R-11

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET
(AUTONOMOUS)

MCA I Semester Regular & Supplementary Examinations *Mar 2013.*

ACCOUNTING AND FINANCIAL MANAGEMENT

Max. Marks: 60   Time: 03 Hours

****

Answer *any five* questions
All Questions carry equal marks (12 Marks each)

1 Discuss briefly the basic concepts and conventions of accounting?

2 From the following data prepare a) Current Ratio   b) Acid Test Ratio
c) Working Capital Ratio   d) Stock Turnover Ratio e) Debt to Equity and f) Debt to Total Fund Ratio

Liabilities	₹.	Assets	₹.
Equity Share Capital	2,00,000	Cash in Hand	10,000
Reserves	50,000	Cash in Bank	40,000
Creditors	30,000	Fixed Assets	2,50,000
Term Loan	60,000	Receivables	50,000
Debentures	40,000	Stock	30,000
Outstanding expenses	20,000	Prepaid Expenses	20,000
	4,00,000		4,00,000

3 Distinguish between Straight-line Method and Diminishing Balance Method of Depreciation.

4 a. Define Financial Management? Explain its scope and significance?

   b. What are the different functions and roles of financial manager in an ogranisation.

5 What is Funds flow statement? Discuss the methods of calculating funds from operations.

6 Explain briefly modern methods of Capital Budgeting? Expalin the procedure of calculation of NPV with a suitable example.

7 What is budgetary control state its objectives, advantages and how it is prepared?

8 From the bellow information you are require to calculate a) BEP in Units and Rupees b) P/V Ratio c) Margin of Safety d) to earn ₹ 10,000 as Desired Profit the required sales would be.

Units Produced 3000

Selling Price – ₹30/ Unit

Variable Cost – ₹20/Unit

Fixed Cost - ₹20000

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET (AUTONOMOUS)

MCA I Semester Regular & Supplementary Examinations Mar 2013.

COMPUTER PROGRAMMING

Max. Marks: 60   **Time: 03 Hours**

****

Answer *any five* questions
All Questions carry equal marks (12 Marks each)

1	a.	Give the hierarchy of programming language paradigms and explain.	6
	b.	Discuss the concept of binding in detail.	6
2	a.	What are expressions and operators? Explain various operators available in C language with examples.	10
	b.	Mention the applications of strings.	2
3	a.	Write a function that accepts a string and returns 1 if it is a palindrome and 0 otherwise without using any built in functions.	6
	b.	Give a note on dynamic memory allocation.	6
4	a.	What is a structure? How is it different from a Union? Explain how are they declared and initialized. Give examples.	6
	b.	List and explain various modes of file opening and file closing. What role does the fseek() plays and how many arguments does it have?	6
5	a.	Write a C++ program that uses a for statement to calculate and print the product of the odd integers from 1 to 15.	6
	b.	Explain how to pass arrays to functions with examples.	6
6	a.	What is the purpose of scope resolution operator? Explain with examples.	4
	b.	Discuss when constructors and destructors are called and the order in which they are called? How destructors are used to perform termination housekeeping on an object before it is destroyed?	8
7	a.	What are virtual functions? How to declare and use virtual functions to affect polymorphism?	6
	b.	What is inheritance? Explain various forms of inheritance with examples.	6
8	a.	Give a note on file streams and console streams.	8
	b.	What is exception handling? Discuss the benefits of exception handling?	4

* * *

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET (AUTONOMOUS)

MCA I Semester Regular & Supplementary Examinations Mar 2013.

