



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019**

COURSE NAME : CELL, GENES & DIVERSITY
COURSE CODE : DAS 26203
PROGRAMME CODE : DAU
EXAMINATION DATE : DECEMBER 2018 / JANUARY 2019
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWER **FIVE (5)** QUESTIONS ONLY

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THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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- Q1** (a) Charles Darwin was an English naturalist, geologist and biologist best known for his contributions to the science of evolution. Darwin makes observation during his survey voyage on HMS Beagle. Darwin conclude his study based on several types of data including geology, fossils and biogeography.
- (i) Define fossils and give the conclusion that he has made from his fossils observation. (1 mark)
- (ii) State Darwin's conclusion from biogeography observation. (2 marks)
- (ii) State the conclusion of evolution theory based on Darwin observation. (2 marks)
- (b) (i) Define natural selection. (1 mark)
- (ii) Briefly explain the process of natural selection. (10 marks)
- (iii) Give **two (2)** examples for each living and non living environment that involved in natural selection process. (4 marks)
- Q2** (a) Define virus and give reasons why virus is categorized as non organisms. (3 marks)
- (b) State all basic components of a virus with their functions. (3 marks)
- (c) Draw and explain lysogenic life cycle of a virus. (14 marks)
- Q3** (a) Draw all basic shapes of bacteria. (3 marks)
- (b) Draw and explain the reproduction process of bacteria. (4 marks)
- (c) List and explain all five groups of bacteria based on the effect of oxygen of its growth. (10 marks)
- (d) Explain the conditions that may trigger endospore formation and state the benefits of endospore formation to the bacteria. (3 marks)

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- Q4** (a) Protists are the origin of eukaryote cells.
- (i) State the theory of formation of eukaryote cells. (1 mark)
- (ii) Explain the process of the theory in **Q4(a)(i)**. (6 marks)
- (iii) Give **five (5)** evidence of the theory in **Q4(a)(i)**. (5 marks)
- (b) List all mode of nutrient in Kingdom of Protist. (3 marks)
- (c) List all major groups of protist with special characteristics of each group. (5 marks)
- Q5** (a) List **three (3)** characteristics of fungi. (3 marks)
- (b) Hyphae is the basic structure of fungi.
- (i) State the structure that hyphae germinate from. (1 mark)
- (ii) Give the name of structure that are consists of network of hyphae. (1 mark)
- (iii) Explain **three (3)** function of hyphae. (3 marks)
- (c) Fungi are absorptive heterotroph.
- (i) Explain the characteristics of fungi that aid them to get nutrient. (3 marks)
- (ii) Explain the steps on how fungi get nutrients. (3 marks)
- (iii) List all groups based on the feeding behaviour of the fungi. (3 marks)
- (d) List and explain **three (3)** importance of fungi. (3 marks)

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- Q6** (a) (i) State the clade that share common ancestor with land plants. (1 mark)
- (ii) List **three (3)** common characteristics between green algae and land plants. (3 marks)
- (b) Explain the adaptation of plants to terrestrial life. (6 marks)
- (c) (i) Describe general structure of non vascular plants. (1 mark)
- (ii) Explain **five (5)** characteristics of non vascular plants. (5 marks)
- (iii) State the significant differences between vascular plant and non vascular plants. (1 mark)
- (d) Angiosperm are the most successful group of plants.
- (i) Describe one characteristic of this group that makes them successful plants. (1 mark)
- (ii) Explain how does angiosperm disperse and spread their reproductive material. (2 marks)
- Q7** (a) Give **four (4)** significant differences of characteristics between animals and plants. (4 marks)
- (b) Describe the characteristics of sponges that include them into kingdom of animalia. (4 marks)
- (c) List the characteristics of anthropods. (6 marks)
- (d) Describe the characteristics in fish that ease them to
- (i) Swim. (2 marks)
- (ii) detect any movements in the water. (2 marks)
- (e) State the unique characteristics of shark that make it a fast swimmer. Give your reason. (2 marks)

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-END OF QUESTIONS -