SMT. M.M.K. COLLEGE OF COMMERECE AND ECONOMICS, BANDRA (W)
FYJC TERMINAL EXAMINATION
SUBJECT: MATHEMATICS AND STATISTICS

DATE: 25 / 11 /2019

MARKS: 50

TIME: $2\frac{1}{2}$ HRS

Q.1] (A) Select and write the most appropriate answer from the given alternative for each question. 5

i) If Q_1=80, Q_2=100, Q_3=120 then bowley's coefficient of skewness is ___.

   a) 0   b) 0.5   c) 1   d) 1.5

ii) The range for the following data 116, 124,164, 150, 149, 114, 195,128, 138, 203, 144 is ___.

   a) 79   b) 89   c) 99   d)109

iii) For a frequency distribution, the lower quartile is 35, and median is 40. If the distribution is symmetric, the upper quartile is ___.

   a) 35   b) 45   c) 55   d) 65

iv) For a G.P. if a=3 and t_7=192, then r =___.

   a) 2   b) -2   c)± 2 d) 4

v) The conjugate of $\sqrt{5}-i$ is ___.

   a) $-\sqrt{5}-i$ b) $\sqrt{5}+i$ c) $\pm\sqrt{5}-i$ d)$\sqrt{5}\pm i$

B) State weather the following statement are true or false. 4

i) $(A\cup B)' = A'\cap B'$ and $(A\cap B)' = A'\cup B'$

ii) If $Z= a+i b$, then $Z\bar{Z}= a^2+ b^2$.

iii) Distribution is positively skewed, if mean > mode.

iv) The relation between standard deviation and variance is $variance = \sqrt{S.D.}$

C) Fill in the following blanks with appropriate answer.

i) If $Z_1=1+2i$, $Z_2=-2+i$ then $Z_1Z_2=$___.

ii) If $A=\{1,3,5,7,9\}$, $B=\{1,2,3,4,5,6,7,8\}$ then $A\cap B=$___.

iii) The heights (in cms) of 10 students are given below. 148, 171, 158, 151, 154, 159, 152, 163, 171, 145. then $Q_1=$___.

iv) If mean=25, and S.D. =5 the coefficient of variation (C.V.) =___.

Q.2] (A) Attempt any SEVEN of the following.

i) If $A=\{x/6x^2+x-15=0\}$, $B=\{x/2x^2-5x-3=0\}$, $C=\{x/2x^2-x-3=0\}$ then find

    a) $(A\cup B\cup C)$ b) $(A\cap B\cap C)$

ii) Let $A=\{1,2,3\}$ and $B=\{2,4,6\}$ show that $R=\{(1,2),(1,4),(3,2),(3,4)\}$ is a relation from A to B. find a) domain(R)   b) co-domain(R)   c) range(R)

iii) If $x+2i+15i^6\, y=7x+i^3(y+4)$. Find $x+y$ where $x, y \in R$.

iv) Solve $x^2+4ix-5=0$ where $i=\sqrt{-1}$

v) If for a sequence (t_n), $t_n=\dfrac{5^{n-2}}{4^{n-3}}$, show that the sequence is a G.P. Find first term and

    common ratio.

vi) Calculate 4th decile and 21st percentile from the following data.

Profit(in Lakh Rs)	0.5-4.5	5.5-9.5	10.5-14.5	15.5-19.5	20.5-24.5
No. of firms	7	18	25	30	20

vii) Compute variance and S.D. for the following data.

x	2	4	6	8	10
f	5	4	3	2	1

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viii) The following values are calculated in respect of prices of shares of company X and Y. State the share of which company is more stable in value.

	Share of X	Share of Y
Mean	50	105
Variance	7	4

ix) For a data set sum of upper and lower quartiles is 100, difference between upper and lower quartiles is 40 and median is 30. Find the coefficient of skewness. Comment on nature of the distribution.

x) The arithmetic mean of runs scored by 3 batsmen Varad, Viraj and Akhilesh in the same series are 50, 58 and 21 respectively. The S.D. of their runs are 11,16 and 5 respectively, Who is the most consistent of the three ?

B) Attempt any FOUR of the following.   16

i) Mean and S.D. of two distribution of 100 and 150 items are 50, 5 and 40, 6 respectively. Find the mean and S.D. of all the 250 items taken together.

ii) Find Sk_p for the following set of observations. 17, 17, 21, 14, 15, 20, 19, 16, 13,17,18.

iii) Weekly wages for group of 100 persons are given below

Wages (in Rs)	0-500	500-1000	1000-1500	1500-2000	2000-2500
No. of persons	7	?	25	30	?

D_3 for this group is Rs 1100. Calculate missing frequencies.

iv) Find the value of $2x^3 - 11x^2 + 44x + 27$ if $x = \dfrac{25}{3-4i}$.

v) Find three numbers in G.P. such that their sum is 42 and their product is 1728.

vi) Find the sum 5+55+555+5555+.......... upto n terms.

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