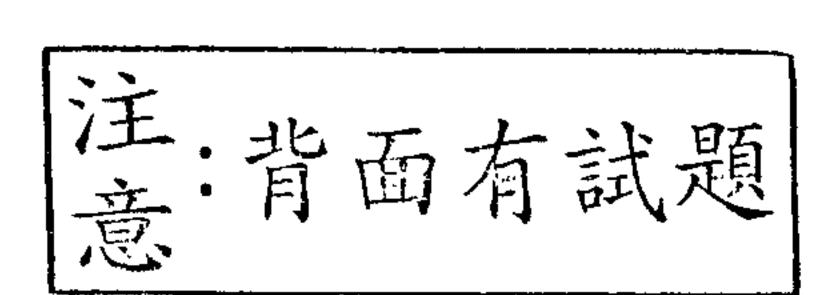
普	通生物學	類組別	<u>A1</u>			*請在試	共 <u>华</u> 真 卷、答案-	
·	、單選題 (60%)	不倒扣,答案請	塡寫於電	腦卡。				
1.	Which tissue type	e contains gland	cells?	•				
	(A) epithelial tis	sues (B) com	nective tiss	sues (C) m	uscular tissues			
	(D) neural tissue	es (E) all of the	ese					
2.	What tissue type		-					
	(A) simple squar	mous epithelia	(B) simp	ple cuboidal ep	ithelia (C) simpl	e columnar e	pithelia	
	(D) stratified squ	uamous epithelia	(E) stra	atified columna	r epithelia			
3.	What organ is us	ed as a respirator	y system ii	n insects?				
	(A) lungs (	B) gills (C	) integume	ent exchange	(D) tracheal	exchange	(E) none of	these
4.					ect order of events	s?		
		ntract, atria contr						
	(B) ventricles co	·						
	(C) atria contract	t, atria and ventri	cles relax,	ventricles cont	ract			
	(D) atria and ver	tricles relax, atri	a contract,	ventricles con	ract			
	(E) none of these	2						
5.	Inhalation				_			
	(A) is always act			oracic cavity to	•		•	
	(C) causes the di		n downwa	ards. (D) cau	ises the rib cage to	move upwa	rd.	
	(E) does all of the		•					
6.		etween an embol				4	•	2
		ibus can cause a s		` '	lus is a clot; a thro		ab.	1
					clot that travels in			1-
			els in the b	olood; a thromb	us is a clot that is	stationary.		
_	(E) both A and (		. •				•	
7.					innate immunity t		nmunity?	力
	` '			_	unity does not per		1:_4	
	(B) Innate imm time.	unity has a respo	onse time	of about a we	ek; adaptive imm	unity has an	immediate re	esponse
	(C) Innate imm fixed set of rece	•	s of differ	rent antigen red	ceptors to detect a	ntigens; adap	otive immunit	y has a
	(D) Innate imm	unity does not tar	get specifi	ic antigens; ada	ptive immunity do	es target spe	cific antigens	•
	(E) none of thes	se .						
8.	is ofte	en the first white	blood cell	to encounter a	nathogen.			

(A) Eosinophil (B) Macrophage (C) Natural killer cell



(D) B cell (E) T cell

斗目	普通生物學類組別A1							
9	Which cell is NOT capable of acting as an antigen-presenting cell in adaptive immune responses?							
	(A) Macrophage (B) Dendritic cell (C) B cell (D) T cell (E) all of these are capable							
1	0. Which molecule is absorbed in the small intestine by diffusing into the lymph vessels?							
*	(A) simple sugars (B) amino acids (C) triglycerides (D) nucleotides (E) all of these							
1	1. What is a nephron?							
	(A) a kidney cell (B) a kidney tubule (C) a capillary that is specific to the kidney.							
	(D) a kidney tubule and the associated capillaries. (E) none of these.							
1	2. Which one is NOT a steroid hormone?							
	(A) melatonin (B) cortisol (C) estrogen (D) progesterone (E) testosterone							
3	3. Which one of the following statements about "type 2 diabetes" is Not true?							
	(A) It usually occurs in middle-aged people. (B) It is the more common form of diabetes.							
	(C) Target cells do not respond to insulin. (D) Insulin levels are near normal.							
	(E) It is thought to be an autoimmune disease.							
•	4. The endosperm is because of being produced by double fertilization.							
	(A) haploid (B) diploid (C) triploid (D) tetraploid (E) none of these							
	15. Fruit is produced from the development of the							
	(A) ovule (B) ovary (C) flowers (D) zygote (E) cotyledon							
	16. The telomere is a region in which							
	(A) new spindle microtubules are formed.							
	(B) metaphase chromosomes become aligned at the metaphase plate.							
	(C) chromosomes are grouped during telophase. (D) the chromosomal DNA ends.							
	(E) chromatids attached to one another before anaphase.							
	17. α-helix and the β-pleated sheet are usually used to refer							
	(A) primary structure of DNA. (B) secondary structure of proteins. (C) tertiary structure of RNA.							
	(D) quaternary structure of lipids. (E) random structure of polysaccharides.							
	18. Taxonomy is a branch of biology concerned with							
	(A) the naming and classifying of organisms. (B) the investigation of cellular physiology.							
	(C) the diseases caused by parasites. (D) the characterization of proteins.							
	(E) the interactions between organisms and the environments.							
	19. What are archaea?							
	(A) Eukaryotic organisms possessing multiple chromosomes per cell.  (B) Organisms that are sensitive to high temperature environments							
	<ul><li>(B) Organisms that are sensitive to high temperature environments.</li><li>(C) Multi-celled organisms.</li></ul>							
	(D) Organisms that are capable of carrying out photosynthesis.							
	(E) Prokaryotes characterized as extremophiles that share some bacterial and some eukaryotic traits.							
	(1) i romai yo coo omarao con 20a ao omironno pinnos mai sinaro somo bao conta ama somo bana bana bana a antis							

