**SECTION-I**

**BIOINFORMATICS**

1. Cancer is caused mainly by mutations in:

A. Sex cells C. S-Phase

B. Somatic Cells D. G2 Phase

2. Which of the following are hydrophobic?

A. vinegar C. sugar

B. skin D. wax

3. "True identity of a protein is not isn`t only derived from its composition but also from the precise order of its constituent amino acids i.e. primary structure" This statement is:

A. wrong C. True

B. Partially Wrong D. Partially true

4. By DNA Complementarily we mean:

i - A binds U, G binds C iii - A binds T, G binds C

ii - G binds T, A binds U iv - C binds T, A binds G

The correct option is:

A. i and ii C. i and iii

B. Only iii D. Only iv

5. When you know a DNA sequence, you can translate it into corresponding protein sequence by using the --------------------------

A. Standard Code C. Amino-Acid Code

B. genetic Code D. Biological Code

6. If your DNA sequence is correctly listed from its 5' to 3' then the translated protein sequence will be from:

A. A to T terminus C. N to T terminus

B. N to C terminus D. A to C terminus

7. Alternative forms of genes or other sequences are known as:

A. Heteromorphisim C. Homomorphism

B. Polymorphism D. Unimorphism

8. Genes can be isolated from the chromosome by cutting the chromosomes by enzymes called:

A. Restriction endonucleases C. Reverse Transcriptase

B. Restriction Nucleases D. Restriction exonucleases

9. DNA finger prints can be prepared from:

A. Plasma C. blood

B. Serum D. Lymph

10. What name is given to the clear layer at the front of the eye?

1. Retina C. Cornea
2. Lens D. Iris

11. The ultimate source of energy on earth is

1. Solar energy C. Water
2. Petroleum D. oil

12. Which of the following is a test cross

1. Tt X Tt C. Tt X tt
2. Tt X TT D. TT X tt

13. Which of them is a polysaccharide

1. Glucose C. Fructose
2. Starch D. Maltose

14. Genomic Library

A. replication C. Replacing

B. To search the genetic library D. Slicing of DNA

15. The gene of interest could be placed on

A. Vector C. Scissors

B. Regulators D. Indicator

16. A protein will have no overall charge at

1. Isoelectric point C. pH 7
2. pH above 10 D. not possible

17. A field of applied [biology](http://en.wikipedia.org/wiki/Biology) that involves the use of living things in [engineering](http://en.wikipedia.org/wiki/Engineering), [technology](http://en.wikipedia.org/wiki/Technology), [medicine](http://en.wikipedia.org/wiki/Medicine), and other useful applications is known as

1. Biotechnology C. Tissue culture
2. Biochemistry D. None of above

18. The gradual and continuous process of modification of Ancestral forms is known as

A. Mutation C. Fragmentation

B. Regeneration D. Evolution

19. In------------------------the protein coding region is divided by a variable number of exons that contribute to final protein.

A. Eukaryotes C. Archae

B. Protozoan D. prokaryotes

20. If a man of M blood group marries a women of N blood group all their children will have:

A. M blood group C. MN blood group

B. N Blood Group D. O Blood group

 21. What metric prefix will you use for 10^ 15:

 A. Exa C. Zeta

 B. Yotta D. Peta

22. Q = [1,16,-14.15] and S = [-2, -34, 15, -15] then Q П S

 A. [ ] C. [15,-15]

 B. [15] D. [16,14]

23. If a matrix has 4 rows and 5 columns then the matrix will have elements:

 A. 16 C. 25

 B. 9 D. 20

24. Identity matrix is not:

 A. Unitary matrix C. Single element matrix

 B. contains only 1 D. Diagonal

25. Four persons can be seated on a round table in --------- ways

 A. 6 C. 8

 B. 16 D. None

26. From a box containing slips numbered 1,2,3,4,5 one slip is picked up, The probability for the number on the slip to be a prime number is:

 A. 1/5 C. 1/4

 B. 2/5 D. ¾

27. A and B are said to be ---------------------, if each one of them have equal number of chances to occur:

 A. Equally occurring events C. Like events

 B. Equally likely events D. Co-events

28. Probability of getting a king from 52 set card is:

 A. 4/52 C. 1/ 13

 C. 8/104 D. All

29. The number of permutations that can be formed from the word OBJECT is:

 A. 600 C.800

 B. 720 D. None

 30. A box contains 10 red, 30 white and 20 black marbles, what is the probability that a randomly picked marble is red or white:

