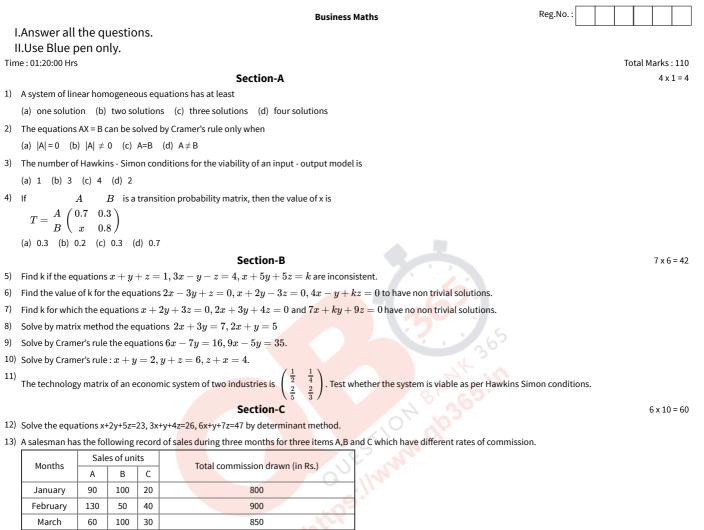
Model Question Paper

Applications of matrices and determinants - Part IV

12th Standard



Find out the rates of commission on the items A,B and C. Solve by Cramer's rule.

14) In an economy there are two industries P and Q and the following table gives the supply and demand positions in crores of rupees.

Producer	User		Final Demand	Total Output
	Р	Q	Fillat Dellianu	Total Output
Р	10	25	15	50
Q	20	30	10	60

Determine the outputs when the final demand changes to 35 for P and 42 for Q.

15) Two products A and B currently share the market with shares 60% and 40% each respectively. Each week some brand switching takes place. Of those who bought A the previous week, 70% buy it again whereas 30% switch over to B. Of those who bought B the previous week, 80% buy it again whereas 20% switch over to A. Find their shares after one week and after two weeks. If the price war continues, whend is the equilibrium reached?

16) A new transit system has just gone into operation in a city. Of those who use the transit system this year, 10% will switch over to using their own car next year and 90% will continue to use the transit system. Of those who use thier cars this year, 80% will continue to use their cars next year and 20% will switch over to the transit system. Suppose the population of the city remains constant and that 50% of the commuters use the transit system and 50% of the commuters use their own car this year, (i) what percent of commuters will be using the transit system after one year? (ii) what percent of commuters will be using the transit system in the long run?

$$^{17)}$$
 Write the Adjoint of the matrix $A=egin{pmatrix} 1 & -2 \ 4 & 3 \end{pmatrix}$