24/3/2018

Roll No.....
Date of Exam.....

Department of Mathematics, SOPS, Doon University Dehradun
Mid-Semester Examination 2017-18
M.Sc. Mathematics-II (IV Semester)
Course Title & Course Code: Biomathematics (MAC-552)

Time: 02 Hour **Total Marks: 30**

Note: (i) Attempt ALL the questions. (ii) Do neat and clean work.

Section A

Attempt ALL: **(2x3=6)**

1. Define Smith's model.
2. Describe a prey-predator model.
3. Show that epidemic curve is symmetrical about $t = t_0$

Section B

Attempt ALL: **(4x3=12)**

1. Describe Mathematical Modelling and need of Biomechanics in detail.
2. Describe the growth of populations with Harvesting in detail.
3. Discuss the compartment model through the system of first order ordinary differential equation.

Section C

Attempt ALL: **(3x4=12)**

1. Find the mathematical model of simple deterministic model (SIS model).
2. Discuss all types of Domar Macro's model in detail.
3. Describe simple Logistic model in detail.
4. If Growth of population, harvesting rate being proportional to population size then describe its mathematical model.

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