National Testing Agency

Question Paper Name :   Bioinformatics 17th September Shift 2

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Group Number :   1

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Break time :   0

Group Marks :   480

Is this Group for Examiner? :   No

Part A: General Knowledge

Section Id :   190889362

Section Number :   1

Section type :   Online

Mandatory or Optional :   Mandatory

Number of Questions : 20

Number of Questions to be attempted : 20

Section Marks : 80

Enable Mark as Answered Mark for Review and Clear Response : Yes

Sub-Section Number : 1

Sub-Section Id : 190889402

Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 19088916822 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is the device used to measure the power and speed of the wind?

1. Avometer
2. Anemometer
3. Airometer
4. Aviontimeter

Options :

19088967181. 1

19088967182. 2

19088967183. 3

19088967184. 4

Question Number : 2 Question Id : 19088916823 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Optical fibre used the concept of which of the following?

1. Reflection
2. Refraction
3. Total internal reflection
4. Total internal refraction

Options :

19088967185. 1

19088967186. 2

19088967187. 3

19088967188. 4

Question Number : 3 Question Id : 19088916824 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Yellow vein mosaic is the viral disease of which of the following plants?

1. Ladyfinger
2. Papaya
3. Sugarcane
4. Banana

Options :

19088967189. 1

19088967190. 2

19088967191. 3

19088967192. 4

Question Number : 4 Question Id : 19088916825 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following organ(s) is affected by Mumps disease?

1. Entire body
2. Skin
3. Eye
4. Parotid

Options :

19088967193. 1

19088967194. 2

19088967195. 3

19088967196. 4

Question Number : 5 Question Id : 19088916826 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is the chemical name of vitamin B_2?

1. Riboflavin
2. Calciferol
3. Pyridoxin
4. Niacin

Options :

19088967197. 1

19088967198. 2

19088967199. 3

19088967200. 4

Question Number : 6 Question Id : 19088916827 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is not the input unit of the computer?

1. Mouse
2. Keyboard
3. Screen
4. Scanner

Options :

19088967201. 1

19088967202. 2

19088967203. 3

19088967204. 4

Question Number : 7 Question Id : 19088916828 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The digital computer operates on which of the following principle?

    1. Measurement
    2. Calculation
    3. Logical
    4. Electrification

Options :

19088967205. 1

19088967206. 2

19088967207. 3

19088967208. 4

Question Number : 8 Question Id : 19088916829 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The non-cooperation movement of Gandhiji was launched in which of the following year?

    1. 1915
    2 1922
    3. 1920
    4. 1930

Options :

19088967209. 1

19088967210. 2

19088967211. 3

19088967212. 4

Question Number : 9 Question Id : 19088916830 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An Islamic revivalist movement named Wahabi movement was founded by which of the following person?

1. Sian Saheb
2. Syed Ahmed
3. Haji Shariat-Allah
4. DaduMian

Options :

19088967213. 1

19088967214. 2

19088967215. 3

19088967216. 4

Question Number : 10 Question Id : 19088916831 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is considered as the "Magna Carta of England Education in India"?

1. Hunter education commission
2. Lord Macaulay's Minute
3. Wood's Despatch
4. Thomas Babington Macaulay

Options :

19088967217. 1

19088967218. 2

19088967219. 3

19088967220. 4

Question Number : 11 Question Id : 19088916832 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following nutrient does not come under the ambit of 'macro-nutrients in Soil Health Card?

1. Nitrogen
2. Zinc
3. Phosphorous
4. Potassium

Options :

19088967221. 1

19088967222. 2

19088967223. 3

19088967224. 4

Question Number : 12 Question Id : 19088916833 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Cole crops, root crops and legumes come under the ambit of which of the following?

I. Olericulture
2. Pomology
3. Viticulture
4. Arboriculture

Options :

19088967225. 1

19088967226. 2

19088967227. 3

19088967228. 4

Question Number : 13 Question Id : 19088916834 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The study of individual trees, shrubs, vines, and perennial woody plants is known as which of the following?

1. Turf management
2. Arboriculture
3. Pomology
4. Viticulture

Options :

19088967229. 1

19088967230. 2

19088967231. 3

19088967232. 4

Question Number : 14 Question Id : 19088916835 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The ministry is implementing MIDH (Mission for Integrated Development of Horticulture) with effect from which of the following year?

1. 2012-13
2. 2019-20
3. 2015-16
4. 2014-15

Options :

19088967233. 1

19088967234. 2

19088967235. 3

19088967236. 4

Question Number : 15 Question Id : 19088916836 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The interaction of soils with living things, particularly plants are well known as which of the following?

1. Edaphology
2. Pedology
3. Soil zoology
4. Pedogenesis

Options :

19088967237. 1

19088967238. 2

19088967239. 3

19088967240. 4

Question Number : 16 Question Id : 19088916837 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following systems has also incorporated social aspects in itself?

1. Landscaping
2. Permaculture
3. Horticulture
4. Forest gardening

Options :

19088967241. 1

19088967242. 2

19088967243. 3

19088967244. 4

Question Number : 17 Question Id : 19088916838 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What do you term the phenomenon whereby the specific gene is added to the plant for producing a desirable phenotype?

1. Genetic manipulation
2. Genetic recombination
3. Genetic modification
4. Genetic hybridisation

Options :

19088967245. 1

19088967246. 2

19088967247. 3

19088967248. 4

Question Number : 18 Question Id : 19088916839 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the focus of the participatory plant breeding program?

1. Scientists
2. Plants
3. Environment
4. Farmers

Options :

19088967249. 1

19088967250. 2

19088967251. 3

19088967252. 4

Question Number : 19 Question Id : 19088916840 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

How do you term the form of agriculture, in which, industrialized production of crops and animal products takes place?

1. Manufactured agriculture
2. Modern agriculture
3. Industrial agriculture
4. Mechanistic agriculture

Options :

19088967253. 1

19088967254. 2

19088967255. 3

19088967256. 4

Question Number : 20 Question Id : 19088916841 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Micro-irrigation fund of Rs. 5.000 crore has been placed with which of the following organization?

