# **Gurudas College**

Internal Examination - 2020

Part 1 (1+1+1)

**Economics Honours** 

#### Second Paper

Group A

### (Statistics for Economics)

## Time: 1 hr 30 mins

Full Marks: 25

### Answer any three

- 1. Mention the differences between Histogram and Vertical Bar diagram
- 2. Define crude death rate. Explain Why it is not suitable for comparing the mortality situation of two countries
- 3. Mean of the 100 observations is 50 and SD is 10. What would be the new mean and SD if
  - i) 5 is added to each observation
  - ii) Each observation is multiplied by 3
  - iii) 5 is subtracted from each observation and then it is divided by 4?
- 4. State with reasons which of the following represent discrete data and which represent continuous data:
  - i) Hours of students sleeping in Mathematics class
  - ii) Number of coins in different piggy banks
  - iii) Duration of hangout per day of a student with his friend
  - iv) Bite size sold of a CD store during a year
- 5. Give the classical definition of poverty and point out its limitations
- 6. The mean and standard deviation of height readings of a group of employees of a firm are found to be 172 and 18 cm while the same measures for their weight readings are 65 kg and 9 kg. Compare the variability of the height readings with that of the weight readings.

## **Group B**

## (Mathematical methods in Economics)

**1.** State whether the following function is true or False (Answer any 7)

- i) If a function is increasing then it is both quasi-concave and quasi convex
- ii) If a function is continuous at any point then it must be differentiable at any point
- iii) A quadratic function is a polynomial at degree 2
- iv) A strictly convex function cannot be strictly concave
- v) If a function is quasi-concave then it cannot be quasi-convex
- vi) Any quasi-concave function is a concave function
- vii) Y=c is not a function
- viii) Y=3x+2 is a function

### Answer any Two

- 2. A laptop manufacturer determines that in order to sell X laptops the price must be p=1200-X. The cost oof the manufacturer for producing laptops is C(X)=4000+300x. Find out the optimum number of laptops that will maximize the profit
- 3. For the three-sets A=[4,5,6], B=[1,3,6,8] and C=[1,2,8] verify the law of distributivity
- 4. State and prove the Euler's theorem
- 5. Classify the stationary values of the function f(x)=x3-3x2+5 as local maximum, local minimum and inflexional values