INFORMATION & COMMUNICATION TECHNOLOGY

Max. Marks: 60   Time: 03 Hours

****

Answer *any five* questions
All Questions carry equal marks (12 Marks each)

1 a.	Differentiate Multi-processors and Multi-computers	6
b.	Explain about Machine, Assembly and High level programming languages	6
2 a.	Advantages of Cache memory along with its working strategy and its block diagram	6
b.	Write about EEPROM and Flash memory	6
3	Classify various secondary storage devices and explain diagrammatically	12
4 a.	Explain about SCSI and Universal Serial Bus	6
b.	Diagrammatically explain Flat panel displays and Printers	6
5	Explain motherboard diagrammatically and focus on processor	12
6 a.	Write about Mesh, Star and Bus topology and discuss their advantages and disadvantages	6
b.	Network Interface Cards and Modems	6
7 a.	Differentiate TCP and UDP	6
b.	Explain the protocols FTP and HTTP	6
8 a.	Write about Web Server, Web Page, Web site, Home page and URL	6
b.	Explain about Static and Dynamic Web pages	6

@@@@

Code : 1P2B11

R-11

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET
(AUTONOMOUS)

MCA I Semester Regular & Supplementary Examinations **Mar 2013.**

MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

Max. Marks: 60   Time: 03 Hours
****
Answer *any five* questions
All Questions carry equal marks (12 Marks each)

1 a) Produce the substitution instance of the following   **6M**

      i) $((P \rightarrow Q) \rightarrow P) \rightarrow P)$; Substitute$(P \rightarrow Q)$ for P and $((P \wedge Q) \rightarrow R)$ for P and $((P \wedge Q) \rightarrow R)$ for Q.

      ii) $((P \rightarrow Q) \rightarrow (Q \rightarrow p))$; substitute Q for P and $p \wedge p$) for Q.

  b) Prove that R$\rightarrow$ S is a valid conclusion from the premises P$\rightarrow$ (Q$\rightarrow$ S), RVP and Q?   **6M**

2 a) Find the truth value of   **6M**

      a) (x) (P(x) v Q(x)),where P(x):x=1,Q(x):x=2 and the universe of discourse is {1,2}

      b) (x)(P$\rightarrow$ Q(x)) v R(x),where P:2>1,Q(x): x$\leq$3,R(x):x>5 and x:5, with the universe being {-2,3,6}

  b) (x)(P(x)$\rightarrow$ Q(x)) $\wedge$ T, where P(x):x>2,Q(x): x=0 and T is any tautology with the   **6M**
universe of discourse as {1}

3 a) Give the power sets of the following: **6M**

      i) {a, {b}}
      ii) {1, Ø}
      iii) {X, Y, Z}

  b) Given A = {x| x is an integer and 1 $\leq$ x $\leq$ 5}, B = {3, 4, 5, 17}, and C = {1, 2, 3, ….}.   **6M**
find A∩B, A∩C, A∪B and A∪C

4 a) Let R be the set of real number in [0,1]   **6M**

      i) And $\leq$ be the usual operation of "less than or equal to" on R. Show that $<R,\leq>$ is a lattice, What are the operations of meet and join on this lattice?

      ii) Show that there are 15 partitions of a set of four elements. Draw the diagram of corresponding lattice?

  b) Let f: R$\rightarrow$P and g: R$\rightarrow$R, where R is the set of real numbers. Find f O g and g O f,   **6M**
where f(x)=x^2 -2 and g(x)=x+4. State whether these functions are injective and
subjective.

5 a) Show that g:A$\rightarrow$ B is a homomorphism of an algebraic system $<A,*>$ on to $<B,\Delta>$ and   **6M**
$<A,*>$ is a sub algebra of $<A,*>$,then the image of A_1 under g is a sub algebra of
$<B,\Delta>$

  b) If f: S$\rightarrow$T is homomorphism form $<s,*>$ to $<T,\Delta>$ and g:T$\rightarrow$ P is also a   **6M**
homomorphism from $<T,\Delta>$to $<P,V>$

6 a) In how many ways can a committee of 5 ladies and 4 gents be chosen from 9 ladies and 15 gents, if gent, A refuses to take part if lady, B is on the committee   **6M**

  b) Hoe many different terms are there is the expansion of $(x_1+x_2+\ldots x_m)^n$ after all terms with identical sets of exponents are added?.   **6M**

7 a) Find the generating functions for the number of integer solution of $2w + 3x+5y+7z=n$, $0 \leq w,x,y,z$ **4M**

  b) Solve the following recurrence relation for a particular solution: **8M**

$a_n-5a_{n-1}+8a_{n-2}-4a_{n-3}=n2^n$

8 a) Describe the sum of in degree of all the nodes of simple digraph is equal to the sum of the sum is equal to the number of edges of the graph   **4M**

  b) What are the steps involving in graph traversal using Breadth First Search (BFS) algorithm? Illustrate with a graph example.   **8M**

@@@@

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET
(AUTONOMOUS)

MCA I Semester Regular & Supplementary Examinations Mar 2013.