1. NABARD
2. IDBI
3. SBI
4. RRBs

Options :

19088967257. 1

19088967258. 2

19088967259. 3

19088967260. 4

Part B Core : Agricultural Statistics

Section Id :	190889363
Section Number :	2
Section type :	Online

Mandatory or Optional : Mandatory

Number of Questions : 50

Number of Questions to be attempted : 50

Section Marks : 200

Enable Mark as Answered Mark for Review and Clear Response : Yes

Sub-Section Number : 1

Sub-Section Id : 190889403

Question Shuffling Allowed : Yes

Question Number : 21 Question Id : 19088916842 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two unbiased dice are rolled once. The probability that the difference in digits on their upper surface is zero is

1. 1/3
2. 1/6
3. 5/6
4. 1/36

Options :

19088967261. 1

19088967262. 2

19088967263. 3

19088967264. 4

Question Number : 22 Question Id : 19088916843 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two pure lines of maize have mean cob lengths of 24 and 8 cm respectively. The polygenes involved in this trait exhibit additive gene action. Crossing these two lines will produce a progeny with mean cob length of

1. 8 cm
2. 16 cm
3. 24 cm
4. 32 cm

Options :

19088967265. 1

19088967266. 2

19088967267. 3

19088967268. 4

Question Number : 23 Question Id : 19088916844 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Additive genetic variance can be estimated by

A. Covariance between parents and offspring

B. Covariance among half sibs

Select the *most appropriate* option from the options given below:

1. A only
2. B only
3. Either A or B
4. Neither A nor B

Options :

19088967269. 1

19088967270. 2

19088967271. 3

19088967272. 4

Question Number : 24 Question Id : 19088916845 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Suppose, about 20 percent of people do not recognize the bitter taste of phenyl-thio-carbamate in a population. Inability to taste it is due to a single autosomal recessive gene. What is the frequency of the non-tasting gene, assuming the population to be in Hardy-Weinberg equilibrium?

  1. 0.04
  2. 0.16
  3. 0.20
  4. 0.45

Options :

19088967273. 1

19088967274. 2

19088967275. 3

19088967276. 4

Question Number : 25 Question Id : 19088916846 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X and Y are independent random variables with Var(X) = 2, Var(Y) = 5, then Var(3X-Y) is

  1. 1
  2. 7
  3. 11
  4. 23

Options :

19088967277. 1

19088967278. 2

19088967279. 3

19088967280. 4

Question Number : 26 Question Id : 19088916847 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X and Y are two independent Poisson variates, then the conditional distribution of X given X+Y will be

1. Poisson
2. Negative Binomial
3. Binomial
4. Hypergeometric

Options :

19088967281. 1

19088967282. 2

19088967283. 3

19088967284. 4

Question Number : 27 Question Id : 19088916848 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Ten soldiers visit a rifle range for two consecutive weeks. Their scores are $(a_1, a_2, \ldots, a_{10})$ and $(b_1, b_2, \ldots, b_{10})$. The t-statistic for judging whether there is a significant difference in their performance should have t-distribution with degrees of freedom

1. 8
2. 9
3. 18
4. 19

Options :

19088967285. 1

19088967286. 2

19088967287. 3

19088967288. 4

Question Number : 28 Question Id : 19088916849 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If T_n is a sequence of estimates, then a sufficient condition for T_n to be consistent for θ is

1. $E(T_n) \rightarrow \theta$
2. $Var(T_n) \rightarrow 0$
3. non-existent
4. $E(T_n) \rightarrow \theta$ and $Var(T_n) \rightarrow 0$

Options :

19088967289. 1

19088967290. 2

19088967291. 3

19088967292. 4

Question Number : 29 Question Id : 19088916850 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For testing a simple hypothesis against a simple alternative, the Neyman-Pearson lemma
provides a technique of getting
1. Least powerful test
2. most powerful test
3. uniformly most powerful test
4. uniformly most powerful unbiased test

Options :

19088967293. 1

19088967294. 2

19088967295. 3

19088967296. 4

Question Number : 30 Question Id : 19088916851 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The large sample efficiency of the median relative to the mean of a normal population is

1. $\dfrac{1}{\pi}$

2. $\dfrac{2}{\pi}$

3. $\dfrac{\pi}{2}$

4. π

Options :

19088967297. 1

19088967298. 2

19088967299. 3

19088967300. 4

Question Number : 31 Question Id : 19088916852 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The mean and variance of a t-distribution are 0 and 5/3 respectively. The degrees of freedom of the distribution is

1.   2
2.   3
3.   4
4.   5

Options :

19088967301. 1

19088967302. 2

19088967303. 3

19088967304. 4

Question Number : 32 Question Id : 19088916853 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following does not occur for a Census (complete enumeration)?
1. Non-sampling error only
2. Sampling error only
3. Both sampling and non-sampling errors
4. Neither sampling nor non-sampling errors.

Options :

19088967305. 1

19088967306. 2

19088967307. 3

19088967308. 4

Question Number : 33 Question Id : 19088916854 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If a sample of size 6 is to be drawn from a population of size 120 in systematic sampling, then the sampling interval will be

1. 6
2. 12
3. 20
4. 114

Options :

19088967309. 1

19088967310. 2

19088967311. 3

19088967312. 4

Question Number : 34 Question Id : 19088916855 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A sample of size $n = 12$ is chosen using a simple random sampling procedure with replacement from a population of size $N = 50$. The population variance is estimated as 96. An estimate of the standard error of the sample mean is

1. $\sqrt{8}$
2. $\sqrt{38} \times \dfrac{2}{5}$
3. 8
4. $4 \times \sqrt{6}$

Options :

19088967313. 1

19088967314. 2

19088967315. 3

19088967316. 4

Question Number : 35 Question Id : 19088916856 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If we use a Latin square design to study the effects of m fertilizers on the yield of a certain variety of wheat, then the number of replications of each treatment and the number of plots required respectively are (where n is an arbitrary number)

