ST. ANTHONY'S COLLEGE, SHILLONG

ENTRANCE TEST FOR ADMISSION INTO GRADUATE PROFESSIONAL COURSES 2007

Biotechnology
Part A

DATE	:	**10 May 2007**
TIME	:	**9:00 am**
DURATION	:	**2 hours**

INSTRUCTIONS

☞ This test has two parts. Part A comprises of 150 questions and is to be answered on the answer sheet provided. Part B comprises of 50 questions, which are to be answered on the question paper itself.

☞ The candidate is to answer as many questions as possible in the time that is allotted for this test

☞ For questions in Part A, each correct answer carries one mark. For each wrong answer 0.5 mark will be deducted. For questions in Part B, each correct answer carries two marks and for each wrong answer 1.0 mark will be deducted.

☞ Make sure that you have entered the number in the admit card in the place provided in the answer sheet. Enter only the admit card number of Biotechnology.

☞ The required rough work may be done on the space provided at the end of this question paper

☞ Please preserve your admit cards. They will be required at the time of admission.

☞ The admit card numbers of those shortlisted for admission on the basis of the entrance test will be published on the college notice boards and on the college web site on 16 May, 2007. The final admission will be done on a first come, first served basis, after the marksheets of the Class XII examinations of the Meghalaya Board of School Education are available, provided the eligibility criteria as laid down in the prospectus are fulfilled.

Part A

Directions : Choose the best answer in each of the following.

1. The most advanced and widely acceptable model for chromosome structure is
    a) Multistranded model
    b) Unistranded model
    c) Nucleosome model
    d) Ris model

2. Sugar present in DNA is a typical pentose specifically named as
    a) β deoxyribofuranose
    b) α-2 D deoxyribofuranose
    c) β-D-2-deoxyribofuranose
    d) 1, β D ribofuranosyl

3. Ribosomes have sites for
    a) Fat synthesis
    b) Polypetide synthesis
    c) Respiration
    d) Photosynthesis

4. Enzyme activity is generally expressed in terms of
    a) Units
    b) Speed
    c) Time
    d) Catalysis

5. When two ecosystems overlap with each other, the area is called
    a) Ecotone
    c) Edge Effect
    b) Niche
    d) Ecotype

6. Phosphorus combines with chlorine to give PCl_3 and PCl_5. This is according to the law of
    a) Constant proportions
    b) Multiple proportions
    c) Reciprocal proportions
    d) Conservation of mass

7. A gas which perfectly obeys gas laws at all temperatures is known as
    a) Inert gas
    b) Noble gas
    c) Ideal gas
    d) Permanent gas

8. Molecular weight of glucose is 180. A solution of glucose containing 18 g glucose per litre is a
    a) 3 molar solution
    b) 1 molar solution
    c) 0.1 molar solution
    d) 1.8 molar solution

9. NaCl is a salt of
    a) Weak acid and weak base
    b) Weak acid and strong base
    c) Strong acid and strong base
    d) Strong acid and weak base

10. Which of the following laws deal with the process of electrolysis?
    a) Ohm's law
    b) Joule's law
    c) Kirchhoff's law
    d) Faraday's law.

11. Watt is the unit of
    a) Work
    b) Power
    c) Charge
    d) Pressure.

12. E.M.F of a Leclanche cell is
    a) 1.5 volts
    b) 1.12 volts
    c) 1.45 volts
    d) none of the above.

13 Which one of the following hydrogen ion concentrations will give an acidic solution?
    a) 10^{-7} M
    b) 10^{-12} M
    c) 10^{-2} M
    d) 10^{-10} M

14. If a^2, b^2, c^2 are in arithmetic progression, then, b+c, c+a and a+b are in
    a) arithmetic Progression
    b) geometric Progression
    c) harmonic Progression
    d) none of these

15. If $y = \log_{10}x$, then dy/dx is
    a) 1/x
    b) $e^x \log_e 10$
    c) $1/x \log_e 10$
    d) $1/x \log_{10}e$

16. A man and his wife have normal vision though their fathers were colour blind. The probability of theirs daughter becoming colour blind is
    a) 0%
    b) 25%
    c) 50%
    d) 75%

17. Trachea occurs in
    a) Phloem
    b) Xylem
    c) Cork
    d) Cambium

18. Crossing over is
    a) inversely related to linkage
    b) the same as linkage
    c) the same as translocation
    d) none of these

