

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙一	普通生物學	楊良友	90年1月18日第2節		

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 ②每張試題卷務必填寫(學號)、(姓名)。

General Biology Final Exam January 2001 Instructor: Liang-Yo Yang Dentistry
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Please choose only **ONE BEST** answer. 45 questions for this part and 2 points for each question.

- In animal kingdom, there are (A) 1 (B) 2 (C) 3 (D) 4 (E) 5 types of skeletal systems.
- Which of the following animals have endoskeleton? (A) earthworm (B) Jellyfish (C) insects (D) echinoderms (E) none of the above
- Which of the following statements is **NOT CORRECT**? (A) Bone is not a connective tissue. (B) Bone is the building material of the vertebrate skeleton. (C) Haversian system is the basic unit of bone structure. (D) Osteocytes secrete the collagen-containing organic matrix. (E) More than one of the above.
- Muscle contraction that results in muscle shortening is called (A) isometric (B) isotonic (C) isovolumic (D) isosmotic (E) isomeric contraction.
- Please arrange the organization of skeletal muscle in the order from the smallest to the largest?
 (A) Myofilament → Muscle fascicle → Myofibril → Muscle fiber → Skeletal muscle
 (B) Myofilament → Muscle fiber → Myofibril → Muscle fascicle → Skeletal muscle
 (C) Myofilament → Myofibril → Muscle fascicle → Muscle fiber → Skeletal muscle
 (D) Myofilament → Myofibril → Muscle fiber → Muscle fascicle → Skeletal muscle
 (E) None of the above
- Which of the following statements about skeletal muscle is **NOT CORRECT**?
 (A) Sarcomere is the smallest subunit of muscle contraction.
 (B) The thick myofilaments are stacked together to produce Z bands
 (C) The thin myofilaments alone form A bands.
 (D) H bands are located at the center of the A bands.
 (E) More than one of the above.
- Which of the following statements about myofilaments is **NOT CORRECT**?
 (A) Thick filaments are composed of globular actin proteins.
 (B) Each myosin molecule has three polypeptide chains.
 (C) Thin filaments are composed of myosin.
 (D) All of the above
 (E) Two of the above
- Which of the following events happens during contraction of skeletal muscle?
 (A) Release of potassium from sarcoplasmic reticulum
 (B) Shift away of troponin and tropomyosin complex from attachment sites
 (C) Formation of cross-bridge between actin and troponin
 (D) Formation of cross-bridge between myosin and tropomyosin
 (E) More than one of the above
- Which of the following statements about skeletal muscle fibers is **NOT CORRECT**?
 (A) Fast-twitch fibers are fast glycolytic and fatigue resistant.
 (B) Fast-twitch fibers are also called type II fibers.
 (C) Slow-twitch muscle fibers have numerous mitochondria.
 (D) Slow-twitch fibers are also called type I fibers.
 (E) More than one of the above
- The neurotransmitter released into the neuromuscular junction is (A) dopamine (B) acetylcholine (C) epinephrine (D) norepinephrine (E) serotonin

私立臺北醫學院 89 學年度第 1 學期 期中 考試 (試) 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙一	衛生	楊良友	____年____月____日第____節		

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11. Which of the following statements about muscle types is correct?
 - (A) Smooth muscle is striated muscle.
 - (B) Cardiac muscle is striated muscle
 - (C) Skeletal muscle contracts by a sliding filament mechanism.
 - (D) Smooth muscle has myosin and actin filaments.
 - (E) More than one of the above.

12. Which of the following statements about cardiac muscle is **NOT CORRECT**?
 - (A) Cardiac muscle is composed of short and branched cells.
 - (B) Each cardiac muscle cell has one or two nuclei.
 - (C) The heart has two myocardia.
 - (D) The intercalated discs are referred to the fused membranes between two cardiac cells and contain gap junctions.
 - (E) More than one of the above.

