1. નીચે આપેલા પૈકીનો કયો શબ્દ 'મરૂત ' શબ્દનો સમાનાર્થી શબ્દ નથી ?
   (A) અનિલ
   (B) વાયુ
   (C) સમીર
   (D) અચલ

2. નીચે આપેલા શબ્દોમાંથી 'અકરાંતીયું' શબ્દનો વિરોધાર્થી શબ્દ કયો છે?
   (A) મનસ્વી
   (B) અનાવૃત
   (C) મિતાહારી
   (D) અનારોગ્ય

3. નીચે આપેલા પૈકીનો કયો શબ્દ 'ગદર્ભ' શબ્દનો સમાનાર્થી શબ્દ છે?
   (A) વૈશાખનંદન
   (B) તુરંગ
   (C) અશ્વ
   (D) કિંકર

4. શબ્દસમૂહ માટે એક શબ્દ આપો : જ્યાં ન જઈ શકાય તેવું.
   (A) અગર
   (B) અગમ્ય
   (C) અપરિમેય
   (D) અબોટ

5. 'અગત્સ્યના વાયદા' - આ રૂઢિપ્રયોગનો અર્થ આપો
   (A) પુરા ના થાય તેવા વચનો આપવા
   (B) તમામ વચનો સંપૂર્ણ પુરા કરવા
   (C) મહર્ષિ અગત્સ્યના વંશજો ઉપર વિશ્વાસ રાખવો
   (D) કોઈ સંદર્ભ વગર બોલ બોલ કરવું

6. નીચે આપેલા પૈકીનો કયો શબ્દ 'અશ્વ ' શબ્દનો સમાનાર્થી શબ્દ નથી ?
   (A) વૈશાખનંદન
   (B) તુરંગ
   (C) હય
   (D) સૈન્ધવ

7. નીચેના પૈકી સાચી જોડણી ધરાવતો શબ્દ શોધો
   (A) ટેલીવીસન
   (B) ટેલિવિઝન
   (C) ટેલીવિઝન
   (D) ટેલીવીઝન

8. શબ્દસમૂહ માટે એક શબ્દ આપો : એક એક દહાડાને આંતરે આવતો તાવ
   (A) એકાંતરિયો
   (B) ઉથલો
   (C) જાંગડ
   (D) જ્વર

9. ઠંડે પાણીએ નાહી નાખવું - આ રૂઢિપ્રયોગનો અર્થ આપો
   (A) વગર મુશ્કેલીએ સંકટ જવું
   (B) અત્યંત ગભરાઈ જવું
   (C) તબિયત ખરાબ થઇ જવી
   (D) આશા છોડી દેવી

10. નીચે આપેલા શબ્દોમાંથી 'જયંતિ ' શબ્દનો વિરોધાર્થી શબ્દ કયો છે?
   (A) શતાબ્દી
   (B) સંવત્સરી
   (C) જન્મદિન
   (D) શાશ્વત

11. Choose the correct tense for the sentence: "By next year, I ____ my degree."
   (A) will have completed
   (B) will complete
   (C) have completed
   (D) would have completed

12. Choose the correctly spelled word:
   (A) Exaggerate
   (B) Exagerate
   (C) Exagerrate
   (D) Exaggarate

13. Choose the antonym for "Euphoria":
   (A) Bliss
   (B) Joy
   (C) Despair
   (D) Happiness

14. Choose correct Idioms and Phrases

   What does "Cry over spilled milk" mean?
   (A) To cry loudly
   (B) To express regret about something that has already happened
   (C) To be extremely happy
   (D) To remember old times

15. Find the synonym for "Benevolent":
    (A) Malevolent
    (B) Kind
    (C) Harsh
    (D) Cruel

16. The novel's intricate plot _____ as the story progressed, leaving readers in suspense.
    (A) simplified
    (B) unraveled
    (C) stabilized
    (D) declined

17. A person who writes about his own life.
    (A) Biographer
    (B) Autobiographer
    (C) Historian
    (D) Novelist

18. Convert to passive voice: "The chef cooks the meal."
    (A) The meal is cooked by the chef.
    (B) The meal was cooked by the chef.
    (C) The meal cooks by the chef.
    (D) The meal has been cooked by the chef.

