



# THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

Re-accredited (2<sup>nd</sup> Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

## Backlog Arrear Examination, March 2021

MAS 2562

Maths for Biologists

Time: 3hrs

Max: 75marks

Answer any FIVE:

5 x 15 = 75

- Form the quadratic equation whose roots are  $(5+\sqrt{3})$  and  $(5-\sqrt{3})$
  - Solve the quadratic equation  $2x^2 + 9x + 10$ .
  - Find the zeros of the quadratic polynomial  $x^2 - 15$
- Find the (i) Mean (ii) Median (iii) First quartile for the following frequency distribution.

Class	frequency	class	frequency
11-15	8	36-40	41
16-20	15	41-45	28
21-25	39	46-50	16
26-30	47	51-55	4
31-35	52	<b>Total</b>	<b>250</b>

- Find the Harmonic Mean for the following frequency distribution.

Class	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
frequency	15	10	7	5	3

- Find the Standard deviation for the following data

Class	0 - 9	10 - 19	20 - 29	30 - 39	40 - 49
frequency	11	20	16	36	17

- A continuous random variable has the distribution function

$$F(x) = \begin{cases} 0 & \text{if } x \leq 1 \\ k(x-1)^4 & \text{if } 1 < x \leq 3 \\ 0 & \text{if } x > 3 \end{cases}$$

(i) Find  $k$  (ii) the probability density function  $f(x)$ .

5. 17.If X is normally distributed with mean 8 and S.D 4 find (i)  $P(5 \leq X \leq 10)$   
(ii)  $P(10 \leq X \leq 15)$  (iii)  $P(X \geq 15)$ .
6. Explain about ANOVA with an example.
7. Analyze the variance in the following Latin square

A8	C18	B9
C9	B18	A16
B11	A10	C20

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