Hall Ticket Number :										

R15

Code: 5P2A14

M.C.A. I Semester Regular & Supplementary Examinations January 2017

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. What is meant by double entry system? Explain its advantages and limitations?

OR

2. Journalize the following transactions and prepare any two ledger accounts.

Date	Particulars	Rs.
1/1/16	Naresh Started business	1000
1/1/16	Purchased goods from bhagat	500
3/1/16	Sale of goods for cash	200
5/1/16	Purchase goods for cash	400
6/1/16	Sale of goods to charan	300
7/1/16	Purchase of goods from suresh for cash	200
8/1/16	Purchase of office furniture	400
9/1/16	Purchase of stationery on credit from ramu	500
31/1/16	Paid salaries	600
31/1/16	Sale of old machinery for cash	100

UNIT–II

3. Elaborate the cost volume profit analysis?

OR

4. Explain the advantages and limitations of BEP?

UNIT–III

5. Discuss the significance of financial ratios as a tool of decision making. What re the limitations of ratio analysis?

OR

6. The following data has been taken from the balance sheets of three companies:

Particulars	Company A (Rs.)	Company B (Rs.)	Company C (Rs.)
Bank	20000	40000	100000
Bills receivable	160000	160000	400000
Opening stock	120000	200000	600000
Sundry creditors	50000	75000	400000
Bills payable	50000	75000	400000

Comment on their comparative liquidity or short term financial health.

UNIT–IV

7. Define Financial Management? Explain its objectives.

OR

8. Discuss about sources of finance?

UNIT–V

9. What are the methods of capital budgeting and explain briefly?

OR

10. A choice is to be made between the two competing proposals which require an equal investment of Rs. 50000 and are expected to generate net cash flows as under:

Years	1	2	3	4	5	6
Project A	25000	15000	10000	Nil	12000	6000
Project B	10000	12000	18000	25000	8000	4000

Cost of capital of the company is 10%, which proposal should be selected using NPV method? Suggest the best project.

***

Hall Ticket Number :										

R-15

Code: 5P2B12

M.C.A. I Semester Regular & Supplementary Examinations January 2017

Computer Programming

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) What is a Flowchart? Explain the various decision symbols in a Flowchart with neat diagrams 6M

   b) What are the qualities that a Programming language should exhibit? 6M

OR

2. a) Differentiate between Standard identifiers and user defined identifiers in C with examples. What are the rules for user defined identifiers? 6M

   b) Write a program in C to count the numbers between 1 to 100 not divisible by 2,3 and 5 6M

UNIT–II

3. a) Write a C program to print a 5 x 5 multiplication table. The product of row index i and the column index j should be stored in a two dimensional array a[i][j] 6M

   b) Write a C program to read the line “Programming in C is interesting” from the terminal 6M

OR

4. a) Explain Pass by value and Pass by Reference in C with example programs 8M

   b) Explain the differences between a Structure and a Union in C language 4M

UNIT–III

5. a) Illustrate how data abstraction or data hiding can be achieved in C++ with an example 6M

   b) What are Inline functions in C++? When should they be used? 6M

OR

6. a) What is the advantage of using Private Static data members? 6M

   b) What is constant member function? Explain with an example 6M

UNIT–IV

7. a) Explain function overloading with an example 6M

   b) What are function templates? Give the syntax for function template 6M

OR

8. What is operator overloading? Explain overloading the assignment operator with an example 12M

UNIT–V

9. a) Give the hierarchy of File stream classes 6M

   b) Why are Manipulators used? Describe five of C++’s predefined parameterized Manipulators 6M

OR

10. a) Explain the Exception handling model of C++ with a neat diagram 6M

    b) Write a program for handling Array Reference out of Bound Exception 6M

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Hall Ticket Number :										

Code: 5P2B15

R-15

M.C.A. I Semester Regular & Supplementary Examinations January 2017

Information & Communication Technology

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) Distinguish multi-processor and Multi computers 6M
   b) Present the Comparative findings of CISC and RISC 6M