1. n and m^2
2. m and n^2
3. m and m^2
4. n and n^2

Options :

19088967317. 1

19088967318. 2

19088967319. 3

19088967320. 4

Question Number : 36 Question Id : 19088916857 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a balanced incomplete block design, $v=15$, $b=35$, $r=7$, $\lambda=1$, the block size is

    1. 3
    2. 4
    3. 5
    4. 7

Options :

19088967321. 1

19088967322. 2

19088967323. 3

19088967324. 4

Question Number : 37 Question Id : 19088916858 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If two levels of main plot treatment are increased, then the degrees of freedom for main plot error in a split-plot design with three replications will be increased by

    1. 3
    2. 4
    3. 5
    4. 10

Options :

19088967325. 1

19088967326. 2

19088967327. 3

19088967328. 4

Question Number : 38 Question Id : 19088916859 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $8x - 10y + 66 = 0$ and $40x - 18y - 214 = 0$ are the two regression lines; then the coefficient of correlation between x and y would be

1. 3/5
2. 9/25
3. −3/5
4. −9/25

Options :

19088967329. 1

19088967330. 2

19088967331. 3

19088967332. 4

Question Number : 39 Question Id : 19088916860 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Conceptualization and rationalization of database can be done by

1. Data Manipulation Language (DML)
2. Query
3. Relational Schema
4. Data Definition Language (DDL)

Options :

19088967333. 1

19088967334. 2

19088967335. 3

19088967336. 4

Question Number : 40 Question Id : 19088916861 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Following are the methods for reconstructing phylogenetic tree except

1. Maximum parsimony
2. Maximum likelihood
3. Neighbour Joining
4. Neural Network

Options :

19088967337. 1

19088967338. 2

19088967339. 3

19088967340. 4

Question Number : 41 Question Id : 19088916862 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is a high throughout method of gene expression measurement?

1. Northern Blotting
2. Microarray
3. Quantitative PCR
4. Southern Blotting

Options :

19088967341. 1

19088967342. 2

19088967343. 3

19088967344. 4

Question Number : 42 Question Id : 19088916863 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What was the technique used by Watson and Crick to deduce the structure of DNA?

1. X-ray diffraction
2. NMR
3. Southern Hybridization
4. PCR

Options :

19088967345. 1

19088967346. 2

19088967347. 3

19088967348. 4

Question Number : 43 Question Id : 19088916864 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which is the chemical group that lies at the 5' end of DNA?

1. Hydroxyl group
2. Methyl group
3. Phosphate
4. Benzyl group

Options :

19088967349. 1

19088967350. 2

19088967351. 3

19088967352. 4

Question Number : 44 Question Id : 19088916865 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the strand of DNA that has the same sequence as RNA?

    1.   Coding strand
    2.   Complementary strand
    3.   Template
    4.   Antisense strand

Options :

19088967353. 1

19088967354. 2

19088967355. 3

19088967356. 4

Question Number : 45 Question Id : 19088916866 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

BLOSUM matrices were designed to find

    1.   Expressed region of DNA
    2.   Promoter region of DNA
    3.   Conserved Region of Proteins
    4.   Stable Region of RNA

Options :

19088967357. 1

19088967358. 2

19088967359. 3

19088967360. 4

Question Number : 46 Question Id : 19088916867 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Distant members of a protein sequence family can be found by

    1.   BLASTN
    2.   PSIBLAST
    3.   BLASTP
    4.   BLASTX

Options :

19088967361. 1

19088967362. 2

19088967363. 3

19088967364. 4

Question Number : 47 Question Id : 19088916868 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is a protein 3D structure database?

1.   Prosite
2.   PDB
3.   Swiss-Prot
4.   RefSeq

Options :

19088967365. 1

19088967366. 2

19088967367. 3

19088967368. 4

Question Number : 48 Question Id : 19088916869 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is/are true regarding the global alignment algorithm?

A. It compares sequences and gives the best overall alignment.

B. It is better at finding motifs, especially for sequences that are different overall.

C. It will return only the best matching segment for a given pair of sequences.

Select the most appropriate answer from the following:

    1.   A only
    2.   B only
    3.   C only
    4.   A and C only

Options :

19088967369. 1

19088967370. 2

19088967371. 3

19088967372. 4

Question Number : 49 Question Id : 19088916870 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Paralogues are defined as

    1.   Homologous sequences in different species that share an ancestral gene
    2.   Homologous sequences that share little amino acid identity but share great structural similarity
    3.   Homologous sequences in the same species that arose through gene duplication
    4.   Homologous sequences in different species which have similar and often redundant functions

Options :

19088967373. 1

19088967374. 2

19088967375. 3

19088967376. 4

Question Number : 50 Question Id : 19088916871 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the two statements given below:

A. The Levenshtein distance, defined between two strings of not necessarily equal length, is the minimal number of edit operations required to change one string into the other.
B. The Hamming distance, defined between two strings of equal length, is the number of positions with matching characters.

Choose the correct answer from the options given below :

1. Both A and B
2. Only A
3. Only B
4. Neither A nor B

Options :

19088967377. 1

19088967378. 2

19088967379. 3

19088967380. 4

Question Number : 51 Question Id : 19088916872 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Arrange the basic steps of comparative modeling in the correct order:

A. The target is aligned with the template
B. Iteration to correct errors (if any)
C. A model is built
D. Template selection and fold assignment are performed
E. The model is evaluated

Choose the correct answer (correct order of steps) from the options given below :

1. D, B, C, E, A
2. D, A, C, E, B
3. A, D, C, B, E
4. A, D, C, E, B

Options :

19088967381. 1

19088967382. 2

19088967383. 3

19088967384. 4

Question Number : 52 Question Id : 19088916873 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following method/ tool is used to validate the quality of protein structures?

