



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

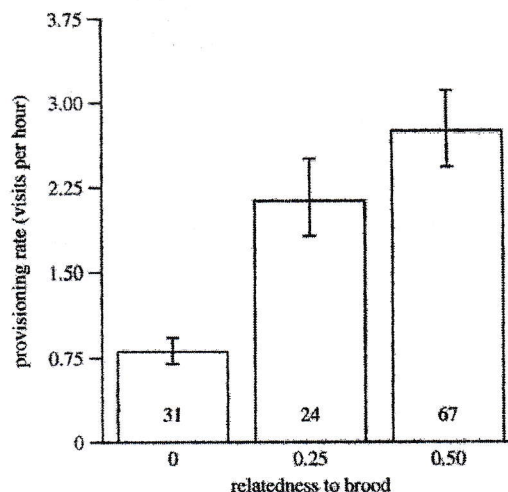
**B.Sc. (General) Degree in Applied Biology
Second Year - Semester I Examination – July/August 2023**

ZOO 2203– ANIMAL BEHAVIOUR

Time: Two (02) hours

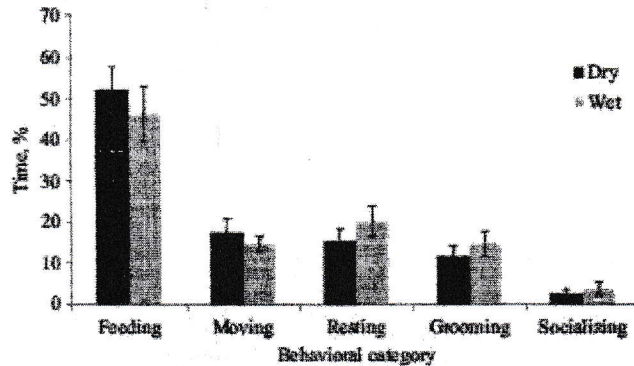
Answer FOUR (04) questions only.

1. Identifying the evolutionary pathway to cooperative breeding has received significant attention from ethologists. The chestnut-crowned babbler (*Pomatostomus ruficeps*) is a cooperative breeder. In this species, helpers assist breeders take care of their broods. Helpers do not treat all broods alike, and the figure below summarizes the behaviour of helpers with respect to provisioning (providing food) of different broods in the colony.



- a) Explain briefly the trend shown by the graph (10 marks)
- b) Provide an explanation for your answer to **part (a)** (40 marks)
- c) For provisioning to happen as depicted in the above graph, it is necessary for individual helpers to be able to recognize certain individuals. State briefly how this may be accomplished by helpers in the colony. (20 marks)
- d) Describe briefly **one (01)** other plausible pathway through which cooperative breeding may have evolved in these birds. (30 marks)

2. Kifle and Bekele (2020) carried out a study to determine broad activity patterns of Gelada baboons (*Theropithecus gelada*). They carried out behavioural sampling of a group of baboons and produces the graph below.



- State the term used to refer to the graphical output given above (20 marks)
 - Mention the sampling method used by the investigator and comment on its appropriateness. (40 marks)
 - The investigators now wish to study aggression between males in the group. Some of these aggressive interactions only last a short while. Propose a suitable behavioral sampling method and justify your choice (40 marks)
3. Using appropriate examples, briefly discuss **three (03)** factors that influence the development of behaviour in organisms. (100 marks)
4. Succinctly describe morphological adaptations that have evolved to minimize predation risk in animals. (100 marks)
5. Write short notes on the following.
- Adaptive significance of oestrus synchrony in lions
 - Ideal free distribution
 - Curve of diminishing returns
 - Locomotor play and its adaptive significance
 - Hoarding behaviour
- (20 marks each)

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