OR

2. a) Define fourth and fifth generation languages and elucidate the advantages and limitations of them 6M
   b) Study the following statements and Identify the Generation of computer language and Explain. Also brief the meaning of the given statements
   ADD LOCA,R0
   ADD LOCA,R1
   ADD R1,RO 6M

UNIT–II

3. a) Justify the statement "Each bit of binary data is stored in a tiny circuit called a memory cell consisting of one to several transistors" by discussing available variants. 6M
   b) Elaborate MAR and MDR connections to main memory and discuss the importance of MFC signal. 6M

OR

4. a) Diagrammatically explain various magnetic storage devices 6M
   b) Identify the situations where to use ROM, PROM, EEPROM with examples and diagrams 6M

UNIT–III

5. a) Prioritize any five Computer Peripherals depending on their frequency of usage 6M
   b) Roll of registers in performing arithmetic and logical operations 6M

OR

6. a) Discuss various controllers, devices and cables used to establish communication 6M
   b) Present sequence of elementary operations required to execute instructions. 6M

UNIT–IV

7. a) Analyze the concepts of collision in Bus, Ring and Star topologies diagrammatically 6M
   b) Explain the uses of INTERNET and predict its impact on society in future 6M

OR

8. a) Justify the importance of modulators and demodulators data transmission. Also discuss the support of gateways in communication. 6M
   b) Discuss various transmission media available for data transfer with suitable diagrams 6M

UNIT–V

9. a) What OSI Reference Model? Explain types of layers in detail. 6M
   b) Explain the importance of XML in web technologies 6M

OR

10. a) Involving all options of **<input>** tag, design a web page which accepts the details of student profile and displays the same with elegant look. 6M
    b) Present all the tags pertaining to font and page formatting 6M

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Hall Ticket Number :										

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Code: 5P2A14

M.C.A. I Semester Regular & Supplementary Examinations January 2017

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Hall Ticket Number :										

R-15

Code: 5P2B12

M.C.A. I Semester Regular & Supplementary Examinations January 2017

Computer Programming

Max. Marks: 60 Time: 3 Hours

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   b) Write a program in C to count the numbers between 1 to 100 not divisible by 2,3 and 5 6M

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3. a) Write a C program to print a 5 x 5 multiplication table. The product of row index i and the column index j should be stored in a two dimensional array a[i][j] 6M

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Hall Ticket Number :										

Code: 5P2B15

R-15

M.C.A. I Semester Regular & Supplementary Examinations January 2017

Information & Communication Technology

Max. Marks: 60 Time: 3 Hours

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****

UNIT–I

1. a) Distinguish multi-processor and Multi computers 6M
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OR

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    b) Present all the tags pertaining to font and page formatting 6M

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Hall Ticket Number :										

R-15

Code: 5P2B11

M.C.A. I Semester Regular & Supplementary Examinations January 2017

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) Prove that $p \rightarrow (q \rightarrow r)$ and $(p \wedge \neg r) \rightarrow \neg q$ are logically equivalent. 6M

   b) Determine whether the following is a valid argument:
   I am happy if my program runs. A necessary condition for the program to run is it should be error free. I am not happy. Therefore the program is not error free. 6M

OR

2. If P, Q and R are three atomic variables, obtain the principal disjunctive normal form for $(P \rightarrow (Q \wedge R)) \vee (\sim P \rightarrow (Q \vee R))$ 12M

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. What is a Hasse diagram? Draw the Hasse diagrams of the following sets under the partial ordering relation “divides” and indicate those which are totally ordered.
   (i) {2, 6, 24}
   (ii) {1,2,3,6,12}
   (iii) {3,9,27,54} 12M

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. a) Solve the recurrence relation an- 4 an-1 + 3 an-2= 0 for n >= 2 with initial conditions a0 = 2 and a1 = 4 by using generating functions. 6M

   b) Solve the Fibonacci relation an= an-1 + an-2 with a0 = 0 and a1 = 1 as initial conditions. 6M

