



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2016/2017**

COURSE NAME : CELL, GENES & DIVERSITY  
COURSE CODE : DAS 26203  
PROGRAMME CODE : 2 DAU  
EXAMINATION DATE : DECEMBER 2016 / JANUARY 2017  
DURATION : 3 HOURS  
INSTRUCTION : i) **SECTION A: ANSWER ALL QUESTIONS.**  
ii) **SECTION B: ANSWER ANY FOUR (4) QUESTIONS**

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THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

**CONFIDENTIAL****SECTION A**

- Q1**
- (a) (i) Animals are heterotrophic. Explain.  
 (ii) Animals are active in movements compared to plants. Explain and relate this with the type of cells and tissues evolution in the organisms.  
 (iii) State the common ancestral of animal. (4 marks)
- (b) Sponges are the simplest organisms in kingdom of animal  
 (i) Give the characteristics of sponge that include sponge into kingdom of Animalia.  
 (ii) Give **two (2)** other major characteristics of sponges other than in **Q1(b)(i)**. (3 marks)
- (c) (i) State the first group of animal that have developed true tissue.  
 (ii) List **all** layers of tissue of animals in **Q1(c)(i)**. (3 marks)
- (d) Protostome has a bilaterally symmetrical body plan.  
 (i) Define bilaterally symmetrical  
 (ii) Animal in protostomes has developed a true coelom. Define true coelom.  
 (iii) List **three (3)** major groups of animal of protostome. (6 marks)
- (e) Two major groups of animals in protostomes are Lophotrochozoa and Ecdysozoa.  
 (i) State a special characteristic of Lophotrochozoa.  
 (ii) State a special characteristic of Ecdysozoa.  
 (iii) Differentiate the sexual characteristics between Lophotrochozoa and Ecdysozoa. (4 marks)

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- Q2**
- (a) (i) State the origin of plant.  
 (ii) Give **three (3)** common characteristics between plants and the origin of plant.  
 (iii) List **two (2)** adaptations of plant to terrestrial life.  
 (iv) Explain why plants have to adapt in terrestrial life. (7 marks)
- (b) Plant undergoes alternation of generation and exists in two forms.  
 (i) State both forms of plant and their production for reproduction.  
 (ii) State the process that dominant generation in plant conduct.  
 (iii) State the dominant generation in nonvascular plant and vascular plant. (7 marks)
- (c) (i) Define stoma.  
 (ii) Give the function of stoma.  
 (iii) Draw a structure of stoma and locate arrow to show water flow that cause pore of stoma to open. (6 marks)

**CONFIDENTIAL****SECTION B**

- Q3** (a) Scientist before Darwin agreed that fossils are homologous and vestigial structure. Define
- (i) Fossil
  - (ii) Homologous structure
  - (iii) Vestigial structure
- (3 marks)
- (b) “A local disaster cause massive extinction”. Explain why George Cuvier hypothesized as above.
- (2 marks)
- (c) Give the name of scientist that hypothesized “Evolution occurs and adaptation to the environment is the cause of diversity”.
- (1 mark)
- (d) Natural selection is one of the processes of evolution.
- (i) Define natural selection.
  - (ii) List and explain each step in natural selection.
- (5 marks)
- (e) Directional selection, stabilizing selection and disruptive selection are three type of selection in natural selection.
- (i) Sketch a graph of number of individual versus phenotype of each type of selection.
  - (ii) State the favor type of phenotype in each selection in each graph in **Q3(e)(i)**.
- (9 marks)

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- Q4** (a) (i) Define microorganisms.  
(ii) List three general characteristics of microorganisms.
- (4 marks)
- (b) (i) Define virus.  
(ii) Explain why virus is not an organism.  
(iii) List **all** major parts of virus.  
(iv) Explain in terms of DNA of the virus, progeny and host symptoms of viral infection in lysogenic cycle of virus.
- (7 marks)
- (c) (i) State **three (3)** major characteristics that been used to classify bacteria.  
(ii) State the source of energy and the source of carbon for bacteria classified as chemoautotroph and photoautotroph.
- (7 marks)
- (d) “Bacteria are decomposer”. Explain.
- (2 marks)

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- Q5** (a) (i) State the name of the origins of eukaryotes theory.  
(ii) Explain the theory.  
(iii) Give **three (3)** evidences of the theory. (7 marks)
- (b) Protist is the simplest eukaryotes organisms.  
(i) Explain the mode of nutrient carried out by animal-like-protist, plant-like protist and fungi-like protist.  
(ii) Give all type of asexual reproduction of protist and explain each type.  
(iii) Give **two (2)** major group of protist variation. (12 marks)
- (c) Give **one (1)** role of protist in the environment. (1 mark)
- Q6** (a) Explain **two (2)** differences between fungi and plant (4 marks)
- (b) (i) Explain how fungi obtain nutrient.  
(ii) State the host of saprophytes fungi, symbiosis fungi and parasites fungi. (6 marks)
- (c) State the structure that fungi produce and release to propagate and give the characteristics of the structure (3 marks)
- (d) Give **one (1)** benefits of sexual reproduction in fungi and explain how sexual reproduction of fungi happens. (3 marks)
- (e) Give an example and explain the importance of fungi in  
(i) environment  
(ii) food industry (4 marks)

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- Q7** (a) Nonvascular plant generally does not have true roots, true stems and true leaves.  
 (i) Explain how these plants adapt to live.  
 (ii) State the mechanisms of water transport in these plants.  
 (iii) Explain the reproduction system of these plants. (5 marks)
- (b) Vascular plants consist of vascular tissues.  
 (i) State **all** vascular tissues of these plants and give their function.  
 (ii) List **three (3)** functions of lignin in the cell wall for these plants. (7 marks)
- (c) Vascular seeds plants produce seeds.  
 (i) Draw and label a structure of seed.  
 (ii) Give the function of the major parts of a seed. (5 marks)
- (d) Angiosperms are the vascular flowering plants. Draw a structure of flower and show the reproduction system of a flower. (3 marks)
- Q8** (a) Give a difference between protostomes and deuterostomes animals. (2 marks)
- (b) (i) Give **two (2)** important characteristics of vertebrate Chordata.  
 (ii) Give **one (1)** animal that are Chordata but not include in vertebrate Chordata. (3 marks)
- (c) (i) Give **one (1)** characteristic and the function that differentiates bony fish and shark.  
 (ii) Give **one (1)** characteristic of both bony fish and shark shared. (4 marks)
- (d) (i) State the first animal that developed lungs.  
 (ii) State the first animal that developed legs. (2 marks)
- (e) (i) Explain the cutaneous respiration in amphibian.  
 (ii) Give and explain **two (2)** special characteristics of reptile.  
 (iii) State **three (3)** special characteristics of mammals. (9 marks)



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**-END OF QUESTIONS -**