

## **English**

1. The cellular organelle which functions as a store for  $\text{Ca}^{2+}$  ion is

- (A) Endoplasmic reticulum
- (B) Golgi bodies
- (C) Endosomes
- (D) Nucleus

**Correct Option(s): A**

## **English**

2. The contour length of human DNA is

- (A) 1 m
- (B) 2 m
- (C) 3 m
- (D) 4 m

**Correct Option(s): B**

## **English**

3. Which of the following acts as an Opsonin?

- (A) Interleukin
- (B) Cytokines
- (C) Antibodies
- (D) Histamine

**Correct Option(s): C**

## **English**

4. Unsaturated fatty acids contain

- (A) Single bonds
- (B) Double bonds
- (C) Triple bonds
- (D) Both double and triple bonds

**Correct Option(s): D**

## **English**

5. Which one of the following is a probable cause of the rapid diversification of animal groups during the Cambrian explosion?

- (A) Acquiring the ability to swim in the marine environment
- (B) Emergence of coelom
- (C) The movement of animals to land
- (D) The accumulation of sufficient atmospheric oxygen to support the metabolism of actively moving animals

**Correct Option(s): D**

## **English**

6. Plants receive their nutrients mainly from

- (A) Chlorophyll
- (B) Atmosphere
- (C) Light
- (D) Soil

**Correct Option(s): D**

## English

7. Which of the following is a major component of plasma membranes?

- (A) Cholesterol
- (B) Triacylglycerols
- (C) Phospholipids
- (D) Lipopolysaccharides

**Correct Option(s): C**

## English

8.

Sperms and egg cells are haploid, and if there is a small fraction of diploid sperms, what could be the reason for it ?

- (A) Non-disjunction
- (B) Disjunction
- (C) Dicentric bridges
- (D) Fusion of chromosomes

**Correct Option(s): A**

## English

9. Protein-DNA interactions in vitro can be studied by

- (A) Electrophoretic mobility shift assay
- (B) Southern hybridization
- (C) Chromatin immunoprecipitation assay
- (D) Fluorescence in situ hybridization assay

**Correct Option(s): A**

## English

10. Photosynthesis takes place faster in

- (A) Yellow light
- (B) Red light
- (C) White light
- (D) Blue light

**Correct Option(s): C**

## English

11. In which one of the following conditions in lung alveoli the sigmoidal curve will be obtained in relation to oxygen saturation in hemoglobin?

- (A)  $pO_2 < pCO_2$
- (B)  $pO_2 > pCO_2$
- (C)  $pCO_2 = pO_2$
- (D)  $pO_2 +$  Higher  $H^+$  concentration

**Correct Option(s): B**

## English

12.

$O_2$  released in the process of photosynthesis comes from

- (A)  $CO_2$
- (B)  $H_2O$
- (C) Sugar
- (D) Pyruvic acid

**Correct Option(s): B**

## English

13. Prothrombin which helps in the clotting of blood is released by

- (A) Lymphocytes
- (B) Erythrocytes
- (C) Monocytes
- (D) Blood platelets

**Correct Option(s): D**

## English

14.

Read the following statement

Statement I: When an infected female Anopheles mosquito bites, it releases the gametocytes of Plasmodium to a healthy person. Statement II: The female Anopheles mosquito takes up sporozoites of Plasmodium during blood meal from malaria parasite infected person.

- (A) Statement I is correct but statement II is incorrect
- (B) Statement II is correct but statement I is incorrect
- (C) Statement I and statement II is incorrect
- (D) Statement I and statement II is correct

**Correct Option(s): C**

## English

15.

A scientist believes that a protein 'Abc' interacts with another protein 'Xyz' in human cell line HEK293 upon treatment with growth hormone. Which of the following technique/s the researcher can use to prove the same ?

- (A) Immuno-precipitation
- (B) Fluorescence recovery after photobleaching (FRAP)
- (C) Fluorescence resonance energy transfer (FRET)
- (D) Cell fractionation

**Correct Option(s): C**

## English

16. Dosage compensation for X chromosome in Drosophila is done by

- (A) Inactivation of one X – chromosome in females
- (B) Two-fold more activation of single X – chromosome in males
- (C) Two-fold more activation of single X – chromosome in females
- (D) Activation of X chromosome in females

**Correct Option(s): B**

## English

17. Eugenics is the study of

- (A) Altering human beings by changing their genetic components
- (B) People of European origin
- (C) Different races of mankind
- (D) Genetic of plants

**Correct Option(s): A**

## English

18. The Abs260 and Abs280 values of a 100-fold diluted pure nucleic acid sample are: 0.36 and 0.20. What kind of nucleic acid is this and what is the concentration of the un-diluted stock sample?