19. Identify the correct indirect speech: "Are you coming with us?" she asked.
    (A) She asked if I was coming with them.
    (B) She asked are you coming with us.
    (C) She asked if you are coming with us.
    (D) She asked if you were coming with them.

20. Identify the correct past tense form: "He ____ to play the piano when he was young."
    (A) used
    (B) was using
    (C) use
    (D) used to

21. ગુજરાત હાઈકોર્ટની સ્થાપના કયા વર્ષમાં થઈ
    (A) 1911
    (B) 1947
    (C) 1960
    (D) ઉપર માંથી એક પણ નહિ

22. ગાંધીજી સાથે જોડાયેલું નથી એવા સ્થળ કયું છે?

(A) ગુજરાત વિદ્યાપીઠ

(B) કીર્તિ મંદિર

(C) અક્ષરધામ

(D) હૃદય કુંજ

23. ગુજરાતમાં કયા જિલ્લામાં સૌથી વધુ જંગલ વિસ્તાર છે?

(A) અમરેલી

(B) ડાંગ

(C) ગીર સોમનાથ

(D) તાપી

24. ગુજરાત રાજ્યની સ્થાપના કઈ તારીખે કરવામાં આવી હતી?

(A) 1 મે

(B) 15 ઑગસ્ટ

(C) 26 જાન્યુઆરી

(D) 2 ઑક્ટોબર

25. ગુજરાતમાં કુલ કેટલાં વિધાનસભાના બેઠકો છે?

(A) 170

(B) 182

(C) 200

(D) 174

26. ભારતીય બંધારણ દ્વારા કેટલા મૂળભૂત અધિકારોની ગેરંટી આપવામાં આવી છે?

(A) 4

(B) 6

(C) 8

(D) 12

27. શ્રેયસી સિંહે કયાં ગોલ્ડ મેડલ જીત્યો હતો?

(A) 2018 કોમનવેલ્થ ગેમ્સ

(B) ઓલિમ્પિક્સ

(C) A અને B બન્ને

(D) ઉપરોક્ત માંથી કોઇ નહીં

28. માનવના જઠર માં કયો આમ્લ ઉત્પાદન થાય છે?

(A) હાઇડ્રોક્લોરિક એસિડ (HCl)

(B) સલ્ફ્યુરિક એસિડ (H_2SO_4)

(C) નાઇટ્રિક એસિડ (HNO_3)

(D) ફોસ્ફોરિક એસિડ (H_3PO_4)

29. તાજેતરમાં કયા દેશમાં પ્રથમ આર્ટિફિશિયલ ઇન્ટેલિજન્સ આધારિત ન્યાયાધીશની નિમણૂક કરવામાં આવી છે?

(A) ચીન

(B) અમેરિકા

(C) ભારત

(D) જાપાન

30. તાજેતરમાં કયા દેશમાં પ્રથમ વખત મહિલા રાષ્ટ્રપતિની પસંદગી કરવામાં આવી છે?

(A) નેપાળ

(B) બાંગ્લાદેશ

(C) શ્રીલંકા

(D) મલેશિયા

31. કયું નંબર 5, 10, 20, 40 પછી આવશે?

(A) 50
(B) 60
(C) 80
(D) 100

32. 9 + (8 × 2) ÷ 4 = ?

(A) 10
(B) 11
(C) 12
(D) 13

33. જો TRAIN = 12345, તો RAIN = ?

(A) 2345
(B) 1234
(C) 3456
(D) 2346

34. આર્ટિફિશિયલ ઇન્ટેલિજન્સ (AI) નો પ્રથમ ઉપયોગ ક્યા વર્ષે કરવામાં આવ્યો હતો?

