



**RAJARATA UNIVERSITY OF SRI LANKA  
FACULTY OF APPLIED SCIENCES**

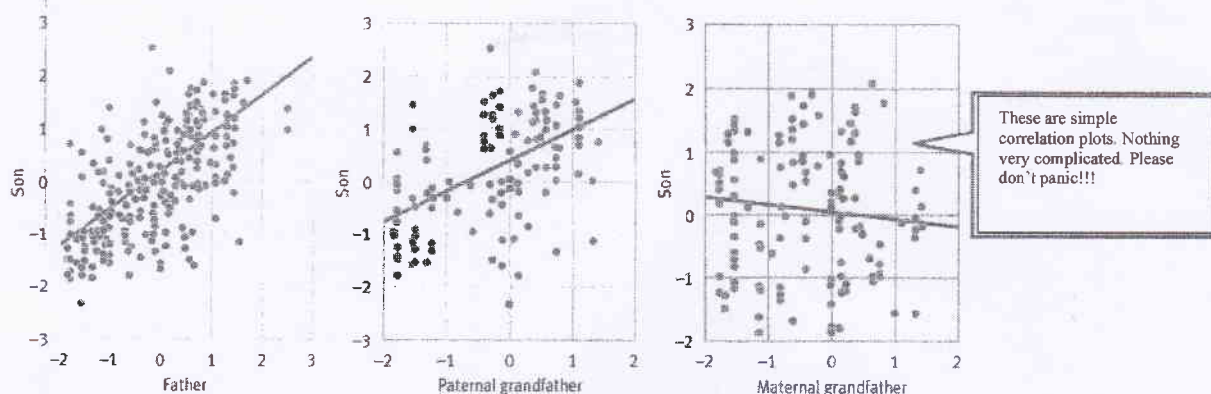
**B.Sc. (General) Degree in Applied Biology  
Second Year - Semester I Examination – September/October 2019**

**ZOO 2203 – ANIMAL BEHAVIOUR**

**Time: Two (02) hours**

**Answer four (04) questions including question 1.**

1. Peter and Rosemary Grant have been studying finches (a type of bird) in the Galápagos Islands for more than three decades. Bird song has many different functions, one of which is to facilitate reproduction between members of the same species. The Galápagos Islands has many different species of finches, each with its distinct song. The Grants carried out an investigation to determine how bird song was transmitted from one generation of a species of finch to the next. They compared the components of bird song between sons and their father and sons and paternal and maternal grandfathers (Grant & Grant 1996). Their key findings are summarized in the plots below.



- a) Comment briefly on the three plots. **(20 marks)**
- b) Based the above plots, comment on how bird song is transmitted from one generation to the next. **(40 marks)**
- c) Comment briefly on other mechanisms that influence the development of behaviour in organisms. **(40 marks)**

2. a) Explain briefly the phenomenon of estrus synchrony in lions. (40 marks)
- b) Comment on adaptive factors that may have contributed to the evolution of estrus synchrony. (60 marks)
3. a) What is an Evolutionarily Stable Strategy (ESS)? (40 marks)
- b) Describe briefly how cooperative behaviour may evolve among animals. (60 marks)
4. Write short notes on the following.
- a) Kin selection
  - b) Ideal free distribution
  - c) Marginal value theorem
  - d) Optimal clutch size
  - e) Independent contrasts
- (100 marks)
5. Write a brief account on the morphological adaptations that have evolved to minimize predation risk in animals. (100 marks)

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