

B. A. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2017**SEMESTER VI - ECONOMICS****ECO6QE – QUANTITATIVE ECONOMICS****Time: Three Hours****Maximum Marks: 80****PART A****I. Answer all questions. Each question carries 1 mark.**

1. Arithmetic mean.
2. Mean deviation.
3. Relative measure of dispersion.
4. Scatter diagram.
5. Pearson's correlation coefficient.
6. Regression equation.
7. Kurtosis.
8. Binomial distribution.
9. Find the derivative of x^n .
10. State addition theorem on probability.

(10x1=10)**PART B****II. Answer any eight questions. Each question carries 2 marks.**

11. Write any three measures of central tendency.
12. Define coefficient of variation.
13. What is the formula for computing the median of a frequency distribution?
14. Write the formulas for the regression lines.
15. Write the formula for rank correlation coefficient.
16. If the regression equation of y on x is
 $y = 2x - 6$, what is the value of y when $x = 35$?
17. Distinguish between skewness and kurtosis.
18. What are the rules of differentiation?
19. Find the derivatives of the following.
1) $2x + x^5$ 2) $\log x$ 3) $\frac{1}{x^6}$
20. If $P(A) = .5$, $P(B) = .7$, $P(AB) = .4$, what is $P(A \cup B)$?
21. Define normal distribution. What is its variance?
22. State multiplication theorem on probability.

(8x2=16)**PART C****III. Answer any six questions. Each question carries 4 marks.**

23. The arithmetic mean of 15 items is 35 and that of another 10 items is 45. Find the

combined mean .

24. What are the various measures of dispersion? Explain them.
25. Compute rank correlation coefficient from the following data:
- | | | | | | | | |
|-----|----|----|----|----|----|----|----|
| X : | 15 | 26 | 34 | 21 | 54 | 69 | 40 |
| Y : | 26 | 30 | 14 | 19 | 8 | 24 | 43 |
26. Derive the regression equation of y on x from the following:
- | | | | | | |
|-----|---|---|---|---|----|
| x : | 1 | 2 | 3 | 4 | 5 |
| y : | 2 | 4 | 6 | 8 | 10 |
27. Find the derivatives of the following functions:
1) $(x^2 + 1)(x + 1)$ 2) $\frac{(x-1)}{(x+1)}$ 3) $\frac{5}{4x-9}$
28. What are the applications of derivatives in economics?
29. The cost for a monopolist firm producing x radios per week is given to be $4x^2 - 80x + 500$ rupees. To have minimum cost, how many units should be produced per week?
30. Two cards are drawn from a well shuffled pack of cards. What is the probability that
a) both are red b) one is a king and the other is an ace c) both are spades
31. What are the properties of a normal distribution?

(6x4=24)

PART D

IV. Answer any two questions. Each question carries 15 marks.

32. Calculate quartile deviation of the following distribution :
- | | | | | | | |
|-----|------|-------|-------|-------|-------|-------|
| x : | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| y : | 5 | 7 | 10 | 8 | 6 | 4 |
33. Compute Pearson's correlation coefficient from the following and comment:
- | | | | | | | | | | |
|-----|----|----|----|----|----|----|----|----|----|
| x : | 14 | 25 | 80 | 34 | 62 | 14 | 28 | 36 | 48 |
| y : | 25 | 45 | 62 | 42 | 38 | 24 | 40 | 36 | 50 |
34. Calculate the first four central moments of the following and find the coefficient of kurtosis.
12, 8, 10, 9, 6, 7, 20, 12, 10, 6
35. In a normal distribution 7% of the items are under 35 and 89% are under 63. Find the mean and standard deviation.

(2x15=30)