19. The abiotic component given below is
    a) *Daphnia*
    b) *Chlorella*
    c) water
    d) bacteria

20. In the context of protein organization, the α - helix is a feature of
    a) primary structure
    b) secondary structure
    c) tertiary structure
    d) quaternary structure

21. Species that occur in different geographical regions separated by special barriers are
    a) Allopatric
    b) Sympatric
    c) Autogenic
    d) Allogeic

22. Which of the following is a major cause of water pollution?
    a) Ammonia
    b) Urine
    c) Industrial wastes
    d) Human excreta

23. The area which animals move in search of food is called
    a) Ecology
    b) Ecotome
    c) Home range
    d) Niche

24. Number of individuals of each species annually
    a) remains the same
    b) averages the same every year
    c) increases
    d) decreases

25. The mule is a hybrid between a donkey and a horse. Which of the following statements is correct?
    a) The mule is not a species
    b) The mule is a new variant.
    c) The mule is a new species
    d) The mule is a modified horse.

26. A sonometer wire 100 cm in length has a fundamental frequency of 330 cm/s. The velocity of propagation of transverse waves along the wire is
    a) 330 m/s
    b) 660 m/s
    c) 115 m/s
    d) zero.

27. Sound waves in a gas are always
    a) transverse
    b) longitudinal
    c) stationary
    d) magnetic waves.

28. A fruit fly heterozygous for sex-linked genes is mated with normal female fruit fly. Male specific chromosomes will enter the egg cell in proportion of
    a) 1:1
    b) 2:1
    c) 3:1
    d) 7:1

29. Trophic levels are formed by
    a) only plants
    b) only carnivorous animals
    c) only animals
    d) organisms linked in food chains

30. Pyramid of number is inverted in case of
    a) pond ecosystem
    b) desert ecosystem
    c) sugarcane ecosystem
    d) grass land ecosystem

31. When a number of food chains are interlocked, the result would be called a
    a) Food link
    b) Food Web
    c) Food network
    d) Ecological pyramid

32. Some animals turn parasitic if they get an opportunity. They are called
    a) Ectoparasites
    b) Facultative parasites
    c) Endoparasites
    d) Obligative parasites

33. The systematic classification of enzymes is according to the
    a) International Union of Biochemistry
    b) International Union of Chemistry
    c) Enzyme Commission
    d) International Union of Applied Chemistry

34. Enzyme kinetics is a branch of science concerned with
    a) the rates of chemical reactions
    b) the speed of a reaction
    c) the catalysis of enzyme
    d) the direction of the reaction

35. An organism containing identical alleles for a gene pair is considered to be
    a) Heterozygous
    b) Hemizygous
    c) Homozygous
    d) Mutant

36. A pea plant having smooth seeds is crossed with a pea plant having wrinkled seeds. If there are 4 plants in the F_2 generation, the number of plants with smooth seeds is
    a) 1
    b) 2
    c) 3
    d) 4

37. Phenotypes produced in the dihybrid cross are in the ratio
    a) 9:3:3:1
    b) 9:1:1:3
    c) 1:9:3:1
    d) 3:3:1:9

38. When red-flowered *Mirabilis jalapa* are crossed with white-flowered plants, the F_1 offsprings are
    a) Red
    b) White
    c) Pink
    d) Red with white spots

39. In *Drosophila melanogaster* the total diploid number of chromosomes is 8. The number of autosomes is
    a) 8
    b) 6
    c) 4
    d) 2

40. Mutations can be
    a) both spontaneous and induced
    b) spontaneous only
    c) induced only
    d) neither spontaneous nor induced

41. Turner's syndrome is characterized by the following
    a) XYY
    b) XXY
    c) XO
    d) YO

42. A 9+2 doublet is observed in
    a) cilia only
    b) flagella only
    c) both cilia and flagella
    d) none of the above

43. Synaptonemal complex is associated with
    a) Polytene chromosome
    b) Lampbrush chromosome
    c) Paired meiotic chromosomes
    d) Mitotic chromosome

44. Crossing over takes place in which stage of meiosis?
    a) Diplotene
    b) Diakinesis
    c) Pachytene
    d) None of these

45. Components of the respiratory chain are arranged in order of
    a) Increasing redox potential
    b) Decreasing redox potential
    c) Equivalent redox potential
    d) In any order of redox potential

46. The first stable product of glycolysis is
    a) Glyceraldehyde-3-phosphate
    b) Acetyl CoA
    c) NADH
    d) Pyruvate

