

**SMT M.M.K COLLEGE OF COMMERCE AND ECONOMICS**

**FYJC FIRST UNIT TEST -2019**

**MATHEMATICS AND STATISTICS**

DATE :23/09/19

MARKS:25

TIME : 1:30 HRS

**Q1) Attempt any 4 of the following questions.**

**(8)**

- i) Express  $(1+2i)(-2+i)$  in the form of  $a+ib$
- ii) Find the value of  $i + i^2 + i^3 + i^4$
- iii) If  $w$  is the complex root of unity, show that  $(2-w)(2-w^2) = 7$
- iv) The height (in cms.) of 10 students are given below:  
148,171,158,151,154,159,152,163,171,145  
Calculate  $Q_1$  and  $Q_3$  for the above data
- v) Calculate  $P_{85}$  for the following data  
79,82,36,38,51,72,68,70,64,63
- vi) Find  $D_4$  for the following data

No. of defective products	30	35	40	45	50	55	60
No. of firms	12	35	10	15	8	7	8

**Q2) Attempt any 3 of the following questions.**

**(9)**

- i) Solve the following quadratic equations :  $X^2 + 3ix + 10 = 0$
- ii) If  $\alpha$  and  $\beta$  are complex cube roots of unity show that :  $\alpha^2 + \beta^2 + \alpha\beta = 0$
- iii) Find the missing frequency given that the median of the distribution is 1504

Life in hours	950-1150	1150-1350	1350-1550	1550-1750	1750-1950	1950-2150
No. of bulbs	20	43	100	-----	23	13

- iv) Calculate  $2^{nd}$  Decile and  $65^{th}$  Percentile for the following data

X	80	100	120	145	200	280	310	380	400	410
f	15	18	25	27	40	25	19	16	8	7