(A) 1956
(B) 1965
(C) 1943
(D) 1980

35. કયું પર્વત શ્રેણી ઉત્તર ભારતમાં હિમશ્રેણી તરીકે ઓળખાય છે?

(A) અરાવલ્લી
(B) વિંધ્યાચલ
(C) હિમાલય
(D) સાહિત્યાદ્રી

36. Choose the correct options:

(A) Edward Jenner developed the first successful smallpox vaccine
(B) Edward Jenner invented the use of antibiotics for smallpox
(C) Edward Jenner developed the blood transfusion treatment for smallpox victims
(D) None of the above

37. Choose the correct options about Bt Crops:

(A) The gene comes from the soil bacterium
(B) The gene produces crystal proteins called Cry proteins.
(C) These Cry proteins are toxic to larvae of insects like tobacco budworm
(D) All of the above

38. The term "Biotechnology" was coined by-

(A) Edward Jenner
(B) Károly Ereky
(C) Watson and Crick
(D) Kary B. Mullis

39. Which of the following field of biotechnology has many applications and is involved in production of recombinant pharmaceuticals, tissue engineering products, regenerative medicines is known as:

(A) Food Biotechnology
(B) Immunology
(C) Medical Biotechnology
(D) Agricultural Biotechnology

40. Which of the following is true about second-generation biofuels?

(A) They are primarily made from edible crops such as corn and sugarcane.
(B) They are produced from non-food feedstocks such as agricultural waste, grasses, and wood.
(C) They have a higher carbon footprint compared to first-generation biofuels.
(D) They are primarily used to produce electricity rather than transportation fuel.

41. What does the Ramachandran plot specifically show about amino acid residues in a protein?
    (A) The distribution of different types of amino acids
    (B) The ideal bond angles for each amino acid
    (C) The allowable and forbidden regions for the phi (ϕ) and psi (ψ) dihedral angles
    (D) The molecular weight distribution of proteins

42. Which aromatic amino acid is primarily involved in UV light absorption at around 280 nm, commonly used to monitor protein concentration?
    (A) Phenylalanine
    (B) Tyrosine
    (C) Histidine
    (D) Tryptophan

43. In prokaryotic DNA replication, which helicase enzyme is responsible for unwinding the DNA double helix at the replication fork?
    (A) DnaC
    (B) DnaB
    (C) DNA polymerase I
    (D) Primase

44. What is the mechanism of action for the bacterial translation inhibitor puromycin?
    (A) It is responsible for the formation of the ribosome complex
    (B) Puromycin mimics the 5' end of an aminoacyl-tRNA
    (C) It prevents the binding of primer to the ribosome
    (D) It blocks the elongation step by causing premature chain termination

45. Which of the following codons serves as a stop codon in the genetic code?
    (A) AUG
    (B) UAA
    (C) UGU
    (D) GGU

46. What does **EMBL** stand for?
    (A) European Molecular Biology Laboratory
    (B) Environmental Molecular Biology Lab
    (C) Essential Molecular Biology Laboratory
    (D) Emerging Molecular Bioengineering Lab

47. Which of the following BLAST algorithms is commonly used to compare a nucleotide query against a nucleotide database?
    (A) BLASTp
    (B) BLASTx
    (C) BLASTn
    (D) BLASTt

48. CLUSTALW is a more recent version of CLUSTAL with the W standing for _____.
(A) weakening
(B) winding
(C) weighting
(D) wiping

49. Which of the following is a primary characteristic of lentic ecosystems?
(A) Constant movement of water.
(B) Rich in oxygen content throughout the year.
(C) Presence of still or slow-moving water bodies.
(D) High salinity content.

50. Which of the following is a key assumption of the t-test?
(A) The data are normally distributed.
(B) The data should follow a Poisson distribution.
(C) The sample size must be greater than 50.
(D) There must be no outliers in the dataset.

51. Example of Key Stone Species is:
(A) Deer in a forest ecosystem.
(B) Bees in a pollination network.
(C) Mosquitoes in a wetland ecosystem.
(D) Lions in the savanna ecosystem.