47. Endergonic processes occur only when coupled to
    a) Exergonic processes
    b) Endergonic processes
    c) Either (a) or (b)
    d) neither (a) nor (b)

48. Highest ionization potential in a period is shown by
    a) Alkali metals
    b) Noble gases
    c) Representative metals
    d) Halogens

49. Which of the following halogens can displace the remaining three from their halides?
    a) Fluorine
    b) Chlorine
    c) Bromine
    d) Iodine

50. A solution of salt in water, on addition of dilute HCl gives a white precipitate, soluble in hot water. The salt contains
    a) Pb^{++}
    b) Ag^{++}
    c) Hg^{++}
    d) None of the above

51. The reaction between an alcohol and acid with elimination of a water molecule is called
    a) Etherification
    b) Saponification
    c) Elimination
    d) Esterification

52. When two molecules of acetaldehyde are condensed in the presence of a mild base the reaction is known as
    a) Cannizzaro reaction
    b) Aldol condensation
    c) Claisen condensation
    d) Benzoin condensation

53. The vector product of the two vectors i+2j-3k and 3i+6j-9k is zero, then the angle between the two vectors is
    a) p/2
    b) p/3
    c) 0
    d) none of these

54. How many numbers greater than 1000 can be formed from the digits 0, 1, 2 and 3?
    a) 3
    b) 12
    c) 18
    d) none of these

55. The sum of n terms in a series 2, 5, 8...... is 250. What is the value of n?
    a) 32
    b) 26
    c) 24
    d) 25

56. If the difference between the two roots of the equation $x^2+px+8=0$ is 2, then, p is equal to
a) ±4
b) ±6
c) ±2
d) ±3

57. Two numbers are in the ratio 2:3. If 5 is subtracted from each, the ratio now becomes 3:5. The smaller number is
a) 20
b) 30
c) 40
d) 60

58. Acceleration due to gravity acting on a freely falling spherical body depends on
a) mass of the body
b) radius of the body
c) density of the body
d) none of the above

59. Image formed by a Concave lens is always
a) virtual, erect and magnified
b) virtual, erect and diminished
c) real ,inverted and diminished
d) none of the above

60. A concave lens always forms a real image only when the object is
a) at the focus
b) at infinity
c) virtual
d) all the above

61. A good radiator is a
a) good absorber
b) bad absorber
c) both of these
d) none of these

62. The following is the property of a Ferro magnet
a) They are strongly attracted by magnet
b) Its not found in liquids
c) They show permanent magnetism
d) All the above

63. Cells in G_o phase
a) Can be stimulated to enter S phase
b) Have the tetraploid amount of DNA
c) Accumulate division potential before entering M phase
d) Occur in rapidly dividing tissues

64. The major events of mitotic prophase include the following except
a) chromosome coiling
b) breakdown of nuclear envelope
c) DNA replication
d) nucleolar disaggregation

65. Channel proteins that allow ions and small molecules to flow between communicating cells
a) Na^+ / K^+ pump
b) Ca^{2+} pump
c) gap junctions
d) all of the above

66. A metacentric chromosome will appear at anaphase as
a) L-Shaped
b) W-Shaped
c) V-Shaped
d) Y-Shaped

67. When parietal cells are stimulated, they secrete
a) HCl and intrinsic factor
b) HCl and pepsinogen
c) HCl and HCO_3^-
d) HCO_3^- and intrinsic factor

68. A brown-eyed couple has a blue-eyed child. The trait of brown eye (B) is dominant over that of blue-eye (b). What is the genotype of the couple?
a) Bb x Bb
b) BB x BB
c) BB x Bb
d) BB x bb

69. Two blue fowls produced by crossing of black fowls are inbred. The offspring will be
a) 1 black : 1 blue : 2 white
b) 1 black : 2 blue : 1 white
c) 2 black : 1 blue : 1 white
d) 2 black : 2 blue

70. The main pathway of glucose utilization is
a) Calvin cycle
b) Glycolytic pathway
c) Citric acid cycle
d) Pentose phosphate pathway

71. In anaerobic conditions rapidly contracting muscle breaks down glucose to produce
a) Ethanol
b) Pyruvate
c) Lactate
d) Acetyl CoA

72. A recombination frequency of 1 percent is equal to a distance of
a) one Morgan
b) ten Centimorgans
c) one Centimorgan
d) one centimeter