 A. 1 / 2 C. 2 / 3

 B. 1 / 3 D. 1 / 6

31. If A and B are two overlapping sets then P(A П B) is:

 A. P(A) + P(B) + P(A П B) C. P(A) + P(B) + P(A U B)

 B. P(A) + P(B) – P(A П B) D. P(A) + P(B) – P(A U B)

32. A vertical line divides the plan into ----------- parts:

 A. left and right C. Convex and objective

 B. Line and boundary D. Objective and convex

33. The maximum and minimum values of the objective function occur at ----------- of the feasible region.

 A. Corner point C. Convex

 B. Object point D. Vertex

34. The graph of the linear equation is:

 A. Curved line C. Parabola

 B. Straight Line D. bent Line

35. ------------ are used to find areas under the curve:

 A. definite integrals C. Same Integrals

 B. Lowest derivative D. highest derivative

36. 10^ -6 means:

 A. 0.000001 C. 1000000

 B. 0.0000001 D. 100000

 37. BCD code could only represent a maximum

 A. 24-combination C. 20-combination

 B. 18-Combinition D. 16-combination

38. Coding is the process of representing all numeric or non-numeric information into:

 A. Octal data C. Decimal data

 B. Binary digits D. None

39. Any thing in a computer you type or draw by key board is recognized by it in:

 A. Numeric format C. Graphic format

 B. Real data format D. Complex format

40. The result of expression 5+4\*3/2 is----------------

 A. 13 C. 12

 B. 11 D. 14

41. An instruction can also be called as:

 A. Logical C. Order

 B. Reserved D. Statement

42. Bolean Algebra produces answers in:

 A. True/False C. True

 B. False D. None of the above

43. All the electronic devices/circuits have:

 A. One state C. Three states

 B. Four states D. two states

44. The binary tree that contains no nodes is called the:

1. Empty tree
2. Null tree
3. Both a and b
4. Noneoftheabo

45. In C, a source file and an executable file have extensions:

1. .c and .obj C. .obj and .exe
2. .c and .exe D. .bak and .obj

46. A set of fields that uniquely identifies a tuple according to a key constraint is called a ……………………

1. Primary Key C. Super Key
2. Referential Key D. Candidate Key

47. Computer stores data in the form of:

 A. File C. Folders

 B. Programs D. All of above forms

48. DOS is a:

 A. Graphic user interface C. Multi user interface

 B. Single user interface D. network operating system

49. Which of the following is a valid numeric constant:

 A. 9.87 458 C. -987458

 B. “987458” D. ‘987458’

50. 8 bit data bus can transfer:

