



**UNIVERSITI TUN HUSSEIN ONN
MALAYSIA**

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : CELLS, GENES & DIVERSITY
COURSE CODE : DAS 26203
PROGRAMME : 2 DAU
EXAMINATION DATE : DEC 2015/ JAN 2016
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWER ANY **FIVE (5)**
QUESTIONS

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

- Q1**
- (a) Give the definition of
- (i) Theory. (1 mark)
 - (ii) Evolution. (1 mark)
 - (iii) Fossil. (1 mark)
- (b) Charles Darwin was a naturalist that collecting insects during two years journey around the world. State any two of his conclusions based on his observation and explain. (4 marks)
- (c) (i) List **three (3)** mechanism of biological evolution. (3 marks)
- (ii) Explain the main effect of these mechanisms to biological evolution. (2 marks)
- (d) (i) Define natural selection. (1 mark)
- (ii) List **three (3)** principle of natural selection. (3 marks)
- (e) A group of researcher randomly select and measure the diameter of palm oil tree bark in the country. The average of the diameter was 50cm. This species is living in a stabilizing selection environment.
- (i) State what would be the most diameter of the bark after 10th generation. (1 mark)
 - (ii) The diameter of oil palm tree barks measured is between 35cm to 65cm. Sketch the graph of diameter of palm oil tree bark before and after 10th generation of stabilizing selection. (3 marks)

- Q2**
- (a) Define species (1 mark)
 - (b) (i) Define classification in biodiversity. (1 mark)
(ii) Give **one (1)** benefit of classification in biodiversity. (1 mark)
 - (c) Carolus Linnaeus developed and introduced naming system of organisms.
 - (i) Give the content in 'Two-word' name in the naming system introduced by him. (2 marks)
 - (ii) Give **one (1)** benefit of this naming system in biodiversity. (1 mark)
 - (d) List all kingdoms that their members are
 - (i) Prokaryotic cells (2 marks)
 - (ii) Eukaryotic cells (4 marks)
 - (iii) Heterotroph organisms (2 marks)
 - (iv) Autotroph organisms (4 marks)
 - (e) Give **two (2)** characteristics that are group into Kingdom of Animalia. (2 marks)

- Q3**
- (a) (i) List all essential components of prokaryotic cell. (4 marks)
 - (ii) Give function for all component of prokaryotic cells as in **Q3(a)(i)**. (4 marks)
 - (iii) Draw and label a basic structure of prokaryotic cells (4 marks)
- (b) Explain each term below
- (i) Chemotroph (1 mark)
 - (ii) Obligate anaerobe (1 marks)
- (c) Give **one (1)** benefits of bacteria that have a potential use in industry and explain. (3 marks)
- (d) *Staphylococcus aureus* cause food poisoning and cause people diarrhea and vomiting. Explain on how we can prevent this to happen. (3 marks)
- Q4**
- (a) Fungi are not plant. Give **three (3)** reasons that differentiate fungi and plant and explain. (6 marks)
 - (b) (i) State all modes of reproduction of fungi. (2 marks)
 - (ii) Draw all modes of reproduction of fungi in one diagram. (5 marks)
 - (c) Explain on how fungi obtain nutrient. (3 marks)
 - (d) Give **two (2)** benefits of fungi and explain each of them. (4 marks)

- Q5**
- (a) List and explain **three (3)** benefits of green algae and plant. (6 marks)
 - (b) Land plants have cuticles and stomata as an adaptation for dry condition.
 - (i) Give the function of both cuticle and stomata for land plants. (2 marks)
 - (ii) Draw a structure of land plants leaf and show both cuticle and stomata. (2 marks)
 - (c) Explain how non vascular plants adapt in dry condition on land. (4 marks)
 - (d) Opening and closing of stomata are controlled by guard cells. Draw a structure of stomata with guard cells. (2 marks)
 - (e) Give **two (2)** types of pollination agent. (2 marks)
 - (f) Plants are primary producer. Explain. (2 marks)

- Q6** (a) (i) Sponge is a simplest organism in Kingdom of Animalia. Give **two (2)** characteristics that place sponge into this kingdom. (2 marks)
- (ii) Sponge reproduces by asexual and sexual method. Explain both methods. (4 marks)
- (b) Cladogram is a tool to show comparative characteristics of organisms by grouping organisms by their characteristics.
- (i) Copy the table into your answering script. Fill the following table by marking 'X' for traits of each organism.

Characteristics \ Organisms	Wings	Prokaryote	Legs	Exoskeleton	Unicell
Snail					
E. coli					
Flatworm					
Spider					
Fly					

- (ii) By using table in **Q6.(b)(i)**, construct a cladogram and label the characteristics. (10 marks)
- (c) Bony fish are different with shark. List **two (2)** differences between them. Explain. (4 marks)

- END OF QUESTION -