73. The nuclear spindle becomes prominent during
a) Prophase
b) Metaphase
c) Anaphase
d) Telophase

74. Which is the smallest?
    a) $\sqrt{3}$
    b) $1/\sqrt{3}$
    c) $1/3\sqrt{3}$
    d) $1/3$

75. Which of the following statements cannot be true?
    a) $\cos\phi = -5/32$
    b) $\sin\phi = 1$
    c) $\sec\phi = 1/2$
    d) $\tan\phi = 5$

76. What is the coefficient of x in the expansion $(x^2 + 1/x)^5$?
    a) 5
    b) 10
    c) 20
    d) 0

77. The square root of $7 + 2\sqrt{10}$ is
    a) $\sqrt{5} + \sqrt{2}$
    b) $5 + \sqrt{2}$
    c) $\sqrt{5} + 2$
    d) $\sqrt{7} + \sqrt{3}$

78. The range of function f defined by $f(x) = 5 \sin^2 x - 1$ is
    a) $[-\infty, \infty]$
    b) $[5, 6]$
    c) $[-1, 4]$
    d) $[-1, 0]$

79. The logarithm of $\sqrt{5}$ to the base 0.008 is
    a) $-1/6$
    b) 6
    c) -1
    d) $1/6$

80. Acetic acid is obtained from ethyl alcohol by the process of
    a) Distillation
    b) Reduction
    c) Fermentation
    d) Dehydration

81. A Test for carbohydrates is
    a) Soda lime test
    b) Iodoform test
    c) Molish's test
    d) Tollen's reagent test

82. Hydrogen bonding is absent in
    a) H_2O
    b) $C_2H_5OC_2H_5$
    c) C_2H_5OH
    d) NH_3

83. The oxidation state of oxygen in hydrogen peroxide is
    a) -2
    b) -1
    c) $+1$
    d) $+2$

84. How many moles of water are present in 180 g water?
    a) 1
    b) 10
    c) 11
    d) 180

85. Reduction involves
    a) Loss of electrons
    b) Gain of electrons
    c) Increase in valency
    d) Decrease in valency

86. pH of a 0.005 M aqueous solution of sulfuric acid is approximately
    a) 0.005
    b) 2
    c) 1
    d) 0.01

87. Which of the following is a Lewis acid?
    a) BF_3
    b) OH^-
    c) CH_3COO^-
    d) NH_2

88. Calomel is
    a) Hg_2Cl_2 and Hg
    b) Hg and $HgCl_2$
    c) $HgCl_2$
    d) Hg_2Cl_2

89. Which carbohydrate is used commercially in silvering mirrors
    a) Sucrose
    b) Starch
    c) Glucose
    d) Fructose

90. Nucleosides contain
    a) a nitrogenous base + pentose sugar
    b) pentose sugar + phosphate
    c) a nitrogenous base + phosphate
    d) a nitrogenous base + pentose sugar + phosphate

91. The major sterol found in eukaryotic microorganism cell membrane is
    a) ergosterol
    b) cholesterol
    c) phytosterols
    d) stigmasterol

92. Wheat plant is 6n = 42. What will be the chromosome number in its monosomic, haploid and monoploid states respectively?
    a) 43, 21 and 27
    b) 41, 21 and 7
    c) 15, 7 and 7
    d) 13, 7 and 7

93. In man, sperms contain autosomes and the sex chromosomes
   a) both X and Y
   b) either X or Y
   c) only Y
   d) only X

94. The EC number of an enzyme is :
   a) number of substrate molecules converted to product
   b) number of subunits present in an enzyme
   c) a classification number use to identify enzyme
   d) a measure of pH of enzyme

95. Schiff's reagent gives pink colour with
   a) Acetaldehyde
   b) Alcohol
   c) Acetone
   d) Acetylene chloride

96. The type of isomerism not found in aldehydes is
   a) Chain isomerism
   b) Functional group isomerism
   c) Optical isomerism
   d) Metamerism

97. Formalin is an aqueous solution of
   a) Formic acid
   b) Formaldehyde
   c) Fluorescem
   d) Furfuraldehyde

98. Another name of 2, 4- dinitrophenyl hydrazine is
   a) Tollen's reagent
   b) Schiff's reagent
   c) Borsche's reagent
   d) Molish reagent

99. Chloroform is stored in coloured bottles filled up to the mouth to prevent
   a) Formation of phosgene gas
   b) Decomposition
   c) Formation of methylene chloride
   d) Formation of isocyanide