13. Which of the following statements is correct?
 - (A) Motoneurons and association neurons (interneurons) possess a profusion of highly branched dendrites.
 - (B) In peripheral nervous system, oligodendrocytes produce myelin to wrap around the axons of neurons.
 - (C) In central nervous system, Schwann cells produce myelin to wrap around the axons of neurons.
 - (D) Myelinated axons form the gray matter.
 - (E) More than one of the above.

14. Which of the following statements about sodium-potassium pump is correct?
 - (A) The sodium-potassium pumps pump out 2 sodium ions for every 3 potassium ions that they pump into the cell.
 - (B) The sodium-potassium pump is a passive transport.
 - (C) The sodium-potassium pump requires ATP to do the work.
 - (D) The sodium-potassium pumps contribute to the resting membrane potential.
 - (E) More than one of the above.

15. Which of the following factors contributes to the membrane potential?
 - (A) The actions of the sodium-potassium pumps
 - (B) The different degrees of permeability of the plasma membrane to different ions
 - (C) The presence of fixed anions-proteins and organic phosphates that are negatively charged and unable to leave the cell
 - (D) All of the above
 - (E) Two of the above

16. Which of the following statements about action potential is correct?
 - (A) Action potentials follow an all-or-none law.
 - (B) Action potentials can add together or interfere with one another.
 - (C) During an action potential, the voltage-gated potassium channels open first.
 - (D) The production of an action potential requires the active transport of ions.
 - (E) More than one of the above.

17. Which of the following statements about ion concentrations in a cell is correct?
 - (A) The concentration of sodium ions is higher in the extracellular fluid than in the cytoplasm.
 - (B) The concentration of sodium ions is higher in the cytoplasm than in the extracellular fluid.
 - (C) The concentration of potassium ions is higher in the extracellular fluid than in the cytoplasm.
 - (D) The concentration of chloride ions is higher in the cytoplasm than in the extracellular fluid.
 - (E) More than one of the above.

系級	科目	授課教師	考試日期	學號	姓名
牙一	養生		年 月 日 第 節		

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18. Which of the following chemical messengers is the major excitatory neurotransmitter in vertebrate central nervous system? (A) Glycine (B) GABA (C) Acetylcholine (D) Glutamate (E) Serotonin

19. Which amino acid is the precursor of epinephrine, norepinephrine, and dopamine?
 (A) Glycine (B) Tryptophan (C) Leucine (D) Tyrosine (E) Valine

20. Which of the following neurotransmitter deficiency is related with depression?
 (A) Acetylcholine (B) Dopamine (C) Serotonin (D) Nitric oxide (E) Epinephrine

21. Which of the following neurotransmitter deficiency is related with Parkinson's disease?
 (A) Acetylcholine (B) Dopamine (C) Serotonin (D) Nitric oxide (E) Epinephrine

22. The inhibitory neurotransmitters usually open (A) Chloride (B) Sodium (C) Calcium
 (D) Magnesium (E) Hydroxide ion channel.

23. Which of the following neurotransmitters is related to perception or inhibition of pain?
 (A) Substance P (B) Enkephalins (C) Endorphins (D) All of the above (E) Two of the above.

24. In mammals, the telencephalon is (A) cerebellum (B) cerebrum (C) thalamus (D) hypothalamus
 (E) None of the above.

25. Hormones can be divided into four categories. Thyroxine is in the category of (A) polypeptides (B)
 glycoproteins (C) Amines (D) Steroids (E) None of the above.

26. In humans, which cortex makes up 95% of the surface of the cerebral cortex? (A) primary motor
 cortex (B) primary somatosensory cortex (C) association cortex (D) auditory cortex (E) visual cortex

27. In USA, Prozac is a very popular prescription for depression because it can eliminate (A) serotonin
 (B) melatonin (C) dopamine (D) acetylcholine (E) substance P from synaptic cleft.

