

私立臺北醫學院 九十 學年度第 一 學期 **期中** 考試 **命** 題紙
期末 考試 **(試)**

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
牙 醫	普通生物	楊良友	年 月 日 第 節		

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 ②每張試題卷務必填寫(學號)、(姓名)。

General Biology
Dentistry

Final Exam January, 2002

Instructor: Liang-Yo Yang

Student ID and Name: _____ Date: _____

There are 27 questions in this part and each question is worth 3 points. Please choose **ONLY ONE BEST** answer for each question. Good luck and have a great winter break.

Please write down your key to each corresponding question in the following table.

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	15.
16.	17.	18.	19.	20.
21.	22.	23.	24.	25.
26.	27.			

- A shift in the membrane potential toward the positive direction and exceeding the threshold causes a(n)
 A. resting potential B. equilibrium potential C. action potential D. ion current
 E. electrolyte bias
- Which of the following type of joint is not properly matched with its description?
 A. the sutures that join the bones of the skull: immovable joints
 B. cartilaginous joints of the spine: slightly movable joints
 C. efficient shock absorbers: slightly movable joints
 D. synovial joints: freely movable joints
 E. knee and hip joints: slightly movable joints
- Organic phosphates, nerve gases, and insecticides produce continuous neuromuscular contraction leading up to death by
 A. binding of acetylcholine to receptors
 B. inhibiting the action of acetylcholinesterase
 C. decreasing the distance in the neuromuscular junction
 D. propagating a continuous action potential
 E. all of the above
- Which of the following characteristics are true for an action potential?
 A. a threshold potential must be exceeded
 B. each stimulus produces a full potential or none at all
 C. during the refractory period it is less likely that another action potential can be produced
 D. a and b
 E. a, b, and c

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5. The chemical released by somatic motor neurons is

- A. noradrenaline B. adrenaline C. acetylcholine D. sarcocholine E. sarcoadrenaline

6. The region of the brain that integrates visceral activities, body temperature, and heartbeat is the

- A. medulla oblongata B. cerebrum C. hypothalamus D. thalamus E. none of the above

7. The use-dependent decrease in the ability of a muscle to generate force is called

- A. oxygen debt B. fatigue C. tetanus D. isotonic contraction E. hypertrophy

8. The process in which impulses jump from node to node is called

- A. going through channels B. interrupted signals C. incomplete transfer D. repolarization
 E. saltatory conduction

9. What is the association between tropomyosin and troponin molecules in resting striated muscle fibers?

- A. tropomyosin holds the troponin in place on the myosin
 B. troponin holds the tropomyosin in place on the myosin
 C. tropomyosin holds the troponin in place on the actin
 D. troponin holds the tropomyosin in place on the actin
 E. there is no known association

10. The effect of myelin and nodes of Ranvier is to make nerve impulses travel

- A. away from as well as toward the cell body B. faster C. in many directions at once
 D. laterally from axon to axon E. slower

11. Biogenic amines include

- A. epinephrine, norepinephrine B. dopamine, serotonin C. glycine and GABA D. a, b, and c
 E. a and b

12. The limbic system has all of the following features except

- A. it contains hippocampus and amygdalia
 B. it resides deep within the cerebrum
 C. it is responsible for emotional responses
 D. it is believed to be important in the formation and recall of memories
 E. it is part of the hypothalamus

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13. The membrane of a resting neuron is much more permeable to which of the following ion than any other ion?

- A. Cl B. Ca⁺⁺ C. Na⁺ D. K⁺ E. H⁺

14. Muscles contract through addition of the contractions of the fibers, producing tension that may result in shortening of the muscle. This is called

- A. isometric contraction B. isotonic contraction C. tetanus D. twitch E. fatigue

15. An example of a muscle that contracts as a unit because of electrical coupling is

- A. cardiac muscle B. the limb muscles C. the muscles of the walls of the gut
 D. all of the above E. none of the above

16. Correlation, association, and learning occur in the

- A. cerebellum B. corpus striatum C. thalamus D. hippocampus E. none of the above

17. At the vertebrate neuromuscular junction, acetylcholine causes which of the following reactions?

- A. muscle fiber membrane is depolarized
 B. action potentials are generated in the muscle fiber
 C. stimulation of the entry of Ca⁺² and muscle fiber contraction
 D. a and b only
 E. a, b, and c in a sequence

18. When nerve cells are not producing electrical responses there is still a voltage difference across their membranes, termed the

- A. channelgate bias B. electrolyte voltage C. equilibrium potential
 D. resting potential E. ion current

19. Drug addiction is the result of which of the following sequential events?

- A. Drug molecule prevents reabsorption and causes overstimulation of post-synaptic membrane
 B. CNS responds to increased firing by decreasing the number of receptors
 C. the synapse is less sensitive when the drug is removed, normal functioning can only ensue by continuing to take the drug
 D. a and c
 E. a, b, and c