1. WHAT IF
2. PROVE
3. PROSA
4. All of the above

Options :

19088967385. 1

19088967386. 2

19088967387. 3

19088967388. 4

Question Number : 53 Question Id : 19088916874 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In object-oriented programming which of the following provides an important extension to the idea of reusability?

1. Encapsulation
2. polymorphism
3. Inheritance
4. Abstraction

Options :

19088967389. 1

19088967390. 2

19088967391. 3

19088967392. 4

Question Number : 54 Question Id : 19088916875 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match the special character classes (List I) in Perl with the content (List II):

List I	List II
Special characters class	Content
A. \w	I. Non whitespace characters
B. \W	II. Alphanumeric characters and_
C. \s	III. Neither alphanumeric characters nor_
D. \S	IV. Numeric digit
E. \d	V. Whitespace characters

Choose the correct answer from the options given below :

1. A - III, B - II, C - V, D - I, E - IV
2. A - II, B - III, C - V, D - I, E - IV
3. A - II, B - III, C - I, D - V, E - IV
4. A - III, B - II, C - V, D - IV, E - I

Options :

19088967393. 1

19088967394. 2

19088967395. 3

19088967396. 4

Question Number : 55 Question Id : 19088916876 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is correct about database consistency?

Statement I : Database consistency is the property that every transaction sees a consistent database instance.

Statement II : Database consistency follows from transaction atomicity, isolation, and transaction consistency.

In light of the above statements, choose the correct answer from the options given below :

1. Both Statement I and Statement II are true
2. Both Statement I and Statement II are false
3. Statement I is true but Statement II is false
4. Statement I is false but Statement II is true

Options :

19088967397. 1

19088967398. 2

19088967399. 3

19088967400. 4

Question Number : 56 Question Id : 19088916877 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In case of transactions in DBMS, it can be incomplete for the following reasons.
A. A transaction can be aborted, or terminated unsuccessfully, by the DBMS because some anomaly arises during execution.
B. If a transaction is aborted by the DBMS for some internal reason, it is automatically restarted and executed anew.
C. The system may crash because of interruption on power supply while one or more transactions are in progress.
D. A transaction may encounter an unexpected situation, may be due to inability to access some disk and decide to terminate itself.
E. The transaction may be aborted due to simultaneous access to the record writing and reading.

Choose the correct answer from the options given below :

1. Reasons A, B and D are correct.
2. All given reasons are correct.
3. Reasons A and B are correct.
4. None of the reasons is correct.

Options :

19088967401. 1

19088967402. 2

19088967403. 3

19088967404. 4

Question Number : 57 Question Id : 19088916878 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement I: In most of the ambiguous context free grammars. it is possible to redesign an ambiguous grammar to make it an unambiguous grammar for the same language.

Statement II : An ambiguous grammars with certain tricks applied sometimes lead to more efficient parsers.

In light of the above statements, choose the correct answer from the options given below

1. Both Statement I and Statement II are true
2. Both Statement I and Statement II are false
3. Statement I is true but Statement II is false
4. Statement I is false but Statement II is true

Options :

19088967405. 1

19088967406. 2

19088967407. 3

19088967408. 4

Question Number : 58 Question Id : 19088916879 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Who introduced the worlds first laptop computer in the market and when?

1. Hewlett-Packard in 1980
2. Compaq in 1984
3. Epson in 1981
4. Intel in 1979

Options :

19088967409. 1

19088967410. 2

19088967411. 3

19088967412. 4

Question Number : 59 Question Id : 19088916880 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement I: Types of ROM are: Masked ROM, PROM, EPROM and EEPROM.

Statement II: There are two types of RAMs: Static RAM, Dynamic RAM.

In light of the above statements, choose the correct answer from the options given below

1. Both Statement I and Statement II are true
2. Both Statement I and Statement II are false
3. Statement I is true but Statement II is false
4. Statement I is false but Statement II is true

Options :

19088967413. 1

19088967414. 2

19088967415. 3

19088967416. 4

Question Number : 60 Question Id : 19088916881 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which HTML attribute can be used for defining inline styles?
1. style
2. styles
3. class
4. font

Options :

19088967417. 1

19088967418. 2

19088967419. 3

19088967420. 4

Question Number : 61 Question Id : 19088916882 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which is the standard tool for designing Object-Oriented System at present?

1. Booch Modeling Language
2. Object Modeling Language
3. Unified Modeling Language
4. Class, responsibilities and collaborators language

Options :

19088967421. 1

19088967422. 2

19088967423. 3

19088967424. 4

Question Number : 62 Question Id : 19088916883 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

There are two generic approaches for software designing - Top-down Design and Bottom-up Design. Read the following statements.

Statement I: Top-down design model starts with most specific and basic components. It proceeds with composing higher level of components by using basic or lower level components. It keeps creating higher level components until the desired system is not evolved as one single component.

Statement II: Bottom-up design takes the whole software system as one entity and then decomposes it to achieve more than one sub-system or component based on some characteristics. In light of the above statements, choose the **correct** answer from options given below

1. Both the statements are correct.
2. Both the statements are incorrect.
3. Statement I is correct and Statement II is incorrect.
4. Statement I is incorrect and Statement II is correct.

Options :

19088967425. 1

19088967426. 2

19088967427. 3

19088967428. 4

Question Number : 63 Question Id : 19088916884 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A diagrammatic representation that illustrates the sequence of operations to solve a particular task in computer programming is called

1. Program
2. Algorithm
3. Flowchart
4. Codes

Options :

19088967429. 1

19088967430. 2

19088967431. 3

19088967432. 4

Question Number : 64 Question Id : 19088916885 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For... loop is which type of statement?

1. Conditional statement
2. Input
3. Repetitive
4. Output

Options :

19088967433. 1

19088967434. 2

19088967435. 3

19088967436. 4

Question Number : 65 Question Id : 19088916886 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the correct option regarding searching a key in ordered list

1. Sequential search is faster than Binary search.
2. Sequential search is slower than Binary search.
3. Both sequential search and binary search have equal performance.
4. None of the above

Options :

19088967437. 1

19088967438. 2

19088967439. 3

19088967440. 4

Question Number : 66 Question Id : 19088916887 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following are two popular computer networks?