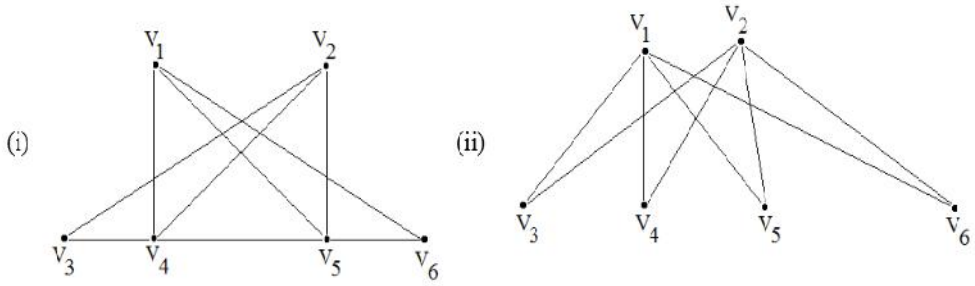
OR

8. a) Solve the Inhomogeneous Recurrence Relation $f(n)=6f(n-1)-5$, where $f(0)=2$. 6M

   b) Find the solution to $a_n = 5a_{n-1} - 8a_{n-2} + 4a_{n-3}$ for $n = 3, 4, 5, \ldots\ldots$, with $a_0 = 1$, $a_1 = 1$, and $a_2 = 3$. 6M

UNIT–V

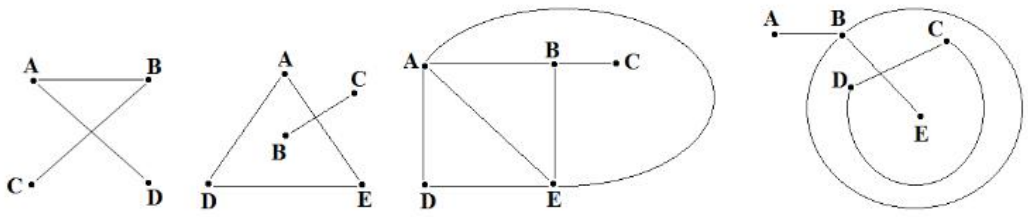
9. What is planar graph? Check if the following graphs are planar graph.



12M

OR

10. Consider the multigraphs G in figures below Find which of them are connected? If a graph is not connected, find its connected components. Which are cycle free (without cycles)?



12M

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Hall Ticket Number :										

R15

Code: 5P2C13

M.C.A. I Semester Regular & Supplementary Examinations January 2017

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) Define Conditional Probability. Also State and Prove Baye's theorem. 6M

   b) For the continuous random variable X whose probability density function is given by

$$f(x) = \begin{cases} c\,x\,(2-x), & if\ 0 \le x \le 2 \\ 0, & otherwise \end{cases}$$

   Where c is a constant? Find c & Mean . 6M

OR

2. a) The Probability that A hits a target is ¼ and the probability that B hits it is 2/5. What is the probability that the target will be hit if A and B each shoot at the target? 6M

   b) A continuous random variable X has a probability density function

$$f(x) = k\sqrt{x(1-x)},\ 0 \le x \le 1.$$ 6M

   Find (i) value of k (ii) $E(X)$

UNIT–II

3. a) If X is a Poison variate such that P(X=0)=P(X=1), find P(X=0) and using recurrence formula. Find the probability at x = 1,2,3,4 and 5. 6M

   b) Let X be normal with mean 50 and Variance 9. Determine c such that $P(X < c) = 5\%,\ P(X > c) = 1\%, P(50 - c < X < 50 + c) = 50\%$ 6M

OR

4. If the heights of 300 students are normally distributed with mean 68.0 inches and standard deviation 3.0 inches, how many students have heights.

   i. Greater than 72 inches,

   ii. Less than or equal to 64 inches,

   iii. Between 65 and 71 inches inclusive

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

UNIT–III

5. a) A population consists of the four numbers **4, 8, 12, 16, 20.** Consider all possible samples of size two that can be drawn with replacement from this population.

