8M

   b) How many ways can we get a sum of 4 or 8 when two distinguishable dice are rolled? How many ways can we get an even sum? 4M

UNIT–IV

7. Using the generating function method, solve the recurrence relation $a_n - 3a_{n-1} = n$, $n \geq 1$ given that $a_0 = 1$. 12M

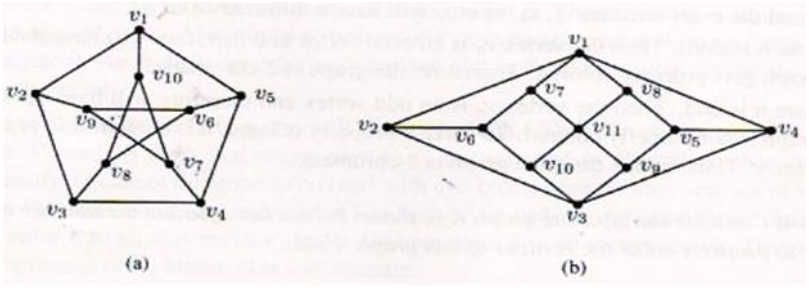
OR

8. Solve the recurrence relation $a_n - 7a_{n-1} + 16a_{n-2} - 12a_{n-3} = 0$, $n \geq 3$ with $a_0 = 1$, $a_1 = 4$ and $a_2 = 8$. 12M

UNIT–V

9. a) Explain briefly the following with example: (i) Hamiltonian graph (ii) Bipartite graph. 4M

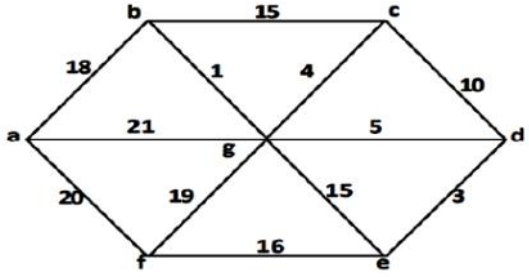
b) Find the chromatic numbers of the following graphs:



8M

OR

10. Write Prim's algorithm and Kruskal's algorithm for finding the minimum spanning tree for a given graph. Apply both algorithms to the following graph and find the minimum spanning tree.*?*



12M

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Hall Ticket Number :										

R-17

Code: 7P2B15

M.C.A. I Semester Supplementary Examinations June 2018

Object Oriented Programming with C++

Max. Marks: 60 Time: 3 Hours

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

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UNIT–I

1. a) Explain any 3 data types in c++ programming with suitable examples 6M

   b) What is type conversion and write the example program on type cast 6M

OR

2. What is a pointer variable? Explain about pointer operators and scope resolution operator with the simple example programs 12M

UNIT–II

3. a) Distinguish between call-by-value and call-by-reference methods in functions 6M

   b) What is a copy constructor and write an any simple c++ program using copy constructor 6M

OR

4. What is an Inheritance and write a c++ program to satisfy “virtual functions are hierarchical” concept 12M

UNIT–III

5. Write a c++ program to find the sum of diagonal element in given 3 X 3 matrix using 2-D array as per the following sample input-output format:

   Enter any 3 X 3 matrix elements:

   2 6 3

   4 8 7

   3 4 5

   The sum of diagonal elements is = 15 12M

OR

6. a) Compare the Enumerations and user defined types in C++ language 6M

   b) Distinguish between early binding and late binding in C++ language 6M

UNIT–IV

7. a) What are the differences between structures and classes with the declarations 6M

   b) Distinguish between objects and classes with an example program 6M

OR

8. What are the differences between function overloading and operator overloading with the suitable c++ example programs 12M

UNIT–V

9. What is an Exception handing? Write a C++ program to satisfy “one try block having multiple catch block” concept. 12M

OR

10. a) Explain the differences between push_front() function and push_back() function. 6M

    b) What are the advantages of static class members with the suitable example program 6M

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Hall Ticket Number :										

Code: 7P2C13

R-17

M.C.A. I Semester Supplementary Examinations June 2018

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)

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UNIT–I

1. a) A and B enter into a bet according to which 'A' will get Rs.200 if it rains on that day and will lose Rs.100 if it does not rain. The probability of raining on that day is 0.7. What is mathematical expectation of A? 5M

   b) Explain Conditional probability. State and prove Baye's theorem. 7M

OR

2. a) A random variable X has the following probability mass function:

X	-2	-1	0	1	2	3
P(X=x)	0.1	k	0.2	$2k$	0.3	k

   i) Evaluate k

   ii) Calculate the mean and variance. 6M

   b) Let X be a random variable. Show that the probability function $f(x)=\begin{cases}1-(1+x)e^{-x}, & if\ x\geq 0\\ 0, & otherwise\end{cases}$ is a pdf and find $E(X^2)$. 6M