    1.   Local Network and Wide Area Network
    2.   Local Area Network and Wide Area Network
    3.   Wide Area Network and Internet Network
    4.   None of the above

Options :

19088967441. 1

19088967442. 2

19088967443. 3

19088967444. 4

Question Number : 67 Question Id : 19088916888 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What are the two main functions of operating system?

    1.   User/computer interface and Resource Management
    2.   Processes Management and File Management
    3.   Printing and Reading files
    4.   None of the above

Options :

19088967445. 1

19088967446. 2

19088967447. 3

19088967448. 4

Question Number : 68 Question Id : 19088916889 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following statements are true about "Variable" in any computer programming language?

    A.   It is an alpha-numeric name that represents value of data
    B.   Name of memory address in which data/value is stored
    C.   Name of user defined function
    D.   Keyword in C programming langauge

Choose the **correct** answer from the options given below:

    1.   A and D only
    2.   B and C only
    3.   A and B only
    4.   B and C only

Options :

19088967449. 1

19088967450. 2

19088967451. 3

19088967452. 4

Question Number : 69 Question Id : 19088916890 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following command is used to rename a file in LINUX?

    1.   ren old_name new_name
    2.   cp old_name new name
    3.   mv old name new_name
    4.   rm old_name new_name

Options :

19088967453. 1

19088967454. 2

19088967455. 3

19088967456. 4

Question Number : 70 Question Id : 19088916891 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Bus topology, Ring topology, star topology and Tree topology are major network topologies used in which of the following network.
1. Wide Area Network
2. Metropolitan Area Network
3. Internet Public Network
4. Local Area Network

Options :

19088967457. 1

19088967458. 2

19088967459. 3

19088967460. 4

Part C : Bioinformatics

Section Id :	190889364
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	200
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	190889404
Question Shuffling Allowed :	Yes

Question Number : 71 Question Id : 19088916892 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is/are high throughput method/s of gene expression measurement?

A. Northern Blotting

B. Quantitative PCR

C. Microarray

D. RNAseq

Choose the *correct* answer from the options given below:

1. A and B are correct
2. Only B is correct
3. B and C are correct
4. C and D are correct

Options :

19088967461. 1

19088967462. 2

19088967463. 3

19088967464. 4

Question Number : 72 Question Id : 19088916893 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Direction of process flow in central dogma of life is-

1. RNA → DNA → Protein
2. RNA → Protein → DNA
3. DNA → Protein → RNA
4. DNA → RNA → Protein

Options :

19088967465. 1

19088967466. 2

19088967467. 3

19088967468. 4

Question Number : 73 Question Id : 19088916894 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Promoter is a region in DNA where _____ enzyme binds to initiate the transcription process.

  1. DNA polymerase
  2. RNA polymerase
  3. Ribonuclease
  4. None of the above

Options :

19088967469. 1

19088967470. 2

19088967471. 3

19088967472. 4

Question Number : 74 Question Id : 19088916895 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the location of TATA box in the DNA?

A. 10 nucleotide upstream from the start of transcription

B. 25 nucleotide downstream from the start of transcription

C. 10 nucleotide downstream from the start of transcription

D. 25 nucleotide upstream from the start of transcription

Choose the *correct* answer from the options given below:

  1. A and B are correct
  2. Only B is correct
  3. B and C are correct
  4. Only D is correct

Options :

19088967473. 1

19088967474. 2

19088967475. 3

19088967476. 4

Question Number : 75 Question Id : 19088916896 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Stem and Loop structures are found in the following :

A. Single stranded DNA

B. RNA

C. Proteins

D. Carbohydrates

Choose the *correct* answer from the options given below:

1. A and B are correct
2. Only B is correct
3. B and C are correct
4. Only D is correct

Options :

19088967477. 1

19088967478. 2

19088967479. 3

19088967480. 4

Question Number : 76 Question Id : 19088916897 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Maxam Gilbert Method of sequencing involved which of the following four types of reaction?

1. G, G+C, A, A+T
2. G, G+A, C, C+T
3. G+T, G, A, A+C
4. A+T, C, G, G+T

Options :

19088967481. 1

19088967482. 2

19088967483. 3

19088967484. 4

Question Number : 77 Question Id : 19088916898 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following NGS technologies does not perform well in the presence of homopolymers?

A. Solexa Technology

B. Solid

C. Rosche 454

D. Ion Torrent

Choose the *correct* answer from the options given below:

1. A and B are correct
2. Only B is correct
3. Only C is correct
4. C and D are correct

Options :

19088967485. 1

19088967486. 2

19088967487. 3

19088967488. 4

Question Number : 78 Question Id : 19088916899 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following NGS technologies is having highest error rate?

1. Illumina Sequencing
2. Pacific Biosciences
3. Rosche 454
4. Ion Torrent

Options :

19088967489. 1

19088967490. 2

19088967491. 3

19088967492. 4

Question Number : 79 Question Id : 19088916900 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which statement is incorrect regarding de-Bruijn graph?

A. It follows Eulerian path

B. It is a directed graph

C. It follows Hamiltonian path

D. Kmers are nodes and overlaps are edges

Choose the *correct* answer from the options given below:

1. Only B is incorrect
2. Only C is incorrect
3. A and C are incorrect
4. C and D are incorrect

Options :

19088967493. 1

19088967494. 2

19088967495. 3

19088967496. 4

Question Number : 80 Question Id : 19088916901 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Biological variant in de-Bruijn graph is represented by

1. Tip
2. Bubble
3. Frayed Rope
4. Spur

Options :

19088967497. 1

19088967498. 2

19088967499. 3

19088967500. 4

Question Number : 81 Question Id : 19088916902 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following assemblers does not follow the de-Bruijn graph approach of genome assembly?