100. $\alpha + \beta$ in the quadratic equation $ax^2 + bx + c = 0$ is equal to
   a) $-b/a$
   b) c
   c) $-a/b$
   d) 0

101. If the two perpendicular sides of a right angled triangle are 1 cm each, then, the hypotenuse will be
   a) 1 cm
   b) 2 cm
   c) $\sqrt{2}$ cm
   d) $2\sqrt{2}$ cm

102. A 20 quintal car is raised to 30 m height by a crane in 2 minutes. Calculate the power used by the crane in lifting the car. (use $g = 10$ m/s^2)
   a) Zero
   b) 2 KW
   c) 3 KW
   d) 5 KW

103. Phone is a unit of
   a) Intensity of sound
   b) Loudness of sound
   c) Quality of sound
   d) Noise

104. The capacity of four given condensers are C1, C2, C3 and C4 respectively. The maximum capacity can be obtained by connecting them
   a) in series
   b) in parallel
   c) partly in series and partly in parallel
   d) insufficient data

105. The ratio of time periods of oscillation of two magnets of same moment of inertia suspended in a magnetic field is 1:2. The ratio of their magnetic moments is
   a) 4 : 1
   b) 1 : 4
   c) $\sqrt{2}$: 1
   d) 1: $\sqrt{2}$

106. A step-up transformer operates on a 230 volts line and supplies a load of 2 amp. The ratio of primary and secondary windings is 1 : 25. What is the primary current?
   a) 12.5 amp
   b) 50 amp
   c) 8.8 amp
   d) 25 amp

107. Chemical name of Vitamin E is
   a) Tocopherol
   b) Phylloquinone
   c) Pyridoxine
   d) Riboflavin

108. Principal quantum number "n" defines the
   a) Nuclear charge
   b) Size of the orbit
   c) Shape of the orbit
   d) Ellipticity of orbit

109. Which is the strongest base of the following?
   a) Na_2CO_3
   b) $Na_2B_4O_7$
   c) Aniline
   d) NaOH

110. $CH_3COCOOH$ is
   a) Malloric acid
   b) Glycollic acid
   c) Pyruvic acid
   d) Glyceric acid

111. Alkaline hydrolysis of ester is called
    a) Neutralization
    b) Esterification
    c) Polymerization
    d) Saponification

112. The shape of CO_3^{2-} is
    a) Square planar
    b) Tetrahedron
    b) Trigonal
    c) Hexagonal

113. Which of the following configuration represents a metallic element?
    a) 2,8,8
    b) 2,7,4
    c) 2,8,2
    d) 2,8,4

114. Benzoic acid, on sulphonation gives
    a) Ortho sulpho benzoic acid
    b) Para sulpho benzoic acid
    c) Meta sulpho benzoic acid
    d) Ortho and para sulpho benzoic acid

115. Which of the following is most acidic?
    a) Ethane
    b) Ethene
    c) Ethyne
    d) Benzene

116. Nitrous acid is
    a) $H_2N_2O_2$
    b) HNO_3
    c) HNO_2
    d) None of the above.

117. The process that oxidizes long chain fatty acids to acetyl CoA is called
    a) β-oxidation
    b) α-oxidation
    c) γ-oxidation
    d) δ-oxidation

118. Which of the following pollutants is not produced by the exhaust of motor vehicles?
    a) SO_2
    b) Hydrocarbon gases
    c) Fly Ash
    d) CO

119. Mycology is the study of
    a) Angiosperm
    b) Gymnosperm
    c) Algae
    d) Fungi

120. A cell increases in volume if the external medium is
    a) Hypotonic
    b) Hypertonic
    c) Isotonic
    d) None of these

121. Haustoria or sucking roots are found in
    a) Orchids
    b) Betel vine
    c) Cuscuta
    d) Cypsela

122. Fossils are now dated by
    a) stratigraphic position
    b) association with other animals
    c) amount of calcium residue
    d) radioactive carbon content

123. Proteins are linear polymers of
    a) amino acids
    b) monosaccharides
    c) nucleotides
    d) fatty acids

124. The carbohydrates contain
    a) –OH group
    b) –CHO group
    c) C=O group
    d) all of these

125. A man of A-blood group marries a woman of AB-blood group. Which type of progeny would indicate that the man is heterozygous A?
    a) AB
    b) A
    c) O
    d) B