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20. At the synapse between a postganglionic neuron and the visceral organ, the neurotransmitters in the parasympathetic division and the sympathetic division are _____, respectively.
 A. ACh and norepinephrine B. ACh and Ach C. epinephrine and ACh
 D. ACh and epinephrine E. norepinephrine and ACh
21. Myofibril contractile subunits, the sarcomeres, are bounded on each end by a disc of protein called the
 A. Z frame B. Z surface C. I zone D. Z line E. none of the above
22. The muscles that move the eye have a high proportion of fast-twitch fibers and reach maximum tension very fast. These fibers belong to the class
 A. type I fibers B. type II fibers C. type III fibers D. typeIV fibers E. type V fibers
23. During a contraction in the smooth muscle, the calcium ions in the sarcoplasmic reticulum bind to the protein called
 A. troponin B. tropomyosin C. myosin D. calmodulin E. none of the above
24. Neurons are supported both structurally and functionally by supporting cells which include
 A. dendrites, nodes of Ranvier B. neuroglia C. Schwann cells, oligodendrocytes D.a and b
 E. b and c
25. The area of the cerebral hemisphere important for the interpretation and the formulation of thoughts into speech is called
 A. Broca's area B. the pons C. Wernicke's area D. the medulla oblongata E.none of the above
26. Which of the following is not true about the smooth muscle?
 A. contains myosin and actin filaments
 B. contains intercalated discs
 C. contains sarcoplasmic reticulum
 D. contains smaller muscle fibers than the skeletal muscle
 E. more than one of the above
27. Which of the following muscle contraction is operated by latch mechanism?
 A. smooth muscle B. skeletal muscle C. cardiac muscle
 D. a and c E. a, b, and c.

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選擇題

- The growth rate of a population is a very sensitive function of its (1) age structure (2) parasite (3) soil (4) dispersion..... ()
- Reproduction has a price. Therefore increased fecundity in birds correlates with (1) higher mortality (2) lower mortality (3) higher growth rat (4) lower growth rate..... ()
- The fast growth in the population in the less-developed countries is due to (1) higher birth rate (2) more female (3) more adult (4) higher immigrant rate..... ()
- 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 of bird in nature (1) parasite (2) human (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 (sea stars) . 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) reproductive strategies (2) niche (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) space (3) cooperation (4) chemical defense is able to reduce competition in natural communities and increase biodiversity..... ()
- The number of lynxes (predator) is controlled by the (1) availability of snowshoe hares (prey) (2) weather (3)parasites (4) chemical content of soil..... ()
- Exotic species often cause great damage to local environment due to the lack of their (1) habitat (2) prey (3) niche (4) predator..... ()
- More than 200 different alkaloids have been isolated from the frogs of the

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- family *dendrobatidae*, and some of them are playing important roles in (1) neuromuscular research (2) predator-prey relationship research (3) behavior research (4) competition research ()
15. One of the most serious environment problems is the loss of (1) biodiversity (2) deer (3) fish (4) pine tree..... ()
 16. E. O. Wilson has calculated that as much as (1) 1% (2) 50% (3) 5% (4) 20% of the world's species may be lost during the next 30 years..... ()
 17. 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..... ()
 18. The specific role a species plays in its environment is called its (1) niche (2) function (3) biodiversity (4) succession..... ()
 19. The relationship between cattle egrets and an African cape buffalo is called (1) predation (2) communalism (3) competition (4) parasitism..... ()
 20. 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 (catch too many) by human (3) low density of prey (4) High salinity..... ()
 21. (1) survivorship (2) predator-prey relationship (3) coevolution (4) niche are used to describe the characteristics of mortality in different kinds of populations... ()
 22. (1) bat (2) ant (3) deer (4) elephant is important in pollination of plant..... ()
 23. A community together with nonliving components of its environment is called an (1) biomes (2) population (3) ecosystem (4) succession..... ()
 24. Release of industrial smoke into the upper atmosphere leads to (1) acid rain (2) water pollution (3) population growth (4) ultraviolet radiation..... ()
 25. Clownfishes are often form symbiotic associations with (1) sea anemones (2) other fishes (3) oyster (4) crabs ()
 26. Plants are often protected from herbivores, fungi, and other agents by chemicals that they manufacture. Such chemicals are called (1) primary compounds (2) coevolution (3) secondary compounds (4) mimicry ()
 27. The human population pyramid of Austria's has a narrow base, and thus Australia population is (1) random growth (2) increasing (3). maintain the same (4) decreasing ()
 28. In Australia, prickly pear cactus (*Opuntia*) introduced from Latin America, once overran the ranges and become so abundant that vast areas were effectively closed to cattle grazing. The situation was changed

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- dramatically with the introduction of the (1) moth *cactoblastis* (2) bat (3) bird (4) more cattle----- ()
29. Wolf predation selectively removes calves and (1) old moose (2) strong female moose (3) strong male moose (4) young female moose----- ()
30. Many organisms have coevolved to the point of dependence such relationship is called (1) predation (2) symbiosis (3) communities (4) succession----- ()