A. Abyss

B. Celera

C. Velvet

D. Newbler

Choose the *correct* answer from the options given below:

1. Only A is correct
2. A and B are correct
3. B and C are correct
4. B and D are correct

Options :

19088967501. 1

19088967502. 2

19088967503. 3

19088967504. 4

Question Number : 82 Question Id : 19088916903 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following measure(s) is / are used for genome assembly evaluation?

A. K50

B. L50

C. M50

D. N50

Choose the *correct* answer from the options given below:

1. Only A is correct
2. Only B is correct
3. B and C are correct
4. B and D are correct

Options :

19088967505. 1

19088967506. 2

19088967507. 3

19088967508. 4

Question Number : 83 Question Id : 19088916904 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is a triple bond?

A. Adenine-Thymine

B. Cytosine-Guanine

C. Phosphodiester bond

D. Peptide bond

Choose the *correct* answer from the options given below:

1. Only A is correct
2. Only B is correct
3. B and C are correct
4. B and D are correct

Options :

19088967509. 1

19088967510. 2

19088967511. 3

19088967512. 4

Question Number : 84 Question Id : 19088916905 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In the case of autosomal genes with unequal gene frequencies of the two sexes, the equilibrium frequencies are attained on random mating.

1. In one generation
2. In two generation
3. Depends upon the differences in the gene frequencies
4. Will never attain

Options :

19088967513. 1

19088967514. 2

19088967515. 3

19088967516. 4

Question Number : 85 Question Id : 19088916906 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Estimation of linkage can be carried out by

A. Maximum Likelihood Method

B. Maximum Chi-square Method

C. Method of Moments

D. Minimum Chi-square Method

Choose the *correct* answer from the options given below:

1. Only A is correct
2. A and B are correct
3. A, B and C are correct
4. A, C and D are correct

Options :

19088967517. 1

19088967518. 2

19088967519. 3

19088967520. 4

Question Number : 86 Question Id : 19088916907 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following statement is true about heritability?

A. It is a ratio of additive variance and phenotypic variance

B. It is a ratio of additive variance and environmental variance

C. It is a ratio of genetic variance and phenotypic variance

D. It is a ratio of genetic variance and environmental variance

Choose the *correct* answer from the options given below:

1. Only A is correct
2. A and B are correct
3. A and C are correct
4. C and D are correct

Options :

19088967521. 1

19088967522. 2

19088967523. 3

19088967524. 4

Question Number : 87 Question Id : 19088916908 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

"In a large random mating population genes and genotypic frequency remains same from one generation to another generation in the absence of disturbing forces". This statement depicts

1. The law of segregation
2. The law of independent assortment
3. Hardy Weinberg Law
4. Fisher's fundamental theorem

Options :

19088967525. 1

19088967526. 2

19088967527. 3

19088967528. 4

Question Number : 88 Question Id : 19088916909 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Within individual variance is the part of the estimation of

1. Heritability
2. Repeatability
3. Genetic Correlation
4. Linkage disequilibrium

Options :

19088967529. 1

19088967530. 2

19088967531. 3

19088967532. 4

Question Number : 89 Question Id : 19088916910 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Pleiotropy is a phenomena related to

1. Heritability
2. Repeatability
3. Genetic Correlation
4. Linkage disequilibrium

Options :

19088967533. 1

19088967534. 2

19088967535. 3

19088967536. 4

Question Number : 90 Question Id : 19088916911 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match **List I** with **List II**

List I	List II
A. JAVA	I. Database language
B. DML	II. General-purpose Unix scripting language
C. SQL	III. Object oriented programming Language
D. Perl	IV. Data Manipulation Language

Choose the **correct** answer from the options given below:

1. A - I, B - II, C - III, D - IV
2. A - II, B - I, C - IV, D - III
3. A - II, B - I, C - III, D - IV
4. A - III, B - IV, C - I, D - II

Options :

19088967537. 1

19088967538. 2

19088967539. 3

19088967540. 4

Question Number : 91 Question Id : 19088916912 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match **List I** with **List II**

List I	List II
A. BLAST	I. Protein Structure Prediction
B. CLUSTAL W	II. Drug Design Alignment
C. Homology Modelling	III. Multiple Sequence Alignment
D. CADD	IV. Sequence Alignment

Choose the **correct** answer from the options given below:

1. A - I, B - II, C - III, D - IV
2. A - II, B - I, C - IV, D - III
3. A - IV, B - III, C - I, D - II
4. A - II, B - I, C - III, D - IV

Options :

19088967541. 1

19088967542. 2

19088967543. 3

19088967544. 4

Question Number : 92 Question Id : 19088916913 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is correct statement about Boyce-Codd Normal form?

A. BCNF does not allow dependencies between attributes that belong to candidate keys.

B. BCNF is a refinement of the third normal form in which it drops the restriction of a non-key attribute from the 3rd normal form.

C. Third normal form and BCNF are not same if the table has two or more candidate keys.

D. Third normal form and BCNF are not same if at least two of the candidate keys are composed of more than one attribute.

Choose the *correct* answer from the options given below:

1. All the above statements are correct.
2. Only A, B and C are correct.
3. Only B, C and D are correct.
4. Only A and C are correct.

Options :

19088967545. 1

19088967546. 2

19088967547. 3

19088967548. 4

Question Number : 93 Question Id : 19088916914 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is not correct in case of database decomposition?

A. If decomposition does not cause any loss of information it is called a lossless decomposition.

B. If a decomposition does not cause any dependencies to be lost it is called a dependency-preserving decomposition.

C. Any table scheme can be decomposed in a lossless way into a collection of smaller schemas that are in BCNF form.

D. Dependency preservation is guaranteed.

Choose the *correct* answer from the options given below:

1. A and B
2. B and C
3. C only
4. D only

Options :

19088967549. 1

19088967550. 2

19088967551. 3

19088967552. 4

Question Number : 94 Question Id : 19088916915 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The logical structure of database is sometimes called a _____.

