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**CBH 407**

**I Semester M.Com. (IB) Degree Examination, Dec. 2018**  
**(Choice Based Credit System)**  
**COMMERCE**  
**International Business**  
**Quantitative Techniques**

Time : 3 Hours

Max. Marks : 70

## SECTION – A

Answer **any four** sub-questions of the following. **Each** sub-question carries **10** marks. **(4×10=40)**

1. Present the following data by means of sub-divided Bar-Diagram.

Year	Boys	Girls	Total
2007	1000	100	1100
2008	400	50	450
2009	300	30	330
2010	200	20	220

2. Calculate :

- i) Laspeyres'
- ii) Paasche's
- iii) Bowley's and
- iv) Fisher's Index numbers for following data :

Items	2005		2006	
	A	10	120	12
B	50	700	40	600
C	15	240	25	475
D	12	216	15	240

3. Find the total revenue, marginal revenue and average revenue when the demand function is given by  $Q = 30 - 4P + P^2$  where  $P$  is price and  $Q$  is the quantity demanded. Also calculate the marginal revenue when  $P = 3$ .

P.T.O.



4. Write the general rules of integration. Using integration, find the area of the triangular region whose sides have equations  $y = 2x + 1$ ,  $y = 3x + 1$  and  $x = 4$ .
5. In the frequency distribution of 100 families given below : the number of families corresponding to expenditure groups 20 – 40 and 60 – 80 are missing from the table. However the median is known to be 50. Find out the missing frequencies.

<b>Expenditure</b>	0-20	20-40	40-60	60-80	80-100
<b>No. of Families</b>	14	?	27	?	15

6. Solve by Cramer's Rule.

$$3x + 3y - z = 11$$

$$2x - y + 2z = 9$$

$$4x + 3y + 2z = 25$$

7. Discuss various components of a time series. Illustrate your answer with suitable examples.

### SECTION – B

Answer **any two** of the following questions. **Each** question carries **15** marks.

**(2×15=30)**

8. Following data relates to years of service in a factory of seven persons and their monthly income.

<b>Years of service</b>	11	7	9	5	8	6	10
<b>Income monthly in '000' Rs.</b>	7	5	3	2	6	4	8

Obtain two regression equations and also estimate the income of a person of 12 years of service.

9. a) Find the inverse of  $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ , if it exists.



b) Calculate the mean, median and mode for the following data.

<b>Groups</b>	5-7	7-9	9-11	11-13	13-15	15-17	17-19
<b>No. of Observations</b>	4	7	11	5	3	2	1

10. a) In a beauty context the following are the scores awarded by two judges A and B. Obtain the Spearman's rank correlation coefficient.

<b>A</b>	58	35	72	78	52	55	53	56	87	62
<b>B</b>	50	60	58	70	70	34	52	75	65	65

b) Explain why standard deviation is considered superior than the mean deviation measures.

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