#### Section A

Chose the most appropriate answer

1. The number of moles of solute present in 1 kg of a solvent is called its

a. Molality

b. Molarity

c. Normality

- d. Formality
- 2. The law which states that the amount of gas dissolved in a liquid is proportional to its partial pressure is

a. Dalton's law

b. Gay Lussac's law

c. Henry's law

d. Raoult's law

3. The ionic radii of N<sup>3-</sup>, O<sup>2-</sup>, F<sup>-</sup> and Na<sup>+</sup> follow the order

a.  $N^{3-} > O^{2-} > F^- > Na^+$ c.  $Na^+ > O^{2-} > N^{3-} > F^-$ 

 $b.N^{3-} > Na^+ > O^{2-} > F^-$ d.  $O^{2-} > F^- > Na^+ > N^{3-}$ 

4. When phenol is treated with CHCl<sub>3</sub> and NaOH, the product formed is

a. Salicylic acid

b. Salicylaldehyde

c. Benzaldehyde

d. Benzoic acid

5. The atomic number of iron is 26, how many protons are present in  $F^{2+}$ ?

a. 24

b. 28

c. 25

d. 26

6. Which of the following reactions will not result in the formation of carbon-carbon bond?

a. Reimer-Tieman reaction b. Cannizzaro reaction

c. Wurtz reaction

- d. Friedel Crafts acylation
- 7. Which is not a polymer?

a. Sucrose

b. Enzyme

c. Starch

d. Teflon

8. pH of pure water is

a. 10

b. 14

c. 7

d.3

9. The term PVC used in the plastic industry stands for

a. phosphavinyl chloride

b. polyvinyl chloride

c. polyvinyl carbobate

d. phosphor vanadiu chloride

10. The most electronegative element among the following is

a. Sodium

b. Bromine

c. Fluorine

d. Oxygen

11. The weight of	a body is maxim	num at the
a. Poles c. Mou	b. at Everest d.	Equator Tropic of Capricorn
12. An eye can fo	rm sharp images	of objects as close as
a. 25 in c. 25 m	CITOS	25 metres 25 cm
13. Sound travels	in air as	
a. longit c. electro	udinal waves omagnetic waves	b. transverse waves d. matter waves
14. The X-ray be	am coming from	an X-ray tube will be
	ll wavelengths s	maller than a certain maximum wavelength orger than a certain minimum wavelength ying between a minimum and a maximum wavelength
15. Electric curr	ent may be expre	essed in which one of the following units?
a. coi	ilombs per volt lombs per secon	b. joules per coulomb
16. Which of th hydrolysis?	e following will	provide the highest number of glucose molecule on
a. pol c. sta	ypeptide. rch	b. lactose d. galactose
17. Amino acid	s are classified a	ccording to
a. their c c. their n	olour et charge	b .their molecular weight d. structure and properties of their side chain
18. Which of t	ne following stat	ements are true?
b. DNA c. DNA	can direct its ow is nucleic acid b is more stable the DNA can form	nan RNA
19. ATP is cal	led as the univer	sal energy currency of life because it
b. is a l	ases heat on hydrarge molecule energy released les cell to bypas	from the oxidation of various classes of food molecules the second law of thermodynamics
20. It can be i	nferred from the	first law of thermodynamics that the
a. total b. tota	energy content	of the universe remains constant of universe varies from time to time of the universe increase over a period of time of the universe decreases over a period of time

	. Which one of the following groups has elements most commonly present in biological
	trick and of the following groups has elements most contain
21	. Which one of the rest
	systems?

- a. Nitrogen, sulphur, potassium and oxygen
- b. Sodium, carbon, oxygen and hydrogen
- c. Carbon, nitrogen, hydrogen and oxygen
- d. Carbon, sulphur, potassium and hydrogen

## 22. Water has a fluid physical structure due to

- a. covalent bonds between hydrogen atoms
- b. covalent bonds between hydrogen and oxygen atoms
- c. strong electrostatic bonds between hydrogen ions and oxygen ions
- d. weak electrostatic bonds between partially charged hydrogen and oxygen

# 23. It can be inferred from the second law of thermodynamics that

- a. the total entropy of the universe varies between high and low values
- b. the total entropy of the universe remains constant
- c. the total entropy of the universe is continually increasing
- d. the total entropy of the universe is continually decreasing

### 24. Chromatin may be described as

- a. the total genetic content of the cell
- b. a complex of DNA and protein from which chromosomes are composed
- c. the proteins that give structural support to a chromosome
- d. the form in which DNA exists when it is not tightly bound to chromosome

### 25. The organic compounds in which a carbon atom bonds *only* to hydrogen atoms and other carbon atoms are known as

- a. nucleic acids
- b. fatty acids d. lipids
- c. hydrocarbons

# 26. The average of 3.05 + 0.075 + 2.075 + 12.7 + 3.1 is

- b. 4.0 a. 4.1
- d. 4.2 c. 4.3

#### 27. What is 15% of 25?

- b. 3.75 a. 1.3.5 d. 4.0 c. 3.25
- 28. Evaluate 25% of 500 + 45% of 1000
  - a. 575
  - d. 580 c. 550