52. High BOD levels in water typically indicate:
(A) High oxygen availability.
(B) High pollution levels and organic matter in the water.
(C) Low organic content in water.
(D) The presence of aquatic life

53. A carbon credit represents:
(A) One ton of carbon dioxide equivalent emissions reduced.
(B) One ton of water conserved.
(C) One cubic meter of oxygen produced.
(D) A legal permit to emit greenhouse gases

54. In the activated sludge process, microorganisms are used to:
(A) Speed up the chemical reactions in water.
(B) Decompose organic matter in wastewater.
(C) Reduce the temperature of wastewater.
(D) Increase the oxygen content of the water.

55. Which enzyme is detected in the presence of E. coli in water testing?
(A) Urease
(B) Catalase
(C) Beta-galactosidase
(D) Beta amylase

56. Bioaugmentation refers to:
(A) Using natural organisms to clean contaminated environments.
(B) Adding microorganisms to enhance the breakdown of pollutants.
(C) Increasing plant growth in polluted soils.
(D) Genetic modification of organisms to resist pollutants.

57. Inland fisheries are primarily concerned with:
(A) Saltwater fish farming.
(B) Coral reef management.
(C) Oceanic fisheries management.
(D) The study and management of freshwater fish resources

58. Which of the following is a key challenge faced by inland fisheries?
(A) Overfishing and habitat degradation.
(B) Lack of suitable fish species.
(C) High seawater salinity.
(D) None of the above.

59. Which of the following is a key research area in marine biology?
(A) Plant growth in deserts.
(B) The study of coral reefs and their ecosystems.
(C) Pollution in inland waters.
(D) Microbial activity in freshwater

60. DNA fingerprinting is used to:
(A) Sequence genes for analysis.
(B) Identify individuals based on unique DNA patterns.
(C) Study the structure of DNA molecules.
(D) Modify genetic traits in organisms.

61. According to Mendel's Law of Segregation, what happens during gamete formation?
(A) Only one allele for each trait is inherited by each gamete.
(B) Two alleles for each trait are inherited by each gamete.
(C) Alleles for different traits always segregate together.
(D) None of the above.

62. Patau syndrome is caused by:
(A) Monosomy 13
(B) Trisomy 21
(C) Trisomy 18
(D) Trisomy 13

63. An example of codominance is:
(A) Red and white flowers producing pink flowers.
(B) Tall and short plants producing medium-height plants
(C) Blood group AB in humans.
(D) A dominant allele completely masking a recessive allele.

64. Which of the following is a genetic disorder in animals?
(A) Down syndrome
(B) Hemophilia
(C) Sickle cell anemia
(D) Bovine spongiform encephalopathy

65. Which of the following is a common symptom of Patau syndrome?
(A) Cleft palate
(B) Clubfoot
(C) Extra fingers
(D) a and c both

66. Which of the following is NOT a method used in Integrated Pest Management (IPM)?
(A) Crop rotation
(B) Natural predators
(C) Genetic modification of crops
(D) Excessive use of chemical pesticides

67. A significant result in an ANOVA test suggests:
(A) There is no difference between the groups.
(B) The data is normally distributed
(C) At least one group mean is significantly different from the others.
(D) The sample sizes are too small

68. Which of the following is an example of a bryophyte?
(A) Moss
(B) Pine tree
(C) Fern
(D) Sunflower

69. One of the key components of tissue engineering is:
(A) Cloning animals for organ transplants.
(B) Using stem cells to regenerate tissue.
(C) Growing plants for medicinal purposes.
(D) Isolating DNA for gene therapy.

70. The "half-life" of a drug refers to:
(A) The time it takes for the body to eliminate half of the drug.
(B) The time it takes for the drug to reach therapeutic levels.
(C) The time required for the drug to be metabolized.
(D) The time the drug remains effective in the body.