- (A) Double-stranded DNA and 1.8 mg/ml
- (B) Single-stranded DNA and 1.8 mg/ml
- (C) Single-stranded DNA and 1.0 mg/ml
- (D) RNA and 1.0 mg/ml

**Correct Option(s): A**

## English

19.

The percentage intra- and inter- coefficient of variation for three independent medical biochemistry labs were as follows: Lab A: 7% and 18% Lab B: 18% and 7% Lab C: 7% and 4%  
Based on these values which of the following statements is true

- (A) Laboratory B is the most reliable
- (B) Laboratory A is the most reliable
- (C) Laboratory C is the most reliable
- (D) Laboratory C is the worst

**Correct Option(s): C**

## English

20. Most abundant tissues of our body are

- (A) Muscular
- (B) Connective
- (C) Epithelial
- (D) Nervous

**Correct Option(s): A**

## English

21. Number of chromosomes in Down's syndrome is

- (A) 47
- (B) 45
- (C) 49
- (D) 49

**Correct Option(s): A**

## English

22. Which among the following hormone can be used as a drug to treat cardiac arrest?

- (A) Thyroxin
- (B) Calcitonin
- (C) Epinephrine
- (D) Insulin

**Correct Option(s): C**

## English

23.

Huntington's disease is an autosomal dominant disorder. Each child of an affected parent has ----- % chance of having the disease:

- (A) 25%
- (B) 50%
- (C) 75%
- (D) 100%

**Correct Option(s): B**

## English

24. Which part of eye becomes inflamed and pink when dust gets into it?

- (A) Choroids
- (B) Cornea
- (C) Sclerotic
- (D) Conjunctiva

**Correct Option(s): D**

## English

25. In *E. coli*, the termination of replication timing is done by

- (A) Tus protein
- (B) Rho protein
- (C) DNA ligase
- (D) DnaB protein

**Correct Option(s): A**

## English

26. Which of the following bacteria causes Rheumatic fever?

- (A) *Staphylococcus aureus*
- (B) *Streptococcus pyogenes*
- (C) *Campylobacter jejuni*
- (D) *Shigella flexneri*

**Correct Option(s): B**

## English

27. Which one of the following pairs of bacterial species fixes atmospheric Nitrogen?

- (A) *Clostridia* and *Rhizobia*
- (B) *Clostridia* and *Lactobacillus*
- (C) *Rhizobia* and *Enterococcus*
- (D) *Rhizobia* and *mycobacteria*

**Correct Option(s): A**

## English

28. Lac repressor contains

- (A) Leucine Zipper
- (B) Helix turn Helix
- (C) Zinc finger
- (D) Rossman Fold

**Correct Option(s): B**

## English

29. \_\_\_\_\_ binds to the Lac repressor

- (A) Lactose
- (B) Galactose
- (C) Allolactose
- (D) Lac Permease

**Correct Option(s): C**

## English

30. What is the molarity of the water?

- (A) 55.5
- (B) 18
- (C) 1000
- (D) 28

**Correct Option(s): A**

## English

31. Which one of the following infectious disease is not airborne?

- (A) COVID-19
- (B) Typhoid
- (C) Measels
- (D) Pertusis

**Correct Option(s): B**

## English

32. DNA migrates from cathode to anode during agarose gel electrophoresis due to

- (A) DNA mixed with bromophenol blue
- (B) DNA is negatively charged due to sugar moiety
- (C) DNA is negatively charged due to phosphate group
- (D) DNA is negatively charged due to nucleobases

**Correct Option(s): C**

## English

33. Deamination of 5-Methylcytosine produce

- (A) Uracil
- (B) Thymine
- (C) Xanthine
- (D) Hypoxanthine

**Correct Option(s): B**

## English

34. Which of the following antibiotics inhibits bacterial protein synthesis by interfering with peptidyl transferase activity?