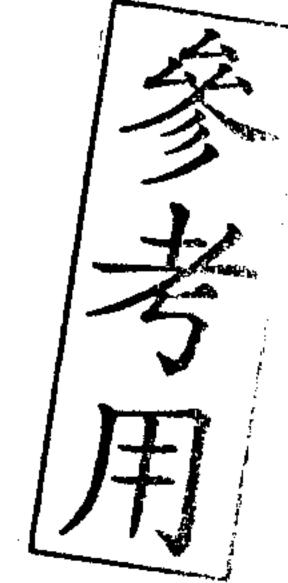
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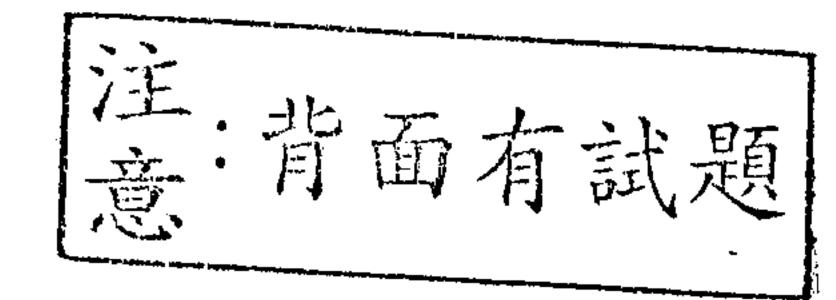
20. I	Based on Darwin's theory, which of the following is most likely to exhibit the greatest fitness?								
	(A) the individuals within a population that produce the greatest number of offspring.								
	(B) the species with the longest life. (C) the species that live in very hot and dry environments.								
	(D) the community of organisms that live in water (E) the organisms that carry out internal fertilization								
21.	Which of these molecules is most likely to contain sulfur?								
	(A) phospholipids (B) DNA (C) proteins (D) polysaccharides (E) fatty acids								
22.	Which of the following statements about protists is correct?								
	(A) Amoeba, <i>Drosophila</i> , and <i>E. coli</i> are protists. (B) Protists are not made of cells.								
	(C) Protists have a membrane-bounded nucleus. (D) Protists do not cause human diseases.								
	(E) Protists cannot perform photosynthesis.								
23.	A bacterium engulfed by a white blood cell through phagocytosis will typically go into								
	(A) peroxisomes (B) endoplasmic reticulum (C) Golgi vesicles (D) nucleus (E) lysosomes.								
24.	What is the voltage across a neuron cell membrane called?								
	(A) turgor pressure (B) membrane potential (C) proton gradient								
	(D) osmotic potential (E) water potential								
25.	5. Where in eukaryotic cells is the primary site of ATP synthesis?								
	(A) mitochondria (B) secretary vesicles (C) lysosomes (D) Golgi apparatus (E) ribosomes								
26.	One of the primary functions of RNA molecules is to								
	(A) transmit genetic information to offspring in animals. (B) be used as a nutrient in cells.								
	(C) serve as a structural component in cell membrane (D) function in the synthesis of proteins								
	(E) function as cytoskeletons								
27.	Polymerase chain reaction is a technique primarily used to								
	(A) increase the copy number of specific DNA fragments. (B) modify a human genome.								
	(C) speed up evolution process of eukaryotes. (D) determine the enzyme kinetics.								
	(E) characterize metabolism in cells.								
28.	The K-T boundary is a geological layer rich in								
	(A) Platinum (B) Iridium (C) Cadmium (D) Mercury (E) Plutonium								
29.	Neutral mutations are the mutations that do not affect								

(C) RNA sequence

(A) amino acid sequence (B) DNA sequence

(E) the chances of survival





(D) body morphology

科目 普通生物學

類組別 A]

共<u>4</u>頁第<u>4</u>頁 \*請在試卷、答案卡內作答

- 30. Which of the following statements about a DNA molecule is NOT correct?
  - (A) It contains two polynucleotide chains run in opposite directions.
  - (B) It typically contains four hydrophobic nitrogenous bases: A, T, G, and C.
  - (C) The 5' end has a phosphate group.
  - (D) Its backbone contains deoxyribose joined by phosphodiester bonds.
  - (E) Its diameter is approximately 4  $\mu m$ .
- II. 簡答題 (40% 每題 5 分).
- 1. Please draw the following chemical structures
  - (A) amino group; (B) carboxyl group; (C) hydroxyl group; (D) peptide bond
- 2. What is a cladogram? Please draw one example cladogram.
- 3. What are trans fats? Why should we concern about trans fats?
- 4. What is apoptosis? What are the characteristics of apoptosis?
- 5. Please describe the differences between pseudostratified columnar epithelia and transitional epithelia.
- 6. Please describe the major steps of a cell-mediated immune response.
- 7. Double fertilization is a complex fertilization mechanism that has evolved in flowering plants. Please describe the major steps during double fertilization.
- 8. Which of the following hormones is (are) produced by the pituitary gland?
  - (A) antidiuretic hormone (ADH); (B) oxytocin; (C) thyroid-stimulating hormone (TSH);
  - (D) thyrotropin-releasing hormone (TRH); (E) corticotropin-releasing hormone (CRH);
  - (F) adrenocorticotropin (ACTH); (G) follicle-stimulating hormone (FSH);
  - (H) luteinizing hormone (LH); (I) gonadotropin-releasing hormone (GnRH); (J) growth hormone (GH)