   Find (i) The population mean,

   (ii) The population standard deviation,

   (iii) The mean of the sampling distribution of means,

   (iv) The standard deviation of the sampling distribution of means. 12M

OR

6. a) Explain type-I and type-II errors 4M

   b) The average zinc concentration recovered from a sample of zinc measurements in 36 different locations is found to be 2.6 grams per milliliter. Find the 95% and 99% confidence intervals for the mean zinc concentration in the river. Assume that the population standard deviation is 0.3. 8M

UNIT–IV

7. a) In a random sample of 100 tube lights produced by company A, the mean lifetime (mlt) of tube light is 1190 hours with standard deviation of 90 hours. Also in a random sample of 75 tube lights from company B the mean lifetime is 1230 hours with standard deviation of 120 hours. Is there a difference between the mean lifetimes of the two brands of tube lights at a significance level of 0.05? 6M

   b) In the past a machine has produced washers having a mean thickness of 0.050 inch. To determine whether the machine is in proper working order a sample of 10 washers is chosen for which the mean thickness is 0.053 inch and the standard deviation is 0.003 inch. Test the hypothesis that the machine is in proper working order using a level of significance of 0.05? 6M

OR

8. a) A random sample of 100 recorded deaths in the united states during the past year showed an average life span of 71.8 years. Assuming a population standard deviation of 8.9 years, does this seem to indicate that the mean life span today is greater than 70 years? Use a 0.05 level of significance. 6M

   b) An instructor has two classes A and B, in a particular subject. Class A has 16 students while class B has 25 students. On the same examination, although there was no significant difference in mean grades, class A has a standard deviation of 9 while class B has a standard deviation of 12. Can we conclude at the 0.01 level of significance that the variability of class B is greater than that of A? 6M

UNIT–V

9. Fit a Binomial distribution to the following data and test for its goodness of fit at level of significance 0.05.

No. of Heads	0	1	2	3	4	5
No. of Tosses (Frequency)	38	144	342	287	164	25

12M

OR

10. To study the performance of three determinants and three different water temperatures, the following whiteness readings were obtained with specially designed equipment.

Water Temp.	**Detergent A**	**Detergent B**	**Detergent C**
Cold water	57	55	67
Warm water	49	52	68
Hot water	54	46	58

Perform a two way analysis of variance using 5% level of significance 12M

***

Hall Ticket Number :										

Code: 5P2C16

R-15

M.C.A. I Semester Regular & Supplementary Examinations January 2017

Technical Communication and Computer Ethics

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. How does language function as a tool of effective communication? Explain this in the context of the present need for Technical Communication.

OR

2. Explain the role played by listening in developing one's personality.

UNIT–II

3. How does technology help us in making effective presentations? Illustrate with examples.

OR

4. What is effective presentation? How does one make it?

UNIT–III

5. Explain the role played by Group Discussions in a selection process. How can its effectiveness be increased?

OR

6. What are the salient features of an effective interview?

UNIT–IV

7. How are professional ethics relevant in the contemporary business world? What role does it play?

OR

8. Attempt an essay on the role of ethics for IT professionals.

UNIT–V

9. How is privacy safeguarded in an age of information explosion and cyberspace?

OR

10. What are the major issues that IT professionals face in qualitative development? How do they overcome it?

***

Hall Ticket Number :										

R-15

Code: 5P2B11

M.C.A. I Semester Regular & Supplementary Examinations January 2017

Mathematical Foundations of Computer Science

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UNIT–II

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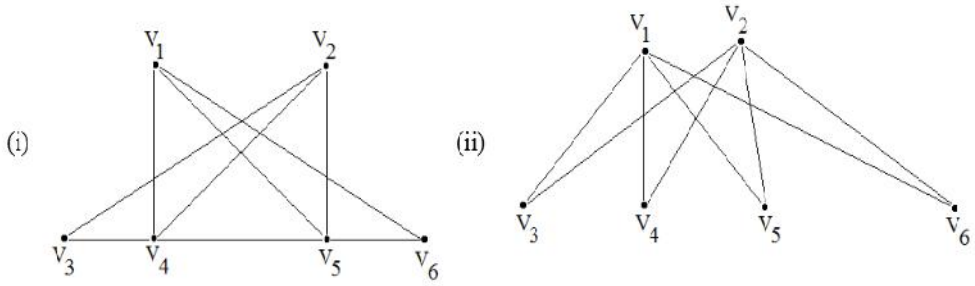

