47133

Reg. No. | | | | | | | | |

III Semester B.Sc. (NEP) Degree Examination, March/April - 2023

STATISTICS (Optional)

Calculus and Probability Distribution (DSC)

(Regular)

Time : 3 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. *Mathematical and statistical tables will be supplied on request.*
2. *Use of calculator in permitted.*

PART - A

I. Answer any **Five** questions. Each question carries **Two** marks. **(5×2=10)**

1. Define Taylor series expansion.
2. What do you mean by partial derivatives of higher order.
3. State demoivre's central limit theorem.
4. Define weibull distribution.
5. Define Geometric distribution.
6. What are the mean and variance of Gamma distribution?
7. Define Cauchy distribution.
8. Define sampling distribution of sample variance.

PART - B

II. Answer any **Four** questions. Each question carries **Five** marks. **(4×5=20)**

9. Obtain the integration by parts in Rieman integrals.
10. State and prove chebyshev's inequality.
11. Obtain moment generating function of exponential distribution.
12. Obtain mean and variance of multinomial distribution.
13. State and prove additive property of chi-square variate.
14. Prove that the relationship between t and F - distribution.

P.T.O.

PART - C

III. Answer any **Three** questions. Each question carries **Ten** marks. **(3×10=30)**

15. State and prove second mean value theorem of integral calculus.
16. State and prove weak law of large numbers. (WLLN).
17. Define Beta distribution of first kind. Obtain constants of Beta Distribution of first kind.
18. Derive the p.d.f of t - distribution with 'n' d.f. mention its mean and variance.
19. Derive the p.d.f on F-distribution with (n_1, n_2) d.f. Mention its mean and variance.
