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Name.....

Reg. No.....

**SECOND SEMESTER (CUFYUGP) DEGREE EXAMINATION
APRIL 2026**

Applied Statistics with Data Science/Statistics

STA 2FM 106-2—STATISTICAL SAMPLING AND PROBABILITY THEORY

(2024 Admission onwards)

Time : One Hour and a Half

Maximum : 50 Marks

Section A*All questions can be answered.**Each question carries 2 marks.**(Ceiling : 16 Marks)*

1. Define a Sample.
2. Define dependent and independent variables.
3. What is the population in the survey on the weight of the students of school A ?
4. Define a Questionnaire.
5. Define sample space in a random experiment.
6. What is primary data ? Give an example.
7. Define stratified random sampling.
8. Define equally likely events.
9. Write the sample space of the random experiment of tossing two dice together.
10. If A and B are events with $P(A) = 0.3$, $P(B) = 0.4$, then find $P(A \cup B)$.

Turn over

Section B

All questions can be answered.

Each question carries 6 marks.

(Ceiling : 24 Marks)

11. Discuss the advantages and disadvantages of sample survey over census.
12. What are the important steps in preparing a questionnaire for data collection ?
13. What is cluster sampling ? Explain the situation where this method is suitable.
14. What is Systematic Sampling ? Explain the procedure of selecting a systematic sample.
15. Define probability of an event A. For an event A prove that (i) $0 \leq P(A) \leq 1$ (ii) $P(S) = 1$ where S is the sample space.

Section C

*Answer any **one** question.*

The question carries 10 marks.

16. What is simple random sampling ? Discuss its importance, steps involved, and when it is preferred over other sampling techniques.
17. Define a sample survey. Explain the principal steps involved in a sample survey.

(1 × 10 = 10 marks)