

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - STATISTICS

MEASURE THEORY

Time: Three Hours

Maximum: 75 Marks

Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 15 = 75)

- 1 a Explain different set operation with example.
b Prove that every monotone sequence is convergent.
OR
c Explain limit infimum and limit supremum.
d Explain field and a field.
- 2 a Explain countably additive and finitely additive set function.
b Explain outer measure with example.
OR
c Explain measurable set and measurable function,
d State Extension theorem.
- 3 a State and prove approximation theorem.
OR
b State and prove Egorof theorem.
- 4 a Define Integral of measurable function.
b State the properties of measure integral.
OR
c State and prove Hahn decomposition theorem.
- 5 a State Radom Nikodym theorem.
b Explain the concept of product space and product measure.
OR
c State and prove Lebegue decomposition theorem.

Z-Z-Z

END