1. Schema
2. Query
3. Logic
4. Transaction

Options :

19088967553. 1

19088967554. 2

19088967555. 3

19088967556. 4

Question Number : 95 Question Id : 19088916916 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements, one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : OLC approach of genome assembly is not feasible approach for larger genomes.

Reason R : Pairwise alignments between very large number of reads is a NP hard problem.

In light of the above statements, choose the *correct* answer from the options given below

1. Both **A** and **R** are true and **R** is the correct explanation of **A**
2. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
3. **A** is true but **R** is false
4. **A** is false but **R** is true

Options :

19088967557. 1

19088967558. 2

19088967559. 3

19088967560. 4

Question Number : 96 Question Id : 19088916917 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is not an example of primary database?

1. GenBank Nucleotide Sequence Database
2. European Molecular Biology Laboratory (EMBL) Nucleotide Sequence Database
3. DNA Database of Japan (DDBJ)
4. PROSITE Database

Options :

19088967561. 1

19088967562. 2

19088967563. 3

19088967564. 4

Question Number : 97 Question Id : 19088916918 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is a RefSeq accession number corresponding to an mRNA?

1. NG_076046
2. NM_199662
3. Z95534
4. NC_000078

Options :

19088967565. 1

19088967566. 2

19088967567. 3

19088967568. 4

Question Number : 98 Question Id : 19088916919 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is not a sequence alignment tool?

1. BLAST
2. CHIME
3. CLUSTAL W
4. FASTA

Options :

19088967569. 1

19088967570. 2

19088967571. 3

19088967572. 4

Question Number : 99 Question Id : 19088916920 Question Type : MCQ Option Shuffling : No

Consider the following statements about BLOSUM (BLOcks Substitution Matrix) matrices:

A. It was first introduced by Henikoff and Henikoff.

B. Global alignments of more distantly related sequences were used to create BLOSUM.

C. A central feature of calculating BLOSUM matrix is the use of (estimated) likelihood ratios.

D. BLOSUM matrices are derived from PROSITE signatures of the BLOCKS database.

Choose the *correct* answer from the options given below:

1. Only A and B are true
2. Only A, B and C are true
3. Only A, C and D are true
4. Only B, C and D are true

Options :

19088967573. 1

19088967574. 2

19088967575. 3

19088967576. 4

Consider the statements regarding BLAST given below:

A. blastp uses protein sequences as queries to search against a nucleotide sequence database.

B. blastn uses nucleotide sequences as queries to search against a protein sequence database.

C. tblastn uses protein sequences to search against a nucleotide sequence database with the sequences translated in all six reading frames.

D. tblastx uses protein sequences to search against a nucleotide sequence database with the sequences translated in all six reading frames.

Choose the *correct* answer from the options given below:

1. Only A, B and C are true
2. Only B and C are true
3. Only C is true
4. Only A, C and D are true

Options :

19088967577. 1

19088967578. 2

19088967579. 3

19088967580. 4

Question Number : 101 Question Id : 19088916922 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Multiple sequence alignment is used for

A. Detecting conserved regions/motifs in the sequences

B. Detecting similarities between sequences

C. Inferring evolutionary trees or linkage

Choose the *correct* answer from the options given below:

1. All A, B and C are true
2. Only A and B are true
3. Only A is true
4. Only A and C are true

Options :

19088967581. 1

19088967582. 2

19088967583. 3

19088967584. 4

Question Number : 102 Question Id : 19088916923 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The two main features of phylogenetic tree are

1. The topology and the branch lengths
2. The clades and the root
3. The clades and the nodes
4. None of the above

Options :

19088967585. 1

19088967586. 2

19088967587. 3

19088967588. 4

Question Number : 103 Question Id : 19088916924 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The possible number of rooted trees for four operational taxonomic units (OTUs) is

1. 106
2. 3
3. 15
4. 10

Options :

19088967589. 1

19088967590. 2

19088967591. 3

19088967592. 4

Question Number : 104 Question Id : 19088916925 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

According to molecular clock hypothesis

A. All proteins evolve at the same, constant rate.

B. For every given protein, the rate of molecular evolution is approximately constant in all evolutionary lineages.

C. All proteins evolve at a rate that matches the fossil record.

Choose the *correct* answer from the options given below:

1. Only A is true
2. Only B is true
3. Both A and B are true
4. All A, B and C are true

Options :

19088967593. 1

19088967594. 2

19088967595. 3

19088967596. 4

Question Number : 105 Question Id : 19088916926 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Phylogeny helps in

A. understanding the evolutionary relationship among different groups of organisms

B. predicting the functions of novel genes

C. understanding the microbial ecologies

Choose the *correct* answer from the options given below:

1. Only A and B are true
2. Only A is true
3. All A, B and C are true
4. Only B and C are true

Options :

19088967597. 1

19088967598. 2

19088967599. 3

19088967600. 4

Question Number : 106 Question Id : 19088916927 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match the following terminologies used in phylogenetic trees (**List I**) with their description (**List II**).

List I	List II
Terminologies used in phylogenetic trees	Description
A. Root	I. It is located between two nodes
B. Internal branch	II. It is located between a node and a leaf
C. External branch	III. The common ancestor of all taxa
D. Node	IV. It represents a taxonomic unit

Choose the **correct** answer from the options given below:

1. A - III, B - I, C - II, D - IV
2. A - III, B - II, C - I, D - IV
3. A - IV, B - II, C - I, D - III
4. A - IV, B - I, C - II, D - III

Options :

19088967601. 1

19088967602. 2

19088967603. 3

19088967604. 4

Question Number : 107 Question Id : 19088916928 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements:

Statement I: Cladograms can be either unrooted or rooted in molecular systematics.

Statement II: Phylograms can be rooted only in molecular systematics.

In light of the above statements, choose the *most appropriate* answer from the options given below:

1. Both Statement I and Statement II are correct
2. Both Statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

Options :

19088967605. 1

19088967606. 2

19088967607. 3

19088967608. 4

Question Number : 108 Question Id : 19088916929 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The single-letter amino acid code for tryptophan is

1. T
2. F
3. Y
4. W

Options :

19088967609. 1

19088967610. 2

19088967611. 3

19088967612. 4

Question Number : 109 Question Id : 19088916930 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is not a member database of InterPro?

