

國立臺灣大學104學年度轉學生招生考試試題

題號： 47
科目：普通動物學

題號： 47
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※請將選擇題作答於試卷內之「選擇題作答區」。

一、單選題 每題 2 分，共計 40 分

1. Which is the character that can be used to distinguish skeletal muscle from cardiac muscle?
(A) Striation; (B) intercalated discs; (C) sarcomeres; (D) T-tubules.
2. Which of the following events is NOT mediated by a negative feedback mechanism?
(A) Control of blood sugar level; (B) control of action potential; (C) control of body temperature in mammals; (D) control of blood pressure.
3. What is in common between a sea anemone (海葵) and a planarian worm (渦蟲)?
(A) They both lack mesoderm. (B) They both have a diffuse nerve net. (C) They are both coelomates. (D) They both have a single-open gastrovascular cavity.
4. Which cell type is essential for protein digestion in the mammalian stomach?
(A) Parietal cells; (B) dendritic cells; (C) beta cells (of pancreas); (D) follicle cells.
5. Among the four major types of nutrition in human, which is the first one to undergo hydrolysis after ingestion?
(A) Carbohydrate; (B) protein; (C) lipid; (D) nucleic acid.
6. Which of the following characters is NOT unique to Phylum Chordata?
(A) Adaptive immunity; (B) pharyngeal slits; (C) a post-anal, muscular tail; (D) radial cleavage.
7. Which of the following human senses is NOT based on a mechanosensory receptor?
(A) gustation; (B) equilibrium; (C) pressure; (D) hearing.
8. Which of the following is involved in innate immunity?
(A) sweat gland; (B) T lymphocyte; (C) hybridoma; (D) plasma cell.
9. Which of the following cell type is involved in saltatory conduction?
(A) Oligodendrocytes; (B) radial glia; (C) astrocytes; (D) microglia.
10. In the Mangold-Spemann experiment, which piece of tissue is found to have an ability to induce body axis in an amphibian embryo?
(A) archenteron; (B) zone of polarizing activity; (C) dorsal lip; (D) apical epidermal ridge.
11. Which type of molecule is responsible for the recognition of "self" in vertebrate immune systems?
(A) Complement proteins; (B) T-cell receptor; (C) major histocompatibility complex molecules; (D) Toll-like receptor.
12. Which of the following tissue type is of ectoderm?
(A) Blood; (B) endothelium; (C) retina; (D) dermis.
13. Which of the following pairs of anatomic structures can be considered as being 'homologous'?
(A) Bird wings and bat wings; (B) bird wings and insect wings; (C) lateral line and tympanic canal; (D) book lung and swim bladder.
14. Mammals living in dry environment is likely to be found equipped with
(A) larger glomerulus; (B) longer urethra; (C) larger urinary bladder; (D) longer loop of Henle.
15. 'Negative pressure breathing' is found in which group of vertebrate?
(A) Dinosaurs; (B) mammals; (C) birds; (D) amphibians.
16. Please place stages of vertebrate embryonic development in a correct order. 1: Blastula; 2: Gastrula; 3: Morula; 4: Neurula.
(A) 1,2,3,4 (B) 3,1,2,4 (C) 3,2,1,4 (D) 2,1,3,4
17. Upon receiving light stimulation, what is the response made by a vertebrate rod cell?
(A) It would become hyperpolarized and release glutamate; (B) it would become depolarized and release glutamate; (C) it would become hyperpolarized and stop glutamate release; (D) it would become depolarized and stop glutamate release.

見背面

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18. The velocity of blood flow is slowest in capillaries because
(A) capillaries have the lowest blood pressure; (B) capillaries are the narrowest blood vessels; (C) capillaries are the least elastic among blood vessels, (D) capillaries have the largest total cross-sectional area when compared with arteries and veins.
19. Which of the following is NOT a neuroendocrine gland?
(A) pineal gland; (B) anterior pituitary gland; (C) adrenal medulla; (D) corpora cardiac.
20. Which of the following is most directly associated with formation of memory?
(A) long-term potentiation; (B) excitatory postsynaptic potential; (C) refractory period; (D) somatosensory cortices.

※ 注意：請於試卷上「非選擇題作答區」依序作答，並應註明作答之大題及小題題號。

二、配合題(從右欄中選擇一個最佳配對選項) 每題 2 分，共計 10 分

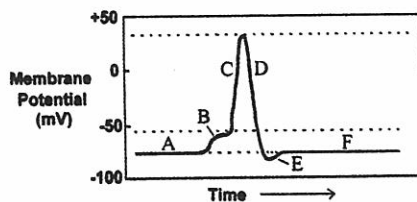
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|----------------|-------------------------------|--------------------------|
| 1. cnidarian | A: jaw | G: mesophyl |
| 2. tetrapod | B: radula | H: limbs with digits |
| 3. gnathostome | C: protonephridia | I: exoskeleton |
| 4. mollusc | D: molting | J: ectothermy |
| 5. eutherian | E: nematocyst | K: placenta |
| | F: pulmocutaneous circulation | L: water vascular system |

三、名詞解釋(請勿直接翻譯名詞，應予適量解釋，可以中文或英文作答) 每題 4 分，共計 40 分

1. Autoimmunity
2. Countercurrent exchange
3. Hermaphroditism
4. Acrosomal reaction
5. Pheromone
6. Clonal selection (in adaptive immune system)
7. Sinoatrial node
8. Bohr shift
9. Hydrostatic skeleton
10. Paracrine

四、問答題(可以中文或英文作答)，10 分

Please specify the molecular events relating to the regulation of membrane potential in the course of an action potential.



試題隨卷繳回