- (A) Streptomycin
- (B) Erythromycin
- (C) Puromycin
- (D) Cycloheximide

**Correct Option(s): B**

## English

35. The most common indicator organism of faecal pollution in water is

- (A) Clostridium botulinum
- (B) Bacillus subtilis
- (C) Escherichia coli
- (D) Clostridium tetani

**Correct Option(s): C**

## English

36. Many young people get acne and pimples on the face due to increased activity of

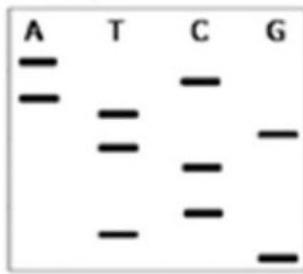
- (A) Thyroid gland
- (B) Endocrine gland
- (C) Sebaceous gland
- (D) Adrenal gland

**Correct Option(s): C**

## English

37.

An oligonucleotide was sequenced by the dideoxy method of Sanger and the following autoradiogram was obtained



The sequence of the oligonucleotide is

- (A) 3'-GTCCTGTACA-5'
- (B) 5'-GTCCTGTACA-3'
- (C) 5'-ACATGTCCTG-3'
- (D) 3'-AATTCGG-5

**Correct Option(s): B**

## English

38.

Consider the following statements (i) Arteries carry carbon dioxide rich blood from the heart to lungs. (ii) Veins are the vessels which carry carbon dioxide rich blood from all parts of the body back to the lungs. (iii) Arteries carry oxygen rich blood from heart to all parts of the body. (iv) Veins have thick walls.

Which of the above statements is correct?

- (A) i and ii
- (B) ii and iii
- (C) iii and iv
- (D) i and iv

**Correct Option(s): B**

## English

39.

Muscles cramps occur after heavy exercise. This is because of accumulation of

- (A) Amino acids
- (B) Fatty acids
- (C) Carbon dioxide
- (D) Lactic acid

**Correct Option(s): D**

## English

40.

Which system is least likely to be at chemical equilibrium?

- (A) A test tube of living cells
- (B) A test tube of organic molecules kept in the freezer
- (C) A test tube of dry organic molecules kept at room temperature
- (D) A test tube of dead cells in water kept at room temperature

**Correct Option(s): A**

## English

41. Which one of the protein sequences is highly conserved during evolution?

- (A) Fibrinopeptides
- (B) Hemoglobin
- (C) Histone 4
- (D) Cytochrome C

**Correct Option(s): C**

## English

42. Glucose on reduction forms

- (A) Dulcitol
- (B) Mannitol
- (C) Sorbitol
- (D) Mannitol and sorbitol

**Correct Option(s): C**

## English

43.

Which one of the following is not a “Law of Dominance” in the inheritance ?

- (A) The characters are controlled by distance units called factors
- (B) The factors occurs in pairs
- (C) The dissimilar pair of factors one member dominates the other factors
- (D) The factors does not occurs in pairs

**Correct Option(s): D**

## English

44.

Which of the four restriction enzymes given below cut the following DNA sequence?

5'-CCGATATCTCGAGGGC-3' \_\_\_\_\_

- (X) BamH1 (3'-CCTAG^G-5')
- (Y) XhoI (3'-GAGCT^C-5')
- (W) EcoRI (3'-CTTAA^G-5')
- (Z) EcoRV (3'-CTA^TAG-5')
- (A) X & Y
- (B) X, W & Z
- (C) Y & Z
- (D) X & W

**Correct Option(s): C**

## English

45. Lymphatic Filariasis is caused by

- (A) Bacteria
- (B) Helminths
- (C) Protozoa
- (D) Virus

**Correct Option(s): B**

## English

46. Which one of the following organelles is the site of ATP synthesis?

- (A) Endoplasmic reticulum
- (B) Hydrogenosomes
- (C) Golgi complex
- (D) Ribosomes

**Correct Option(s): B**

## **English**

47.

How protons translocated in ETC to generate one molecule of ATP ?

- (A) 3.5 protons
- (B) 2.5 protons
- (C) 1.5 Protons
- (D) 4.5 Protons

**Correct Option(s): A**

## **English**

48.

Griffith used one of the following model organisms to confirm the DNA as genetic material. Which is that ?

- (A) Staphylococcus pneumonia
- (B) Micrococcus pneumonia
- (C) Streptococcus pneumonia
- (D) Diplococcus pneumonia

**Correct Option(s): C**

## **English**

49. Species extinction on the earth is primarily attributed due to

- (A) Climate change
- (B) Population density
- (C) Uneven distribution
- (D) Habitat loss

**Correct Option(s): D**

## **English**

50.

If the double-strand DNA has 30% guanine base, what is the percentage of adenine base in the DNA?

- (A) 20%
- (B) 30%
- (C) 10%
- (D) 40%

**Correct Option(s): A**