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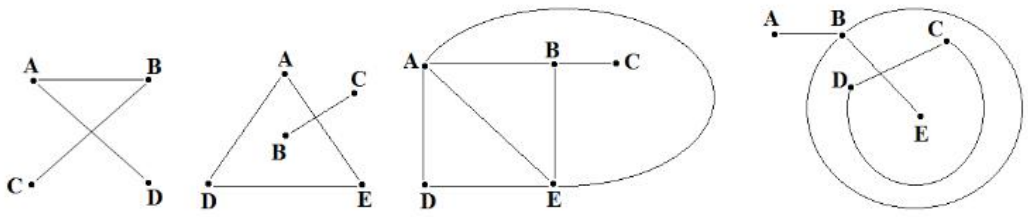

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Hall Ticket Number :										

R15

Code: 5P2C13

M.C.A. I Semester Regular & Supplementary Examinations January 2017

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UNIT–IV

7. a) In a random sample of 100 tube lights produced by company A, the mean lifetime (mlt) of tube light is 1190 hours with standard deviation of 90 hours. Also in a random sample of 75 tube lights from company B the mean lifetime is 1230 hours with standard deviation of 120 hours. Is there a difference between the mean lifetimes of the two brands of tube lights at a significance level of 0.05? 6M

   b) In the past a machine has produced washers having a mean thickness of 0.050 inch. To determine whether the machine is in proper working order a sample of 10 washers is chosen for which the mean thickness is 0.053 inch and the standard deviation is 0.003 inch. Test the hypothesis that the machine is in proper working order using a level of significance of 0.05? 6M

OR

8. a) A random sample of 100 recorded deaths in the united states during the past year showed an average life span of 71.8 years. Assuming a population standard deviation of 8.9 years, does this seem to indicate that the mean life span today is greater than 70 years? Use a 0.05 level of significance. 6M

   b) An instructor has two classes A and B, in a particular subject. Class A has 16 students while class B has 25 students. On the same examination, although there was no significant difference in mean grades, class A has a standard deviation of 9 while class B has a standard deviation of 12. Can we conclude at the 0.01 level of significance that the variability of class B is greater than that of A? 6M

UNIT–V

9. Fit a Binomial distribution to the following data and test for its goodness of fit at level of significance 0.05.

No. of Heads	0	1	2	3	4	5
No. of Tosses (Frequency)	38	144	342	287	164	25

12M

OR

10. To study the performance of three determinants and three different water temperatures, the following whiteness readings were obtained with specially designed equipment.

Water Temp.	**Detergent A**	**Detergent B**	**Detergent C**
Cold water	57	55	67
Warm water	49	52	68
Hot water	54	46	58

Perform a two way analysis of variance using 5% level of significance 12M

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Hall Ticket Number :										

Code: 5P2C16

R-15

M.C.A. I Semester Regular & Supplementary Examinations January 2017

Technical Communication and Computer 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. How does language function as a tool of effective communication? Explain this in the context of the present need for Technical Communication.

OR

2. Explain the role played by listening in developing one's personality.

UNIT–II

3. How does technology help us in making effective presentations? Illustrate with examples.

OR

4. What is effective presentation? How does one make it?

UNIT–III

5. Explain the role played by Group Discussions in a selection process. How can its effectiveness be increased?

OR

6. What are the salient features of an effective interview?

UNIT–IV

7. How are professional ethics relevant in the contemporary business world? What role does it play?

OR

8. Attempt an essay on the role of ethics for IT professionals.

UNIT–V

9. How is privacy safeguarded in an age of information explosion and cyberspace?

OR

10. What are the major issues that IT professionals face in qualitative development? How do they overcome it?

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