126. Type of DNA exhibiting left handed helix is or are
    a) B type
    b) A & B type
    c) B & Z type
    d) Z type only

127. The number of atoms of oxygen present in 11.2 L of ozone at N.T.P are
    a) 3.01×10^{22}
    b) 6.02×10^{23}
    c) 9.03×10^{24}
    d) 1.2×10^{24}

128. Which of the bonds will be non-polar?
    a) N-H
    b) C-H
    c) F-F
    d) O-H

129. Bond formation in atoms is due to the fact that atoms
    a) acquire higher energy state
    b) get their energy lowered
    c) change their positions
   d) None of these

130. The pH of the solution is 5.9. If the hydrogen ion concentration is decreased hundred times, the solution will be
    a) more acidic
    b) neutral
    c) basic
    d) of the same acidity

131. The element with atomic number 9 can exhibit oxidation state of
    a) $+1$
    b) $+3$
    c) -1
    d) $+5$

132. Nucleic acids are polymers of
    a) Nucleosides
    b) Phosphorylated nucleosides
    c) Glycosides
    d) Peptides

133. The solidifying agent Agar agar is obtained from
    a) Algae
    b) Fungi
    c) Bacteria
    d) Protozoa

134. The inflorescence of banana is
    a) Spike
    b) Spadix
    c) Catkin
    d) Corymb

135. The part of enzyme which is responsible for its substrate specificity is:
    a) the active site
    b) the protein
    c) the catalytic site
    d) the inactive site

136. "Off-the-shelf" genes were first synthesized by
    a) Hargobind Khorana
    b) Frederick Sanger
    c) James Watson
    d) Rosalind Franklin

137. Oxygen and ozone are
    a) Allotropes
    b) Isomers
    c) Isotopes
    d) Isobars

138. Which of the following can exist as a dimer
    a) Hg^{2+}
    b) Cu^{2+}
    c) Hg^{+}
    d) Fe^{2+}

139. Weight of 2 L of Nitrogen at N.T.P is
    a) 28 g
    b) 1.25 g
    c) 2.5 g
    d) 14 g

140. At constant temperature, the pressure of V ml of a dry gas was increased from 1 atm to 2 atm. The new volume will be
    a) 2 V ml
    b) V/2 ml
    c) V^2 ml
    d) V/4 ml

141. Among the following the one that does not represent conjugate acid base pair is
    a) HCl and Cl^-
    b) HOH and OH^-
    c) SO_2 and H_2SO_4
    d) NH_3 and NH_4

142. The amino acid with an aromatic side chain is
    a) isoleucine
    b) serine
    c) phenylalanine
    d) aspartate

143. Fatty acids are synthesized in the cell from
    a) amino-acids
    b) glucose
    c) acetylCoA
    d) ATP

144. Lamin is a protein abundantly found in the
    a) Plasma membrane
    b) lysosomes
    c) nuclear matrix
    d) vacuoles

145. The microtubule organizing centres (MTOCS) include
    a) nucleosomes
    b) centrosomes
    c) lysosomes
    d) centromeres

146. Ionophores are
    a) hydrophilic molecules
    b) hydrophobic molecules
    c) neutral molecules
    d) Positively charged molecules

147. A woman with albinic father marries an albinic man. The proportion of her progeny is
    a) 2 normal: 1 albinic
    b) All normal
    c) All albinic
    d) 1 normal: 1 albinic

148. Blood grouping in humans is controlled by
    a) 4 alleles in which A is dominant
    b) 3 alleles in which A and B are codominant
    c) 3 alleles in which none is dominant
    d) 3 alleles in which A is dominant

149. Large, stable, congenital and unpredictable variations are called
    a) Somatic variations
    b) Acquired variations
    c) Discontinuous variations
    d) None of these

150. The enzyme trypsin is present in the
    a) Stomach
    b) Liver
    c) Small intestine
    d) Kidney

USE THIS SPACE FOR YOUR ROUGH WORK

USE THIS SPACE FOR YOUR ROUGH WORK
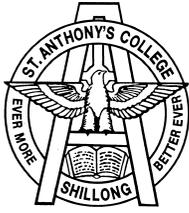
ST. ANTHONY'S COLLEGE, SHILLONG

ENTRANCE TEST FOR ADMISSION INTO GRADUATE PROFESSIONAL COURSES 2007

Biotechnology
Part B

DATE	:	**10 May 2007**
TIME	:	**9:00 am**
DURATION	:	**2 hours**

INSTRUCTIONS

☞ This test has two parts. Part A comprises of 150 questions and is to be answered on the answer sheet provided. Part B comprises of 50 questions, which are to be answered on the question paper itself.

