Sem -I Fybcom maths & stats

N010ACA sep/oct 2014

(1)

TOTAL MARKS:- 75 **DURATION:- 2½ HOURS**

INSTRUCTIONS:-

(1) All the questions are compulsory.
(2) Graph papers will be provided on request.
(3) Use of simple non-programmable calculator is allowed.

SECTION-I

Q.1 Attempt **any 3** from the following:

A Find the amount required to purchase Rs.5 shares with a total face value of Rs.17700 at a 20% premium per share. The brokerage is 0.3% on the market price (5)

B Mr Dheeraj wants to invest some amount in one of the two companies A & B. Company A with shares of face value Rs.100 with a market price of Rs.200 each & offering 40% dividend & company B with shares of face value Rs.10 with a market price of Rs.12 each giving 30% dividend. Which company is better to invest? (5)

C Calculate the NAV of a mutual fund in the following case: (5)
No of units = 10000, market value of Government securities = Rs.5,00,000, market value of corporate bonds = Rs.10,00,000, other assets = Rs.50,000, liabilities of the fund = Rs.80,000, payable by the fund = Rs.20,000.

D Salman invested Rs.9000 in 'Reliance Vision –Growth' on 1st June, 2004 at an NAV of Rs. 54.85. Due to entry load, the value of its units on that day was just Rs.8823.06. Find the number of units correct up to 3 decimals & the entry load percentage. (5)

Q2 Attempt **any 3** from the following:

A How many 3 digit numbers can be formed with the help of the digits 1, 2, 3, 4, 5 & 6 if repetition of digits is not allowed? How many of them are:- (5)
(i) Even numbers?
(ii) Less than 500?

B A committee of 4 is to be formed from the Principal, the Vice-principal & 6 teachers. Find the number of committees which include (i) the Principal & the Vice -principal, (ii) the Principal but not the Vice-principal. (5)

C Solve the following L.P.P. by graphical method: (5)
Maximize $z = 48x + 40y$, subject to $x + 2y \leq 80$, $x + y \leq 50$, $x \geq 0, y \geq 0$

D Two types of food packs, P_1 & P_2 to be mixed in the fodders at a cattle farm are available, both containing vitamins V_1, V_2 & V_3. A cattle needs 40 mg of V_1, 120 mg of V_2 & 60 mg of V_3 per meal. The packet P_1 contains 20 mg of (5)

V_1, 40 mg of V_2 & 60 mg of V_3 & P_2 contains 10 mg of V_1, 60 mg of V_2 & 10 mg of V_3. Cost of these food packets are Rs.30 & Rs.20 respectively. Formulate the L.P.P.

SECTION-II

Q3 Attempt **any 3** from the following:

A The average marks of a class of students are 76. The average marks of boys & girls are 69 & 83 respectively. If there are 100 boys in the class, find the number of girls in the class (5)

B Draw cumulative frequency curve for the following data & hence obtain median from it. (5)

Daily wages in Rs	200-400	400-600	600-800	800-1000	1000-1200	1200-1400
No of workers	10	18	22	14	11	5

C Calculate mean & standard deviation from the following data: (5)

Age in years	0-10	10-20	20-30	30-40	40-50	50-60
No of persons	3	7	12	10	4	2

D Calculate mean deviation from mode from the following data: (5)

No of tickets	8	10	12	14	16
No of persons	5	13	20	15	7

Q4 Attempt **any 3** from the following:

A Two fair dice are rolled. Find the probability that (i) the number on the upper most face of the 1st die is greater than that of the2nd, (ii) the sum of the numbers on the upper most faces of the dice is a perfect square. (5)

B A card is drawn from a well-shuffled pack of cards. What is the probability that the card drawn is (i) a spade, (ii) a spade or a heart, (iii) a picture card, (iv) a king of heart. (5)

C Probability that A can hit a target is 1/3 & probability that B can hit the target is ¼. If both A & B try to hit the target independently, find the probability that (i) the target remains unhit, (ii) the target is hit. (5)

D For the following probability distribution, find the value of k & then find E(x) & V(x). (5)

x	1	2	3	4
P(x)	0.2	0.4	0.1	k

Q5 Attempt **any 3** from the following:

A From the following pay off table, determine the best possible act by using (i) maximin criterion, (ii) maximax criterion, (iii) Laplace criterion. (5)

Event / Act	E_1	E_2	E_3	E_4
A_1	17	16	13	13
A_2	15	18	19	18
A_3	20	14	18	11

B Prepare opportunity loss table from the following pay off table & determine the best possible act by using minimax regret criterion. (5)

Event / Act	E_1	E_2	E_3
A_1	30	35	50
A_2	0	40	60
A_3	-20	5	70

C The demand for a certain product follows the following probability distribution. (5)

No of items demanded	15	20	25	30
Probability	0.2	0.3	0.35	0.15

The cost of the product is Rs.18 per item & it is sold at Rs.40 per item. Any unsold item becomes worthless on the next day, if not sold on the same day. Prepare the pay-off table & obtain the best possible act using the EMV criterion.

D Draw decision tree for the following pay off table & determine the best possible act from it. (5)

Event / Act	S_1	S_2	S_3
A_1	320	320	320
A_2	160	400	400
A_3	0	240	480
Probability	0.3	0.5	0.2

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