71. Pharmacokinetics studies the:
(A) Effect of drugs on the body.
(B) Absorption, distribution, metabolism, and excretion of drugs.
(C) Development of new pharmaceutical products.
(D) Interaction between drugs and their targets.

72. An example of a recombinant vaccine is:
(A) MMR vaccine
(B) Hepatitis B vaccine
(C) Polio vaccine
(D) Influenza vaccine

73. Emerging diseases such as wheat rust or avian influenza pose significant challenges to global agriculture and animal husbandry. With advances in biotechnology, how can gene editing technologies, like CRISPR, be used to combat these diseases?
(A) By creating genetically resistant crops and animals with enhanced immunity.
(B) By developing artificial vaccines for immediate disease prevention.
(C) By breeding diseases that are resistant to environmental stress.
(D) By eliminating harmful pathogens from ecosystems completely.

74. Non-native fish species have been introduced into India's freshwater systems to enhance fish farming. What are the ecological risks associated with introducing non-native species, and why is their regulation important?
(A) Non-native species may outcompete local species, leading to biodiversity loss.
(B) Non-native species increase the overall health of the ecosystem without any risks.
(C) Non-native species have no impact on local ecosystems and coexist peacefully.
(D) Non-native species are typically used to enhance the genetic traits of local fish varieties.

75. Which of the following best describes the role of the hypothalamus in this coordination?
(A) It directly controls muscle movements for voluntary actions.
(B) It serves as the link between the nervous and endocrine systems, regulating the release of hormones.
(C) It produces insulin to regulate blood glucose levels.
(D) It controls reflex actions and involuntary movements.

76. Bipedalism has had a profound effect on human anatomy, especially in terms of posture and gait. Which of the following skeletal adaptations is most critical for maintaining balance in bipedalism?
(A) The curvature of the spine to support upright posture.
(B) A shorter femur relative to the tibia for efficient locomotion.
(C) A larger cranial cavity for brain development.
(D) A wider rib cage for enhanced respiratory function.

77. What is the relationship between triglycerides and cholesterol in the bloodstream?
(A) Triglycerides and cholesterol are both transported by HDL.
(B) Triglycerides do not affect cholesterol levels in the body.
(C) High levels of triglycerides are often associated with higher levels of LDL and lower levels of HDL.
(D) Triglycerides convert into cholesterol when stored in the body.

78. The Crassulacean Acid Metabolism (CAM) pathway is primarily used by plants in arid conditions to conserve water. What is a major characteristic of the CAM pathway?
(A) CO_2 is fixed during the night and released during the day.
(B) It involves the separation of the light-dependent and light-independent reactions into two different cells.
(C) It is found only in aquatic plants.
(D) It occurs only in C3 plants to reduce photorespiration.

79. Which of the following is an example of tigmotropism?
(A) A plant bending towards light.
(B) A vine coiling around a support as it grows.
(C) A leaf opening in response to light.
(D) A plant root growing downward due to gravity.

80. Which of the following statements about photoperiodism in plants is true?
(A) Long-day plants flower when the day length is shorter than their critical period.
(B) Short-day plants flower when the day length exceeds their critical period.
(C) Plants do not respond to changes in day length but respond to temperature.
(D) Photoperiodism involves the plant's response to the timing of light and darkness, triggering flowering.

81. Which of the following is a key aspect of kin selection?
(A) It encourages animals to help others in their group, even if it reduces their own survival chances.
(B) It results in increased competition among family members for resources.
(C) It operates through the direct competition of different species.
(D) It is a strategy where only the individual's survival is prioritized over others.

82. What is a defining characteristic of the phylum Echinodermata?
(A) Radial symmetry in adult stages and bilateral symmetry in larvae.
(B) Exoskeleton made of chitin.
(C) Presence of a closed circulatory system.
(D) Lack of a nervous system.

83. Which of the following statements about heartwood is correct?
(A) Heartwood is the active part of the tree responsible for transporting water.
(B) Heartwood is formed by the accumulation of dead cells and serves primarily as structural support.
(C) Heartwood is lighter in color than sapwood.
(D) Heartwood contains more water and nutrients compared to sapwood.

