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MN3AGB

FYBZ  
G.M.II

MAX MARKS-60

TIME-2HRS

- Note: 1. Simple calculator is allowed.  
2. All questions are compulsory

Q1 Attempt any Three out of five sub-questions

(15)

- (a) Write short note on sinking fund and Annuity.
- (b) A toy manufacturer produces two toys: a doll and an engine, both of which need two process moulding and colouring. A doll requires 1 hour of moulding and 2 hours of colouring. An engine requires 1.5 hours each of moulding and colouring. The profit per doll is Rs. 60 and profit per engine is Rs. 65. The manufacturer's machine and labour conditions are such that she has a maximum of 36 hours of moulding and 45 hours of colouring available per week. Formulate a L.P.P. to maximize the profit.
- (c) Is it likely that a sample of size 300 whose mean is 12, is a random sample from a large population with mean 12.8 and S.D. 5.2? Use 1% level of significance.
- (d) Monthly income of A and B are in the ratio 7:4 and their expenditures are in the ratio 9:5. Each of them saves Rs. 10,000. Find their income.
- (e) An article was sold for Rs. 312 and 20% profit was earned on it. Find the cost price at which it was bought.

Q2 Attempt any three out of five sub-questions

(15)

- (a) Write short note on type -1 and type -2 errors.
- (b) A sum of money amounts to Rs. 6,600 in 2 years and Rs. 7,200 in 4 years. Find the sum and the rate of simple interest.
- (c) An immediate annuity is to be paid for a certain number of years at 10% p.a. its present value is Rs.31,698.65 and the accumulated value is Rs. 46,410. Find the amount of each annuity payment.
- (d) Write short note on annual budget and indicators of deficit.
- (e) Write short note on BETA.

Q3 (a) solve the following equations using the matrix inversion method.

(8)

$$2x - y + z = 1$$

$$x + 2y + 3z = 8$$

$$3x + y - 4z = 1$$

OR

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(a) A loan of Rs. 50,000 is to be returned in 3 equal monthly instalments, the rate of interest being 24% p.a. Calculate the EMI using reducing balance method, and make the amortisation table. (8)

(b) A person lent Rs. 30,000 to a person at 21% p.a. and a certain sum of money to another person at 18% p.a. In 3 years he received altogether Rs. 56,700 as simple interest. Find the sum lent at 18% p.a. (7)

OR

(b) Two T.V. sets were sold at Rs. 9,100 each and thus a 30% profit was gained on one and a 9% loss was incurred on the other. If both the T.V. sets considered together, find the percentage profit or loss. (7)

Q4 (a) Solve the L.P.P. (8)

$$\text{Minimize } z = 4x + 5y$$

$$\text{Subject to: } x + y \geq 6$$

$$5x + y \geq 10$$

$$x + 4y \geq 12$$

$$x, y \geq 0$$

OR

(a) From the following information calculate Beta of a security: (8)

Year	Return on security%	Return on market portfolio%
1	10	12
2	12	11
3	15	14
4	10	12
5	08	11

(b) The numbers of PCs sold from 1992 to 1998 are as follows, find a trend line for this data and estimate the number of PCs that would be sold in 2005. (7)

Year	1995	1996	1997	1998	1999	2000	2001
No. of PCs sold	51	54	59	61	63	65	67

OR

(b) A medical journal claimed that the average weight of a male in Mumbai is 52.3 kg. A student checked the weight of 36 persons randomly to find that the average weight was 50.1 kg with a S.D. of 1.8 kg. Test the journal's claim at 5% level of significance. (7)