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Daffodil International University

Department of Software Engineering

STA101: Statistics I

Batch: 44 Section: E

Course Instructor: Aman Ullah Aman

Full Marks: 15

Q1. **[8 Marks]** For each of the following variables, identify whether it is **Qualitative or Quantitative** and specify its **Scale of Measurement** (Nominal, Ordinal, Interval, or Ratio).

(a) Type of operating system installed on a computer.

(b) Temperature of boiling milk, measured in Celsius.

(c) Number of software bugs found in a program.

(d) Severity of a software defect (Low, Medium, High).

(e) Internet connection type used by a student.

(f) Time required to execute an algorithm, in seconds.

(g) Student satisfaction rating (Very dissatisfied to Very satisfied).

(h) Number of failed login attempts on a computer.

Q2. **[7 Marks]** The following observations represent the execution times (in milliseconds) of ten different software processes:

$$4, 17, 8, 23, 6, 31, 12, 27, 9, 15$$

Using the given data, answer the following questions.

(a) Calculate the Arithmetic Mean (AM). **[1.5]**

(b) Calculate the Geometric Mean (GM). **[1.5]**

(c) Calculate the Harmonic Mean (HM). **[1.5]**

(d) Verify that $AM \geq GM \geq HM$. **[1.5]**

(e) Verify whether $AM \times HM = GM^2$. Does equality hold? **[1]**