 A. 2 bytes C. 4 bits

 B. 1 byte D. 4 nibbles

**SECTION-II**

**MATHEMATICS**

51. In a certain class, if there are 35 men and 63 women, then the ratio of men to women is

1. 7/20
2. 3/7
3. 5/9
4. 7/9

52. 6x2 – 15x – 21 =

1. 3(2x +7)(x – 1)
2. 3(2x – 7)(x + 1)
3. 3(2x – 1)(x + 7)
4. -9x2 – 21
5. If n is the average (arithmetic mean) of the three numbers 6, 9, and k, what is the value of k in terms of n?
6. 3n – 15
7. n – 5
8. n – 15
9. n – 15/3
10. Which of the following CANNOT be expressed as the sum of squares of two integers?
11. 13
12. 17
13. 21
14. 29
15. Mary has 3 dollars more than Bill has, but 5 dollars less than Jane has. If Mary has x dollars, how many dollars do Jane and Bill have altogether?
16. 2x – 8
17. 2x – 5
18. 2x -2
19. 2x + 2
20. If x = 3 and y = -3, what is the value of (3 + x)(3 + y)?
21. 36
22. -12
23. 0
24. 12
25. If the area of a circle is 25π, then the diameter of the circle is
26. 5
27. 10
28. 20
29. 25
30. How many positive integers less than 20 are equal to the sum of a positive multiple of 3 and a positive multiple of 4?
31. Two
32. Five
33. Seven
34. Ten
35. $\frac{2 x 2 x 2 x 2 x 2}{2+2+2+2}$ =
36. 1
37. 2
38. 4
39. 8
40. Which of the following is a multiple of both 7 and 13?
41. 65
42. 77
43. 156
44. 182
45. Lisa purchased $600 worth of traveler’s checks. If each check was worth either $20 or $50, which of the following CANNOT be the number of $20 checks purchased?
46. 10
47. 15
48. 18
49. 20
50. If 4x is less than 4y, then y – x =
51. -24
52. -3/2
53. -2/3
54. 3/2
55. The difference between two positive numbers is 16. If the smaller of these two numbers is 3/5 of the larger, what is the value of the smaller number?
56. 18
57. 24
58. 30
59. 40
60. (1 – x)(x – 1) =
61. -(x – 1)2
62. (x – 1)2
63. 0
64. 1 – x2
65. Which of the following values is NOT equal to 34(58+9)?
66. 34 x 67
67. 58(34+9)
68. 34 x 58 + 34 x 9
69. 1,972 + 306
70. (9 + 58) 34
71. Two angles of a triangle measure 15° and 85 °. What is the measure for the third angle?
72. 50°
73. 55°
74. 60°
75. 80°
76. 90°
77. If 5 ounces is equal to 140 grams, then 2 pounds of ground meat is equal to how many grams?
78. 863
79. 878
80. 896
81. 915
82. 932
83. Which of the following is equal to 5.93 x 10-2?
84. 0.0593
85. 0.00593
86. 593
87. 5930
88. 59300
89. On a Map, 1 inch represents 20 miles. The distance between 2 towns is 6 1/5 inches. How many miles are actually between the two towns?
90. 65 miles
91. 84 miles
92. 124 miles
93. 138 miles
94. 145 miles
95. Sarah is twice as old as her youngest brother. If the difference between their ages is 15 years. How old is her youngest brother?
96. 10
97. 15
98. 20
99. 25
100. 30
101. Which of the following fractions is equal to 5/6?
102. 20/30
103. 15/24
104. 25/30
105. 40/54
106. 2/7
107. In a writing competition, the first place winner receives ½ of the prize money. The second runner up receives ¼ of what the winner won. What was the total amount of prize money distributed if the winner receives $6,000?
108. $6,000
109. $8,500
110. $12,000
111. $15,000
112. $18,500
113. You are lying 120 ft away from a tree that is 50 feet tall. You look up at the top of the tree. Approximately how far is your hear from the top of the tree in a straight line?
114. 50 feet
115. 75 feet
116. 120 feet
117. 130 feet
118. 150 feet
119. A cyclist bikes x distance at 10 miles per hour and returns over the same path at 8 miles per hour. What is the cyclist's average rate for the round trip in miles per hour?
120. 8.1
121. 8.3
122. 8.6
123. 8.9
124. 9.0
125. If 3x + 5x = -8, then x + 1 =
126. -2
127. -1
128. 0
129. 1
130. 2

**SECTION-III**

**ENGLISH**

Section III: English has two subsections in it: (A) Vocabulary and (B) Reading Comprehension.

**Part A:** Vocabulary

Vocabulary section is further divided into four subsections: (A-1) Sentence Completion, (A-2) Analogy, (A-3) Synonyms, and (A-4) Antonyms.

**Part A-1:** Sentence Completion: For questions 76-80, choose the correct word or phrase that completes the sentence.

1. Today Wegener's theory is \_\_\_\_; however, he died an outsider treated with \_\_\_\_ by the scientific establishment.
2. unsupported – approval
3. dismissed – contempt
4. accepted – approbation
5. unchallenged – disregard
6. The revolution in art has not lost its steam; it \_\_\_\_ on as fiercely as ever.
7. Trudges
8. Rages
9. Meanders
10. Ambles
11. Biological clocks are of such \_\_\_\_ adaptive value to living organisms, that we would expect most organisms to \_\_\_\_ them.
12. obvious – possess
13. clear - avoid
14. meager - evolve
15. significant - eschew
16. Each occupation has its own \_\_\_\_ ; bankers, lawyers and computer professionals, for example, all use among themselves language which outsiders have difficulty following.
17. merits
18. disadvantages
19. jargon
20. rewards
21. Thankfully the disease has gone into \_\_\_\_ ; it may not recur for many years.
22. treatment
23. remission
24. quarantine
25. sequestration

**Part A-2:** Analogy: For questions 80-85, choose from the options the word’s synonyms (similar in meaning).

1. ELEPHANT : HERBIVOROUS : :
2. snail : mollusk
3. quadruped : proboscis
4. tiger : carnivorous
5. dog : canine
6. EMPLOYEE : WAGES : :
7. worker : jobs
8. composer : symphony
9. entrepreneur : profits
10. negotiator : conflicts
11. NOVELIST : BOOK ::
12. tailor : needle
13. weaver : cloth
14. unicorn : horn
15. scientist : laboratory
16. EFFUSIVE : DEMONSTRATIVE : :
17. downcast : dejected
18. theoretical : experimental
19. effective : defective
20. pouring : choked
21. BURROW : RABBIT : :
22. desert : camel
23. shell : snail
24. shed : cow
25. nest : birds

**Part A-3:** Antonyms/Opposite Word: For questions 86-90, choose from the options the word’s antonyms (opposite in meaning).

