# Gurudas College 

Internal Examination - 2020

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\text { Part } 1(1+1+1)
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Economics Honours

## Second Paper

Group A
(Statistics for Economics)

## 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) $Y=3 x+2$ is a function

## Answer any Two

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