UNIT–II

3. a) Find the moment generating function of the Uniform distribution and hence evaluate $E(X^4)$. 6M

   b) Let the random variable X is normally distributed with mean 8 and standard deviation 4. Find $P(5\leq X\leq 10)$ and $P(X\geq 15)$. 6M

OR

4. a) Find the mean and variance of the Binomial distribution. 6M

   b) There are 5 students in a class and the number of students who will participate in annual day celebrations every year is a poison random variable with mean 3. What will be the probability of more than 3 students participating in annual day celebrations this year? 6M

UNIT–III

5. A population consists of 6 numbers 2, 4, 6, 8, 10, 12. Consider all possible samples of size 2 which can be drawn from this population. Find

   i. Population mean.

   ii. Population standard deviation.

   iii. Mean of the sampling distribution of means.

   iv. Standard deviation of the sampling distribution of means. 12M

OR

6. a) Explain the sampling distribution briefly. 5M

   b) A random sample of size 16 taken from a normal population showed a mean of 41.5 inches and the sum of the squares of the deviations from the mean is 135 sq. Inches. Find the maximum error with 95% confidence. 7M

UNIT–IV

7. a) Explain one tailed and two tailed tests. 4M

   b) Two independent samples of sizes 8 and 7 respectively have the following values.

Sample-I	11	11	13	11	15	9	12	14
Sample-II	9	11	10	13	9	8	10	---

   Is the difference between the means of the samples significant? Test at 5% Level of Significance. 8M

OR

8. An ambulance service claims that it takes on the average 8.9 minutes to reach its destination in emergency. To check this claim, the agency which licenses ambulance services has timed out on 50 emergency calls and getting a mean of 9.3 minutes with a standard deviation of 1.6 minutes. What can they conclude at the level of significance 0.05? 12M

UNIT–V

9. Explain M/M/1 queuing model and derive the steady state equations of an M/M/1 queuing model. 12M

OR

10. A departmental store has a single cashier. During the rush hours, customers arrive at the rate of 20 customers per hour. The average number of customers that can be processed by the cashier is 24 per hour. Assuming the conditions for the use of single-channel queuing model, find
    i. Probability that the cashier is idle.
    ii. Average number of customers in the queuing system.
    iii. Average time a customer spends in the queue waiting for service. 12M

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Hall Ticket Number :										

Code: 7P2B12

R-17

M.C.A. I Semester Supplementary Examinations June 2018

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)

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UNIT–I

1. a) Define algorithm? What are the advantages of writing algorithms? 6M
   b) Draw a flowchart to print largest number from a set of numbers 6M

OR

2. a) What is a variable? Discuss variable declaration of primary and user_defined data types. 6M
   b) Write a short note on
   (i) Bitwise operator (ii) Conditional operator (iii) sizeof operator. 6M

UNIT–II

3. a) Explain different forms of if- statement with examples. 5M
   b) Write a program to count the number of digits and sum of digits in a given integer value. 7M

OR

4. a) Explain While & Do_While loops with suitable examples. 6M
   b) Write a program to check whether a number is odd or even. 6M

UNIT–III

5. a) What is an array? Write a program to add two matrices. 8M
   b) Write a short note on dynamic arrays. 4M

OR

6. a) Explain String handling functions in C with examples. 6M
   b) Write a program to check whether given string is palindrome or not. 6M

UNIT–IV

7. a) Explain the need for user-defined functions. 5M
   b) Explain Call-by-value and Call-by-reference techniques of passing parameters with suitable examples. 7M

OR

8. a) Explain structures within structures. 4M
   b) Write a program to create an array of structures named "Employee" with fields: Name, EmployID, Address and Salary, read data of 'n' employees and list the Names. 8M

UNIT–V

9. a) What is a pointer? Explain how pointer variable is declared and initialized with suitable example. 7M
   b) Differentiate between malloc() and calloc() functions. 5M

OR

10. a) Discuss about error handling during input/ output operations on files. 6M
    b) What is a preprocessor? What are the advantages of preprocessor? 6M

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Hall Ticket Number :										

Code: 7P2C16

R-17

M.C.A. I Semester Supplementary Examinations June 2018

Technical Communication and Professional Ethics

Max. Marks: 60 Time: 3 Hours

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

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UNIT–I

1. a) Explain the 'Process of Communication'
   b) What are the various channels of communication?

OR

2. Illustrate the barriers to communication.

UNIT–II

3. What is non-verbal communication? Explain various types of non-verbal communication.

OR

4. a) What do you mean by 'effective presentation'?
   b) What are the skills required for an effective presentation?

UNIT–III

5. How does a Group Discussion play vital role in the selection process?

OR

6. Mention various steps in writing a resume and make a sample resume.

UNIT–IV

7. Explain the types of inquiry.

OR

8. Explain Kohlberg's and Gilligan's theories of moral development.

UNIT–V

9. Elucidate the terms 'Rights', 'Responsibilities' and 'Accountability'.

OR

10. Write brief notes on the following.
    i. Confidentiality
    ii. Occupational crime
    iii. Discrimination.

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