1. INTEGRATE
2. tolerate
3. assume
4. unite
5. setter
6. AUXILLARY
7. righteous
8. prospective
9. mandatory
10. assistant
11. ACCEDE
12. mollify
13. consent
14. fail
15. correct
16. MEDIOCRE
	1. Average
	2. strong
	3. certain
	4. excellent
17. STRANGE
	1. error
	2. quaint
	3. true
	4. certain

**Part A-4:** Synonyms/Similar Word: For questions 91-95, choose from the options the word’s antonyms (opposite in meaning).

1. PAUCITY
	1. Piety
	2. Provoke
	3. Scarcity
	4. Insularity
2. IGNOMINY
	1. Dishonor
	2. Insolvent
	3. Opulence
	4. Isolation
3. INQUISITIVENESS
	1. Responsiveness
	2. Questioning
	3. Irrationality
	4. Usefulness
4. RIDICULE
	1. Important
	2. Despiteful
	3. Mockery
	4. Importance
5. COMPLACENT
	1. Satisfied
	2. Unsatisfied
	3. Complete
	4. Complainant

**Part B:** Reading Comprehension

Reading Comprehension section has only one paragraph for questions 95-100

**Paragraph**

The most familiar speleothems (from the Greek word spelaion for cave and thema for deposit), the decorative dripstone features found in caves, are stalactites and stalagmites. Stalactites hang downward from the ceiling of the cave and are formed as drop after drop of water slowly trickles through cracks in the cave roof. Stalagmites grow upward from the floor of the cave, generally as a result of water dripping from an overhead stalactite. A column forms when a stalactite and a stalagmite grow until they join. A "curtain" or "drapery" begins to form on an inclined ceiling when drops of water trickle along a slope. Natural openings on the surface that lead to caves are called sinkholes, or swallow holes. Streams sometimes disappear down these holes and flow through the cavern. Rivers may flow from one mountain to another through a series of caves. Some caverns have sinkholes in their floors. Water often builds up a rim of dripstone around the edge of the hole. Dripping water often contains dissolved minerals as well as acid. These minerals too will be deposited; and they may give rich coloring to the deposits. If minerals in the water change, layers of different colors may be formed.

1. Stalagmites are formed by
2. drops of water which enter through cracks in the ceiling.
3. underground rivers which flow through the cave.
4. water dripping from an overhead stalactite.
5. water which trickles down a slope.
6. Sinkholes are
7. the decorative dripstone features found in caves.
8. natural openings on the surface that lead to caves.
9. colorful layers of mineral deposits.
10. None of the above
11. Which speleothem grows upward from the floor?
12. Stalagmite
13. Stalactites
14. Sinkholes
15. Curtains
16. Which of the following are NOT caused by dripping water ?
17. Stalagmites
18. Stalactites
19. Slopes
20. Curtains
21. The information in the passage is most relevant to which field of study?
22. Geography
23. Archaeology
24. Physics
25. Geology

**ANSWER KEY:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q. No.** | Answer | **Q. no.** | Answer | **Q. no.** | Answer |
| **1** | B | **20** | C | **39** | A |
| **2** | D | **21** | D | **40** | B |
| **3** | C | **22** | B | **41** | D |
| **4** | B | **23** | D | **42** | A |
| **5** | B | **24** | D | **43** | D |
| **6** | B | **25** | A | **44** | C |
| **7** | B | **26** | C | **45** | B |
| **8** | A | **27** | B | **46** | D |
| **9** | C | **28** | D | **47** | A |
| **10** | C | **29** | B | **48** | B |
| **11** | A | **30** | C | **49** | C |
| **12** | C | **31** | D | **50** | B |
| **13** | B | **32** | A |  |  |
| **14** | D | **33** | A |  |  |
| **15** | A | **34** | B |  |  |
| **16** | A | **35** | A |  |  |
| **17** | A | **36** | B |  |  |
| **18** | D | **37** | D |  |  |
| **19** | A | **38** | B |  |  |