28. In 1998, the Nobel prize in medicine goes to the persons who discovered (A) nitric oxide (B)
 acetylcholine (C) dopamine (D) serotonin (E) epinephrine. This neurotransmitter is the major
 component of Viagra that promotes male sexual performance.

29. In autonomic nervous system, the efferent motor pathway involves (A) 1 (B) 2 (C) 3 (D) 4 (E)
 5 neurons.

30. What is the neurotransmitter released by the sympathetic postganglionic neuron? (A) dopamine
 (B) acetylcholine (C) norepinephrine (D) serotonin (E) none of the above.

31. Sympathetic stimulation will cause (A) sweating (B) increased motility of gastrointestinal wall (C)
 muscle contraction of urinary bladder (D) decreased heart rate (E) more than one of the above.

32. Which of the following stimuli stimulates mechanoreceptors? (A) Sound (B) Taste (C) Smell
 (D) Humidity (E) none of the above

33. Which of the following hormones is NOT lipophilic? (A) estradiol (B) progesterone (C) cortisol
 (D) prolactin (E) two of the above.

34. Which of the following receptors belongs to mechanoreceptors? (A) baroreceptors
 (B) proprioceptors (C) taste buds (D) photoreceptors (E) two of the above

私立臺北醫學院 89 學年度第 1 學期 期中 考試 (命 試) 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙一	養生		____年____月____日第____節		

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請勿翻閱
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 學生
 專用

General Biology Final Exam January 2001 Instructor: Liang-Yo Yang Dentistry
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35. The blood pressure is detected by (A) baroreceptors (B) proprioceptors (C) Pacinian corpuscles (D) Meissner's corpuscles (E) two of the above.
36. Which of the following brain regions is sensitive to the pH of cerebrospinal fluid?
 (A) thalamus (B) hypothalamus (C) medulla oblongata (D) pons (E) none of the above
37. Which of the following apparatus is more sensitive to horizontal acceleration?
 (A) semicircular canals (B) utricle (C) saccule (D) cochlea (E) none of the above
38. In the middle ear, there are three small bones that are important in processing sound waves. They DO NOT include (A) the malleus (B) the incus (C) the stapes (D) radius (E) two of the above.
39. Some animals emit sounds and then determine the time it takes these sounds to reach an object and return to the animals. This process is called (A) locomotion (B) echolocation (C) vibration (D) localization (E) none of the above.
40. Which of the following animals DO NOT have image-forming eyes? (A) mollusks (B) arthropods (C) annelids (D) vertebrates (E) none of the above.
41. Contraction of ciliary muscle will (A) cause the lens to become more rounded and powerful (B) cause the lens to become more flattened and less powerful (C) decrease the size of the pupil (D) not affect the shape of the lens (E) none of the above.
42. Which of the following statements is correct?
 (A) Rods are responsible for black and white vision.
 (B) Cones are responsible for black and white vision.
 (C) Rhodopsin is the photopigment in cones.
 (D) Photopsin is the photopigment in rods.
 (E) none of the above.
43. The order of light reaching the cells of the retina is (A) ganglion cell → bipolar cell → photoreceptors (B) ganglion cell → photoreceptor → bipolar cell (C) photoreceptor → ganglion cell → bipolar cell (D) photoreceptor → ganglion cell → bipolar cell (E) bipolar cell → ganglion cell → photoreceptor
44. In the endocrine system, what organ functions exclusively as an endocrine gland? (A) the pineal gland (B) the pituitary gland (C) the pancreas (D) the ovaries (E) two of the above.
45. Melatonin is secreted by (A) the pineal gland (B) the pituitary gland (C) the pancreas (D) the ovaries (E) two of the above.