☞ The candidate is to answer as many questions as possible in the time that is allotted for this test

☞ For questions in Part A, each correct answer carries one mark. For each wrong answer 0.5 mark will be deducted. For questions in Part B, each correct answer carries two marks and for each wrong answer 1.0 mark will be deducted.

☞ Make sure that you have entered the number in the admit card in the place provided in the answer sheet. Enter only the admit card number of Biotechnology.

☞ The required rough work may be done on the space provided at the end of this question paper

☞ Please preserve your admit cards. They will be required at the time of admission.

☞ The admit card numbers of those shortlisted for admission on the basis of the entrance test will be published on the college notice boards and on the college web site on 16 May, 2007. The final admission will be done on a first come, first served basis, after the marksheets of the Class XII examinations of the Meghalaya Board of School Education are available, provided the eligibility criteria as laid down in the prospectus are fulfilled.

Part B

Directions : Fill in the blanks.

1. An inherited factor that determines a biological characteristic of an organism is called a _____.

2. Active intake of macro-molecules and particulate materials by the cell is known as _____

3. The ionization energy of Nitrogen is _____ than that of Oxygen.

4. The heat change in a reaction at constant temperature and pressure is called _____.

5. The gas obtained on heating ammonium dichromate is _____.

6. Rock salt has the formula _____.

7. Gold dissolves readily in _____

8. Producer gas is a mixture of _____.

9. The inner and outer nuclear membranes are separated by the _____ space

10. Duplications and translocations are _____ aberrations

11. A cross between a heterozygote and a recessive homozygote is a _____ cross.

12. _____ is a specialized microtubular structure associated with cellular movement in protozoa.

13. Bacteria are cells _____ a differentiated nucleus.

14. The fundamental structural unit of chromatin is the _____.

15. The _____ mitochondrial membrane is permeable to small ions.

16. Polytetrafluoroethane is more commonly known as _____.

17. Electron affinity of chlorine is _____ than that of flourine.

18. p-Nitrophenol has higher boiling point than o-Nitrophenol because of _____.

19. The orbitals having same energy are called _____.

20. A particle of mass 'm' is moving round in a circle of radius **'r'** under a centripetal force $-K/r_2$, where 'K is a constant. The total energy of the particle is_____.

21. The mass of a gun is 700 times that of its bullet. The ratio of the kinetic energy of the bullet to that of the gun is _____

22. If the period of oscillation of mass M suspended from a spring is one second, then the period of 4M will be _____.

23. The magnitude of acceleration of particle executing simple harmonic oscillation, at the position of maximum displacement is a _____.

24. An electric cell does 5 Joules of work in carrying 10 coulomb around the closed circuit. The electromotive-force of the cell is _____.

25. A polygon has 44 diagonals. Then the number of its sides is _____.

26. If the sides of a triangle are known, then the formula for the calculation of the area of the triangle is _____.

27. The equation for a straight line is _____.

28. If $\log_2 x = \log_{1/2} y$, then, y = _____.

29. If $\tan\theta = t$, then $\cos 2\theta$ = _____.

30. The drug _____ can depolymerize microtubules.

31. Enzymes of the Krebs Cycle are located in the _____

32. Lysosome with undigested food is called _____

33. Connections between adjacent plant cells are called _____

34. Animals which float or swim in water are called _____

35. Transcriptionally active chromatin is called _____

36. Cell-plate is formed of smaller units called _____

37. The spindle formed in the dividing plant cell is called _____

38. _____ are stacks of cisternae and are characteristic of the Golgi apparatus.

39. The term cell was first used by _____ in 1665.

40. Pollination by insects is called _____ .

41. The core metal of chlorophyll is _____.

42. Albuminous seeds store reserve food materials in the _____ .

43. _____ is a gaseous plant growth regulator.

44. _____ is the response of the plant to gravity.

45. The hormone that stimulates the stomach to secrete gastric juice is _____ .

46. Fast chemical reactions have _____ activation energy.

47. Castner-Kellner process is used for the manufacture of _____.

48. Pb_3O_4 is called _____.

49. Copper in 99% pure form is called _____.

50. The coordination number in hexagonal closest packing arrangement is _____.