PROBABILITY AND STATISTICS

Time: 03 Hours   **Max. Marks: 60**

Answer *any five* questions
All Questions carry equal marks (12 Marks each)
****

1. a) Box A contains 5 red and 3 white marbles and box B contains 2 red and 6 white marbles. If a marble is drawn from each box, what is the probability that they are both of same color?

   b) The bolts are drawn from a box containing 4 good and 6 bad bolts. Find the probability that the second bolt is good if the first one is found to be bad.

2. a) For the continuous probability function $f(x) = kx^2 e^{-x}$ when $x \geq 0$. Find

   (i) k

   (ii)   mean

   (iii) variance.

   b) A coin is tossed until a head appears. What is the expectation of the number of tosses required?

3. a) Determine the probability of getting a sum of 9 exactly twice in 3 throws with a pair of fair dice.

   b) In a Normal distribution, 7% of the items are under 35 and 89% are under 63.

   Find the mean and standard deviation of the distribution.

4. a) A random sample of size 144 is taken from an infinite population having the mean 75 and variance 225. What is the probability that the means will lie between 72 and 77?

   b) A random sample of 100 articles taken from a batch of 2696 articles contain 5 defective articles. Find 95% confidence interval for the proportion of defective articles in the whole batch.

5. a) Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results.

Horse A	28	30	32	33	33	29	34
Horse B	29	30	30	24	27	29	

   Test whether the two horses have the same running capacity.

   b) A pair of dice are thrown 360 times and the frequency of each sum is indicated below:

Sum	2	3	4	5	6	7	8	9	10	11	12
Frequency	8	24	35	37	44	65	51	42	26	14	14

Would you say that the dice are fair on the basis of the chi-square test at 0.05 level of significance?

6. a) 20 people were attacked by a disease and only 18 survived. Will you reject the hypothesis that the survival rate if attacked by this disease is 85% in favour of the hypothesis that is more at 5% level.

   b) It is claimed that a random sample of 49 tyres has a mean life of 15200 km. This sample was drawn from a population whose mean is 15150 kms and a standard deviation of 1200 km. test the significance at 0.05 level.

7. a) Explain the method of least squares to fit a straight line for the given data.

   b) For the following data, find the regression line of y on x.

x	1	2	3	4	5	8	10
y	9	8	10	12	14	16	15

8. Customers arrive at a one man barber shop with a mean inter-arrival time of 12 minutes, following a Poisson process. On an average customer spend 10 minutes in the barber's chair. Find the following

   (i) The average number of customer in the shop and the queue

   (ii) The percentage of time a customer can walk straight into the barber's chair having to wait

   (iii) How much time a customer can expect to spend in the barber's shop.

* * *

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET
(AUTONOMOUS)

MCA I Semester Regular & Supplementary Examinations Mar 2013.

TECHNICAL COMMUNICATION & COMPUTER ETHICS

Max. Marks: 60   **Time: 03 Hours**

****

Answer *any five* questions
All Questions carry equal marks (12 Marks each)

1. Discuss the importance of oral communication skills in technical communication.

2. Suggest strategies for overcoming various communication barriers that are specific to Indian students.

3. Discuss the difference between active and passive listening.

4. How do visual aids enhance the effectiveness of a presentation?

5. Which personality traits of a candidate are assessed by selectors in group discussions in the recruitment process?

6. Discuss the importance of mock interviews.

7. Discuss whether corporate loyalty constitutes professional ethics.

8. Discuss some strategies to ensure quality in software development.

* * *