1. CATH
2. Pfam
3. PRINTS
4. SCOP

Options :

19088967613. 1

19088967614. 2

19088967615. 3

19088967616. 4

Question Number : 110 Question Id : 19088916931 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is used for protein structure prediction by comparative modelling?

1. Modeller
2. Swiss-Model
3. Geno3D
4. All of the above

Options :

19088967617. 1

19088967618. 2

19088967619. 3

19088967620. 4

Question Number : 111 Question Id : 19088916932 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Some statements about Protein Data Bank are given below:

A. It is an archive of experimentally determined 3D structures of biological macromolecules.

B. It is a secondary database of 3D structures of biological macromolecules.

C. It was established by Research Collaboratory of Structural Bioinformatics, Brookhaven National Laboratories, USA.

Choose the *correct* answer from the options given below:

1. Only A is true
2. All A, B and C are true
3. Only A and C are true
4. Only A and B are true

Options :

19088967621. 1

19088967622. 2

19088967623. 3

19088967624. 4

Question Number : 112 Question Id : 19088916933 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the following statements regarding Chou-Fasman and GOR methods of secondary structure prediction:

A. They are known as first generation of secondary structure prediction methods.

B. Both the methods use a measure of an amino acid's propensity score.

C. The methods are based on single sequence statistics without clear relation to known protein-folding theories.

Choose the *correct* answer from the options given below:

1. Only B and C
2. Only A and B
3. Only A and C
4. All A, B and C

Options :

19088967625. 1

19088967626. 2

19088967627. 3

19088967628. 4

Question Number : 113 Question Id : 19088916934 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match **List I** with **List II**.

List I	List II
A. MMDB	I. Protein structure visualization
B. CHARMM	II. Protein structure database
C. Rasmol	III. Force field for molecular dynamics
D. ERRAT	IV. Verification of protein structures

Choose the **correct** answer from the options given below.

1. A - II, B - III, C - I, D - IV
2. A - II, B - III, C - IV, D - I
3. A - III, B - II, C - I, D - IV
4. A - III, B - IV, C - I, D - II

Options :

19088967629. 1

19088967630. 2

19088967631. 3

19088967632. 4

Question Number : 114 Question Id : 19088916935 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In object-oriented programming language, a class is

1. instance of an object
2. blueprint or prototype of an object
3. scope of an object
4. parent of an object

Options :

19088967633. 1

19088967634. 2

19088967635. 3

19088967636. 4

Question Number : 115 Question Id : 19088916936 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In Perl, scalar variable names begin with

1. #
2. %
3. $
4. &

Options :

19088967637. 1

19088967638. 2

19088967639. 3

19088967640. 4

Question Number : 116 Question Id : 19088916937 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements regarding supervised and unsupervised analyses of microarray data:

Statement I: Supervised approaches assign a fixed number of clusters, while unsupervised analyses do not.

Statement II: Supervised approaches assign some prior knowledge about function to the genes and/or samples, while unsupervised analyses do not.

In light of the above statements, choose the *most appropriate* answer from the options given below:

1. Both Statement I and Statement II are correct
2. Both Statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

Options :

19088967641. 1

19088967642. 2

19088967643. 3

19088967644. 4

Question Number : 117 Question Id : 19088916938 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given a two-input neuron with the following parameters: bias b = 1, weight

factors $\mathbf{w}$ = [w1 w2] = [3 2], and input vector $\mathbf{x}$ = [x1 x2]^T = [−5 6]^T.

Match the neuron's output (List II) for the different activation functions used (List I).

List I	List II
Activation function	Neuron's output
A. Hard limit	I. -1
B. Symmetrical hard limit	II. -2
C. Linear	III. 0
D. Log-sigmoid	IV. $1/(1+e^2)$

Choose the correct answer from the options given below:

1. A - II, B - I, C - III, D - IV
2. A - III, B - I, C - II, D - IV
3. A - III, B - II, C - I, D - IV
4. A - III, B - I, C - IV, D - II

Options :

19088967645. 1

19088967646. 2

19088967647. 3

19088967648. 4

Question Number : 118 Question Id : 19088916939 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Statements about partial classes in object-oriented programming language C# are given below:

Statement I: Partial classes give you the ability to split a single class into more than one source code file.

Statement II: For example, if the product class became particularly long and intricate, you might decide to break it into two pieces (e.g. public partial class Product).

In light of the above statements, choose the *correct* answer from the options given below:

1. Both Statement I and Statement II are correct
2. Both Statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

Options :

19088967649. 1

19088967650. 2

19088967651. 3

19088967652. 4

Question Number : 119 Question Id : 19088916940 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The statements regarding inheritance in object-oriented programming concept are given below.

Statement I: Inheritance is a form of code reuse.

Statement II: It allows one class to acquire and extend the functionality of parent class.

In light of the above statements, choose the *correct* answer from the options given below:

1. Both Statement I and Statement II are true
2. Both Statement I and Statement II are false
3. Statement I is true but Statement II is false
4. Statement I is false but Statement II is true

Options :

19088967653. 1

19088967654. 2

19088967655. 3

19088967656. 4

Question Number : 120 Question Id : 19088916941 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The various steps involved in k-Nearest Neighbor (kNN) classification process are given below in random order:

A. Determine the category (class) for each of the nearest neighbors.

B. Determine parameter k - number of nearest neighbors.

C. Sort the distance and determine nearest neighbors based on the k-th threshold.

D. Calculate the distance between each testing sample and all the training samples.

E. Use simple majority of the category of nearest neighbors as the prediction value of the testing sample classification.

Choose the correct order from the options given below:

1. B, A, C, D, E
2. B, C, D, E, A
3. B, D, C, A, E
4. B, C, D, A, E

Options :

19088967657. 1

19088967658. 2

19088967659. 3

19088967660. 4