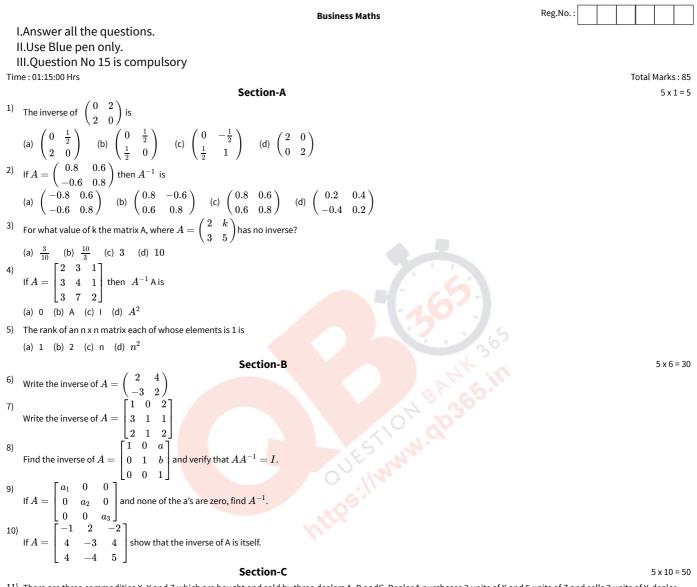
Model Question Paper

Applications of matrices and determinants - Part II

12th Standard



- 11) There are three commodities X, Y and Z which are bought and sold by three dealers A, B andC. Dealer A purchases 2 units of X and 5 units of Z and sells 3 units of Y, dealer B purchases 5 units of X, 2 units of Y and sells 7 units of Z and dealer C purchases 3 units of Y, 1 unit of Z and sells 4 units of X. In the process A earns Rs.11 and C Rs.5 but B loses Rs.12. Find the price of each of the commodities X, Y and Z, by using determinants.
- 12) A company produces three products everyday. The total production on a certain day is 45 tons. It is found that the production of the third product exceeds the production of the first product by 8 tons while the total production of the first and third product is twice the production of second product. Determine the production level of each product by using Cramer's rule.
- 13) The data below are about an economy of two industries P and Q. The values are in millions of rupees.

Producer	User		Final Demand	Total Output	
	Р	Q	Final Demanu	ισται Ουτρυτ	
Р	14	6	8	28	
Q	7	18	11	36	

Determine the outputs if the final demand changes to 20 for P and 30 for Q.

14) Suppose the inter-relationship between the production of two industries P and Q in a year (in lakhs of rupees) is

Producer	User		Final Demand	Total Output	
	Р	Q	Fillat Dellanu	Total Output	
Р	15	10	10	35	
Q	20	30	15	65	

Find the outputs when the final demand changes to (i) 12 for P and 18 for Q (ii) 8 for P and 12 for Q.

15) a) In an economy of two industries P and Q the following table gives the supply and demand positions in millions of rupees.

	Producer	User		Final Demand	Total Output
		Ρ	Q	Fillat Dellanu	Total Output
	Р	16	20	4	40
	Q	8	40	32	80

Find the outputs when the final demand changes to 18 for ${\rm P}$ and 44 for ${\rm Q}.$

(OR)

b) The data below are about an economy of two industries P and Q. The values are in crores of rupees.

Producer	Use	er	Final Demand	Total Output
	Р	Q		
Р	50	75	75	200
Q	100	50	50	200

Find the outputs when the final demand changes to 300 for P and 600 for Q.