### 29. Solve x for the equation: 3(2x+9) = 75

- a. 8
- b. 10

b. 525

- c. 12
- d. 14

30. Solve x for the equation: 
$$6(x-2) + 10x = 15x$$

- a. 9
- c. 12
- d. 15

31	_ divided cell cycle into four phases						
	a. Darnell c. Hapler	<ul><li>b. Bottino</li><li>d. Howard &amp; Pel</li></ul>	c				
32	enhances stability of lipid bilayer and reduces their permeability.						
	a. Cholesterol c. Glycerol	b. Cephalin d. Sphingomyeli	in.				
33. Which	of the following is N	NOT contained in a	a chloroplast?				
	a. Nucleus c. DNA	b. Stroma d. Ribosomes					
34. The P	34. The Pinocytosis was first observed byin amoeba.						
	a. Lewis c. Edward	b. Alberts d. Rothman					
35. Whic	h one of the following	g in humans lacks	a nucleus?				
	a. Lymphocyte c. Monocytes	b. RBC d. Neutrophils					
36. The o	rganelle which is not	surrounded by a r	nembrane is				
	a. Lysosome b. Nucleolus c. Golgi Body d. Nucleus						
37. Whic	h organelle possesses	s circular DNA?					
a. Lysosome b. Chloroplast c. Golgi apparatus d. Ribosome							
38. A pa	tch-clamp device is u	sed to					
	<ul><li>a. measure the streng</li><li>b. study the properti</li><li>c. infuse different ki</li><li>d. study the propertie</li></ul>	es of individual ne nds of ions into of	urotransmitters. an axon.				
39. The terminal electron acceptor of mitochondrial electron transport is							
	a. O <sub>2</sub> c. CO <sub>2</sub>	b. H <sub>2</sub> O d. ATP					
40. Which of these types of proteins are most responsible for assuring that cells do not replicate if there is DNA damage?							
a. cyclins c. tumor suppressor proteins		pressor proteins	<ul><li>b. protooncogenes proteins</li><li>d. inactivating phosphatases</li></ul>				
41. In the human female, menstruation can be deferred by the administration of							
	a. FSH	of FSH and LH	b. LH d. Combination of estrogen and progesterone				

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42. During the transmission of nerve impulse through a nerve fibre, the potential on the inner side of the plasma membrane has which type of electric charge? a. First positive, then negative and again back to positive b. First negative, then positive and again back to negative c. First positive, then negative and continue to be negative d. First negative, then positive and continue to be positive. 43. Identify the odd combination of the habitat and the particular animal concerned a. Rann of Kutch- Wild Ass b. Dachigam National Park- Snow-Leopard c. Sunderbans-Bengal Tiger d. Periyar-Elephant 44. Which one of the following pairs is mismatched? a. Bombyx mori-silk b. Pila globosa-pearl c. Apis indica-honey d. Kenia lacca-lac 45. Which of the following belongs to the Phylum Platyhelminthes? a. Plasmodium b. Wuchereria d. Trypanosoma c. Schistosoma 46. Water-vascular system is found in b. Sea pen a. Sea anemone d. Sea horse c. Sea cucumber 47. In which of the following pair, the two items mean one and the same? a. Leucocytes – lymphocytes b. SA node – pace maker c. Malleus – anvil d. Haemophilia – blood cancer 48. Sertoli cells are responsible for a. providing nourishment to developing spermatozoa b. secretion of testosterone c. secretion of glucagon d. none of the above 49. Signals of parturition originate from a. Placenta only b. Fully developed foetus only c. Both placenta as well as fully developed foetus d. Oxytocin released from maternal pituitary 50. What is the correct surgical method for preventing pregnancy in which vas deferens is a. Ovariectomy b. Hysterectomy c. Vasectomy d. Tubectomy 51. The maximum volume of air contained in the lung by a full forced inhalation is called a. Vital capacity b. Tidal volume c. Total lung capacity

d. Inspiratory capacity

52. Organic fa	rming is the techn	ique of raising crop	s through uses of
	nanures esistant varieties	b. biofertili d. all of the	
53. Developm	ent of shoot and re	oot is determined by	<i>'</i>
	okinin and auxin ı nperature	ratio b. Enzymes d. Plant nutr	
54. Formation integumen	of diploid embry at etc., without me	osac from diploid ve iosis is called	egetative structure, e.g., nucellus or
	Apospory Diplospory	b. Apomixis d. Adventive	polyembryony
55. Which of	the following state	ement is true regard	ing vegetative propagation?
		occurs naturally and	l artificially producing genetically
b. veget	ntical plants ative propagation erent plants	occurs naturally and	d artificially producing genetically
c. veget	ative propagation	occurs artificially proceurs artificially proceurs	roducing genetically similar plants roducing genetically similar plants
56. The pigm	ent involved in ph	oto morphogenetic	movements is
	a. Cytochrome c. Chromatin	b. Phytochrond. Vernalin	me
57. The most	quickly available	source of nitrogen t	to plants are
	a. amide fertilizer c. nitrate fertilize		fertilizers nitrate fertilizers
58. Character lines are	ristics that are com	nmon to Arthropods,	, Molluscs, Echinoderms and Chordate
	Segmentation and Compound eye and		<ul><li>b. Endoskeleton and a coelom</li><li>d. Coelom and parietal eye</li></ul>
59. The first	step in Taxonomy	is	
	a. Identification c. Naming	<ul><li>b. Classification</li><li>d. Description</li></ul>	ı
60. Which of	f the following is r	not a locomotory org	gan in protozoa?
	a. Seta c. Cilia	b. Pseudopodia d. Flagellum	
61. Energy a	nd nutrients enter	a community by wa	y of
	a. Producers c. Decomposers	b. Scavengers d. Consumers	
62. Theory o	of inheritance of ac	equired characters w	Vas givon 1
a	a. Lamarck c. Wallace	b. Darwin d. De Vries	as given by
		1103	