私立臺北醫學院八十九學年度第一學期期中考試(命試)題紙

系級	科目	授課教師	考試日期	學號	姓名
牙一	普通生物學	張淑芬	90年1月18日第11:30節		

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請勿翻印

14. Species richness on islands is a dynamic equilibrium between colonization and (1) extinct (2) predation (3) competition (4) habitat... ()
15. The species richness of an island is inversely correlated with (1) island size (2) productivity of plant (3) distance from the mainland (4) plant structure complexity... ()
16. Exotic species often cause great damage to local environment due to the lack of their (1) habitat (2) prey (3) niche (4) predator... ()
17. To manage the wildlife at wetland such as Taipei Nature Park at Kwantu, the knowledge of (1) fish (2) predation (3) succession (4) competition is the most important that we should know ... ()
18. One of the most serious environment problems is the loss of (1) biodiversity (2) deer (3) fish (4) pine tree... ()
19. E. O. Wilson has calculated that as much as (1) 1% (2) 50% (3) 5% (4) 25% of the world's species may be lost during the next 50 years... ()
20. There is an intensive investigation of (1) soil (2) organisms (3) oil (4) water for new drugs to fight cancer and other diseases, or as sources antibiotics... ()
21. The specific role a species plays in its environment is called its (1) niche (2) function (3) biodiversity (4) succession... ()
22. The relationship between cattle egrets and an African cape buffalo is called () predation (2) communalism (3) competition (4) parasitism... ()
23. The keystone species of African grass land (Savanna) to maintain the grass community is the (1) bird (2) lion (3) primate (4) elephant... ()
24. Catches of the Peruvian anchovy fishery fell rapidly after the 1972 is due to the change of temperature and (1) predation by bird (2) overharvesting by human (3) low density of prey (4) high salinity... ()
25. There are about (1) 40% (2) 2% (3) 15% (4) 5% of freshwater fish species extinct in the last fifty years in Taiwan... ()

私立臺北醫學院八十九學年度第一學期期中考試(命)題紙
期末

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙一	普通生物學	張希琴	90年1月18日第10-40節 第11-50節		

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選擇題

請勿處公佈舉用

- The growth rate of a population is a sensitive function of its (1) age structure (2) food (3) shelter (4) dispersion..... ()
- Reproduction has a price. Therefore increased fecundity in birds correlates with (1) higher mortality (2) lower mortality (3) higher growth rate (4) lower growth rate..... ()
- The fast growth in the population of Mexico after 1970 is due to (1) higher birth rate (2) lower death rate (3) more adult (4) higher immigrant rate... ()
- Many populations exhibit a sigmoid growth curve, with a relatively slow start in growth, a rapid increase, and then a leveling off when the carrying capacity (K) of the environment is reached. Population can be harvested more effectively while in the (1) one half of the K (2) K (3) one third of K (4) start in growth..... ()
- Please identify the following density independent factor (1) predation (2) disease (3) competition (4) sudden storm..... ()
- Which of the following factors is of crucial importance in limiting population sizes in nature (1) food (2) shelter (3) predator-prey relationships (4) mortality..... ()
- If we wish to preserve natural ecosystems, we should do all we can to preserve their (1) biological diversity (2) climate (3) bear (4) predator..... ()
- In a controlled experiment in a coastal ecosystem, an investigator removed a key predator (starfish). Finally, the number of species in that ecosystem (1) increase (2) decrease (3) no change (4) increase and then decrease..... ()
- If two species compete for the same limited resources, one will be able to use them more efficiently and will drive the other to extinction. Such phenomenon is called (1) interference competition (2) competition (3) predation (4) competitive exclusion..... ()
- All the organisms that live together in a place are called a (1) population (2) community (3) ecosystem (4) biosphere..... ()
- The progressive development of a community is referred to as (1) niche (2) succession (3) biodiversity (4) community..... ()
- (1) predation (2) coevolution (3) cooperation (4) chemical defense is able to reduce competition in natural communities and increase biodiversity..... ()
- (1) ecosystem productivity (2) spatial heterogeneity (3) climate (4) symbiosis is not an important factor related to the species diversity..... ()