84. The alternative oxidase (AOX) pathway bypasses which complex in the electron transport chain?
    (A) Complex I
    (B) Complex II
    (C) Complex III
    (D) Complex IV

85. Genetically modified microorganisms (GMMs) are often used in environmental biotechnology to enhance bioremediation processes. What is one potential risk associated with using GMMs in the environment?
    (A) They may outcompete natural microorganisms and disrupt ecosystems.
    (B) They require high temperatures to function, which increases energy consumption.
    (C) GMMs cannot survive in contaminated environments.
    (D) They are not effective in breaking down organic pollutants.

86. Which of the following biofuels is most commonly produced from the fermentation of plant biomass?
    (A) Ethanol
    (B) Methane
    (C) Butanol
    (D) Biodiesel

87. Benedict's test for reducing sugars, which of the following would indicate a positive result?
    (A) The solution remains blue
    (B) The solution turns red or orange
    (C) The solution turns yellow
    (D) d) No color change occurs

88. In an experiment to test for the presence of amino acids using Ninhydrin reagent, what color change would indicate a positive result?
    (A) Blue
    (B) Yellow
    (C) Purple or blue
    (D) Red

89. The term **proof** is used to measure the alcohol content in a beverage. If a liquid is 100 proof, what percentage of it is pure alcohol?
    (A) 50%
    (B) 100%
    (C) 25%
    (D) 75%

90. In the process of cheese production, what role do lactic acid bacteria play?
    (A) They help in the curdling of milk by producing acid.
    (B) They ferment lactose into glucose.
    (C) They convert fats into proteins.
    (D) They are responsible for adding flavor to the cheese during aging.

91. What is the primary function of rennet in this process?
    (A) It digests the lactose in milk.
    (B) It coagulates the milk proteins (casein) to form curds.
    (C) It enhances the flavor of the cheese during aging.
    (D) It helps in the separation of cream from milk.

92. Which of the following types of cholesterol is considered "good" because it helps remove excess cholesterol from the bloodstream?
    (A) Low-density lipoprotein (LDL)
    (B) High-density lipoprotein (HDL)
    (C) Very low-density lipoprotein (VLDL)
    (D) Triglycerides

93. In the life cycle of Wuchereria bancrofti, where do the adult worms live in the human body?
    (A) Heart
    (B) Liver
    (C) Lymphatic system
    (D) Brain

94. Which of the following is an example of a hydrophobic signaling molecule that binds to intracellular receptors to exert its effect?
    (A) Insulin
    (B) Adrenaline
    (C) Steroid hormones (e.g., cortisol)
    (D) Glucagon

95. The main purpose of tissue fixation in histology is to:
    (A) Stain the tissue for easier visualization
    (B) Preserve the tissue structure and prevent decomposition
    (C) Increase the size of tissue samples
    (D) Provide a medium for the tissue to grow

96. How long should tissues typically be fixed in formalin for adequate preservation?
    (A) 1-2 hours
    (B) 2-3 days
    (C) 4-24 hours
    (D) 1 week

97. In a quadrupole mass spectrometer, the primary function of the quadrupole is to:
    (A) Ionize the sample
    (B) Separate ions based on their mass-to-charge ratio (m/z)
    (C) Accelerate the ions
    (D) Detect the ions

98. What is the major advantage of using GC-MS for analyzing complex mixtures?
(A) It provides both qualitative and quantitative data.
(B) It only detects the most abundant compounds.
(C) It can analyze non-volatile samples.
(D) It only requires a small sample volume.

99. World Environment Day is celebrated annually on which date?
(A) March 22
(B) April 7
(C) June 5
(D) d) December 15

100. What is the full name of **NCBI**?
(A) National Cancer and Biotech Institute
(B) National Center for Biomedical Informatics
(C) National Center for Biotechnology Information
(D) National Chemical and Biotech Institute

ROUGH WORK

ROUGH WORK

ROUGH WORK