63. The pyramid of energy in a	ny ecosystem is	
<ul><li>a. always upright</li><li>c. Maybe upright or inverse</li></ul>		ways inverted one of the above
64. Evolution is		
<ul><li>a. Progressive dev</li><li>b. History and dev</li><li>c. History of race</li><li>d. Development of</li></ul>	relopment of race	e along with variations
65. Synecology deals with		
a. ecology of many species c. ecology of community		·
66. Which of the following is a	n example of a li	ving fossil?
a. Pinus c. Ginkgo	b. <i>Gnetui</i> d. <i>Riccia</i>	m
67. Trophic levels are formed b	У	
a. Plants c. Animals	b. Organisms d. Herbivores	linked in a food chain
68. A species inhabiting differe	nt geographical	areas is known as
<ul><li>a. allopatric</li><li>c. biospecies</li></ul>	b. sympatric d. sibling	
69. A relation which is harmful	to both the popu	ılations
<ul><li>a. Neutralism</li><li>c. Parasitism</li></ul>	b. Competition d. Antibiosis	1
70. Lamarck theory of organic e	evolution is usua	lly known as
a. Inheritance of a c. Gene flow	equired characte	b. Natural selection d. Descent with change
71. By which of these bonds are helix?	e purines and pyr	rimidines held together in a DNA double
<ul><li>a. C bonds</li><li>c. N bonds</li></ul>	b. H bo d. O bo	
72. A codon is made up of		
a. 2 nucleotid c. 4 nucleotid		eotides eotides
73. Which of these is not involv	ed in transcription	on?
a. base pairing c. acylation	b. ligati	

74. In a DNA do	uble helix which of th	e following is true
	a. A=G l c. A+G=C+T c	b. G=C i. A+G/T+C=1
75. One of the ir promoter site	_	ption is binding of which of the following to the
	<ul><li>a. DNA polymeras</li><li>c. Ribosome</li></ul>	e b. RNA polymerase d. Gyrase
76. Alteration of	f a gene in bacteria ma	y be due to all of the following except
	a. transformation c. transduction	b. mutation d. transcription

77. Sixty one (61) codons in the genetic dictionary code for

a. 64 amino acidsb. 32 amino acidsc. 10 amino acidsd. 20 amino acids

78. The physical expression of a character is called

a. anatomyb. physiologyc. phenotyped. genotype

79. Crossing over occurs during

a. leptoteneb. diplotenec. diakinesisd. pachytene

80. Down's Syndrome is due to

a. 19 trisomy b. 21 trisomy c. 23 trisomy d. 25 trisomy

#### Section B

Fill in the Blanks with the most appropriate words/.terms

1. The number of chambers in a crocodile's heart has
2. The culture of bees is called as
to the causative agent of AIDS.
Constant follicles are responsible for the production of the normanic
National Park, Rajasthan.
e anargy released during redox reactions in the inner membrane of mitocholidia
6. The free energy recent to the intermembrane space.  is used to transport to the intermembrane space.
7. The concentration of hydrogen ions in an aqueous solution and its pH value arerelated.
8. The manifestations of Vitamin deficiency are impaired wound healing,
gastrointestinal bleeding and sore and bleeding oral tissues.
9. The carbohydrate in DNA is
10. The two units of the disaccharide sucrose are fructose and
11. The oxygen carrying molecule myoglobin consists of only one polypeptide chain, hence it lacks structure
12. In plant cells, digestion of fats occurs with the help of
13. When the of atoms are completely full they are in the most stable state.
14. The hormone that is secreted by the stomach when empty and stimulates appetite is
15. On a per weight basis the component of diet generates most energy.
16. A cross in which parents differ in a single character is called a
17. The allele is expressed in the F <sub>1</sub> .
18 is the initiation codon during translation in eukaryotes.
19. In prokaryotes the enzyme responsible for continuing DNA synthesis after initiation is
20. Selfing of F <sub>1</sub> produces generation.

### ST. ANTHONY'S COLLEGE, SHILLONG ENTRANCE TESTS FOR ADMISSION INTO PROFESSIONAL UNDERGRADUATE COURSES - 2016

**B.Sc. BIOTECHNOLOGY** 

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