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PAS-003-1172003 Seat No. _____

M. Sc. (Sem. II) (CBCS) Examination

August - 2020

MS - 203 : Applied Multivariate Analysis

Faculty Code : 003

Subject Code : 1172003

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) Attempt all questions.

(2) Each question carries equal marks.

1 Answer any seven of the following : **14**

(1) P.d.f. of MND is _____.

(2) _____ is function of Wishart's distribution.

(3) Note down one application of Hotelling's T^2.

(4) Define central Wishart's distribution.

(5) What is simple definition of Hotelling's T^2 q-square.

(6) Define multinomial distribution.

(7) Write down the p.d.f. equation of multivariate distribution.

(8) What is marginal distribution of Wishart's distribution?

(9) Write any one property of Hotelling's T^2 test.

(10) State the reproductive property of Wishart's distribution.

2 Answer the following questions : (Any **Two**) **14**

(a) Drive Multinomial Distribution.

(b) Drive multivariate normal distribution (MND).

(c) Obtain marginal distribution of multivariate normal distribution (MND).

3 Answer the following questions : 14

(a) Obtain Conditional distribution of Multivariate Normal Distribution (MND).

(b) Obtain characteristic function of Multivariate Normal Distribution (MND).

OR

3 Answer the following questions. 14

(a) Write reproductive property of MND and prove that.

(b) Estimate of mean vector and the variance - covariance matrix of MND.

4 Answer the following questions : 14

(a) Derive Hotelling's T^2 distribution.

(b) Derive Wishart's distribution.

5 Answer the following questions : (Any **Two**) 14

(a) Obtain marginal distribution of Wishart's distribution.

(b) State and prove that reproductive property of Wishart's distribution.

(c) Explain Mahalanobis distance of two - sample Hotelling's T^2-statistics.

(d) Write optimum properties of Hotelling's T^2-test.