



DEPARTMENT OF ECONOMICS
Vidyasagar College for Women
Economics Honours Part: I
Course: Paper II

Full Marks: 100
Time: 2 hours
Date: 6.12.2020

ONLINE INTERNAL ASSESSMENT EXAMINATION 2020

USE SEPARATE PDF(ANSWER SCRIPT) FOR SEPARATE GROUP

Group- A

Answer both questions

1. (a) Explain the relative advantages and disadvantages of sampling and census methods for collection of statistical information. [10]
- (b) State and prove the Bayes' Theorem. [10]
- (c) Give the classical definition of probability and explain its limitation. [5]

Please go on to the next page...

2. (a) Find the median and the mode for the following distribution.

[6]

Class-limit	105-159	160-169	170-179	180-189	190-199	200-209
Frequency	37	42	69	104	90	83

- (b) The first three moments of distribution about the value 3 of a variable are 2, 10 and 30 respectively. Obtain the first three moments about zero. Find also the variance of the distribution.
- (c) Discuss the concept of Lorenz curve as a representation of distribution of income.
- (d) The first of the two samples has 100 items with mean 15 and standard deviation 3. If the whole group has 250 items with mean 15.6 and standard deviation $\sqrt{13.44}$, find the standard deviation of the second group.

[5]

[8]

[6]

Group- B**Answer both questions**

3. (a) What is meant by a two person zero sum game? [2]
- (b) Explain why a constant sum game is also a zero sum game? [3]
- (c) Consider the following two person zero sum game where the payoff matrix of player A is given as follows:

		B's strategy	
		1	2
A's strategy	1	80	20
	2	40	100

- i. Show that the game does not have a saddle point in pure strategy. [5]
- ii. Hence, determine the mixed strategy equilibrium. [5]

(d) Locate all the Nash equilibrium solutions for the following game:

[10]

		Strategy of player B		
		Left	Center	Right
Strategy of player A	Top	1,0	1,3	3,0
	Middle	0,2	0,1	3,0
	Bottom	0,2	2,4	5,4

4. (a) A laptop manufacturer determines that in order to sell x laptops, the price must be $p = 1200 - x$. The cost of the manufacturer for producing laptops is $C(x) = 4000 + 300x$. Find out the optimum number of laptops that will maximise the profits.

[10]

(b) Classify the stationary values of the function $f(x) = x^3 - 3x^2 + 5$ as local maximum, local minimum and inflectional values.

[9]

(c) Consider the following household demand function:

$$q^d = q^d(p, y) = 10y^2 + 2y^4p^{-2} - 3p^3 \quad (p, y > 0)$$

Derive expression for q^d_y , q^d_p , q^d_{yy} , q^d_{pp} , q^d_{py} & q^d_{yp} . Given that $q^d(p, y)$ is continuous and has continuous first and second order partial derivatives.

[6]