PART – A

1. From the words given below, which word will come last in alphabetical order ?
   A) Regard
   B) Refer
   C) Remind
   D) Report

Direction Q. 2 : A foreign expression and four English phrases are given. Identify the meaning of the foreign expression from the choices.

2. via media
   A) Medium of instruction
   B) A mediator
   C) Bypass someone
   D) A middle course

Direction Q. 3 : Identify the meaning of underlined word as used in the sentence, from among four alternatives.

3. In our system of education, homework is <u>imperative</u>.
   A) unnecessary
   B) a handicap
   C) authorized
   D) compulsory

Direction Q. 4 : An idiom and four possible meanings are given, identify the meaning of the idiom from among the answer choices.

4. The bottom line
   A) the trick
   B) the most important factor
   C) the secret
   D) ignorance

Direction Q. 5 : Fill in the blanks in the given sentence to make it logically and grammatically correct.

5. _____ 15, Anthony left school and found a job in a factory.
   A) By
   B) At
   C) Since
   D) In

Direction Q. 6 : A sentence is written in four different forms. Only one of them is grammatically correct. Choose the correct sentence as your answer.

6. A) We don't have any money to spend on luxury things.
   B) We don't have any money to spend on luxuries.
   C) We don't have no money to spend on luxury things.
   D) We don't have any money to spend on things with luxury.

Direction Q. 7 : Four alternative substitutes are given for the underline portion. Identify the choice that replace the underline part to form a logical and grammatically correct statement.

7. I have come to Kashmir not to work <u>but to enjoy</u>.
   A) but to enjoy with the beautiful scenery
   B) but to enjoy myself
   C) but to enjoying the beautiful scenery
   D) but to enjoy

Direction Q. 8 : A word and four jumbled choices are given. One of the choices, when properly arranged, give the meaning of the word. Identify the correct choice.

8. AIM
   A) NETIOTNIN   B) ETTILL   C) EATRX   D) PYAHP

Direction Q. 9: From the choices, select the most suitable synonym for the main word.

9. RECKON
   A) repose   B) confirm   C) understand   D) regain

Direction Q. 10 : From the choices, select the most suitable antonym for the main word.

10. REPLETE
    A) profuse   B) wanting   C) lavish   D) glutted

Direction Q. 11 : There is a certain relation between two given words on one side of : : and one word is given on another side of : : while another word is to be found from the given alternatives, having the same relation with this word as the given pair has. Select the best alternative.

11. Car : Garage : : Aeroplane : ?
    A) Port   B) Depot   C) Hanger   D) Harbour

Direction Q. 12 : There is a certain relation between two given numbers on one side of : : and one number is given on another side of : : while another number is to be found from the given alternatives, having the same relation with this number as the given pair has. Select the best alternative.

12. 121 : 12 : : 25 : ?
    A) 1   B) 2   C) 6   D) 7

Direction Q. 13 : In the given question, four words have been given, out of which three are alike in some manner and the fourth one is different. Choose out the odd one.

13. A) Apple   B) Mango   C) Potato   D) Orange

Direction Q. 14 : In the given question, four numbers are given. Out of these, three are alike in a certain way but the rest one is different. Choose the one which is different from the rest three.

14. A) 15   B) 21   C) 24   D) 28

Direction Q. 15 : In the given question, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern.

15. 2, 5, 9, (____), 20, 27
    A) 14   B) 16   C) 18   D) 24

16. If in a certain language, FASHION is coded as FOIHSAN, how is PROBLEM coded in that code ?
    A) ROBLEMP   B) PELBORM   C) PRBOELM   D) RPBOELM

17. Which of the following diagrams correctly represents Languages, French, German ?
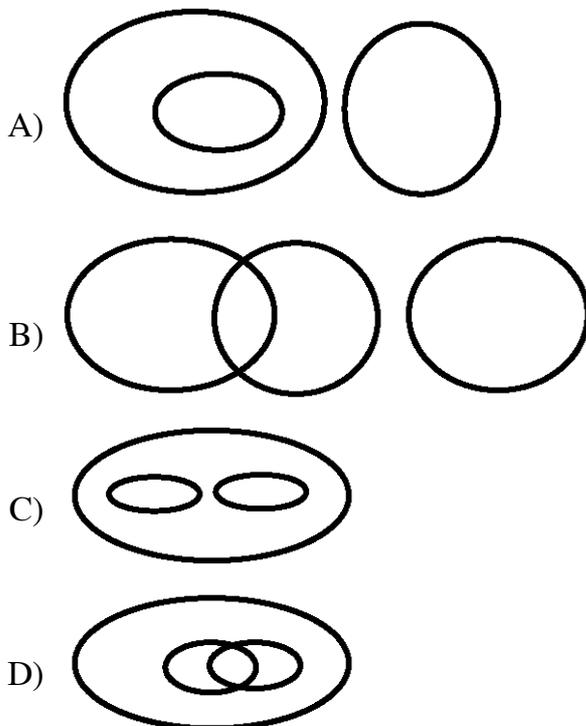
18. If P denotes ÷, Q denotes ×, R denotes + and S denotes –, then

    18 Q 12 P 4 R 5 S 6 = ?
    A) 36   B) 53   C) 59   D) 65

19. If 76 is divided into four parts proportional to 7, 5, 3, 4, then the smallest part is
    A) 12   B) 15   C) 16   D) 19

20. 36 men can complete a piece of work in 18 days. In how many days will 27 men complete the same work ?
    A) 12   B) 18   C) 22   D) 24

21. ROM is composed of
    A) Magnetic Cores   B) Microprocessors
    C) Photoelectric Cells   D) Floppy Disks

22. ASTROSAT is
    A) Indian Mission to Moon   B) Indian Mission to Jupiter
    C) Indian Space Observatory   D) Indian Communication Satellite

23. The theme of the National Youth Day-2017 was
    A) Youth for Change   B) Youth for Sustainable Development
    C) Youth for Digital India   D) Youth for Entrepreneurship

24. Kuchipudi is a dance originating from which of the following States ?
    A) Tamil Nadu   B) Telangana   C) Kerala   D) Andhra Pradesh

25. 'NAKSHE' is a Web Portal launched by
    A) Archeological Survey of India   B) Survey of India
    C) Geological Survey of India   D) Botanical Survey of India

26. Law of conservation of mass is not applicable in
    A) Redox reactions   B) Electrochemical reactions
    C) Nuclear reactions   D) All of the above

27. In laboratory, if acid is spilled on someone, what should be done ?
    A) Rinse with water   B) Inform the laboratory incharge
    C) Visit the physician   D) All of the above

28. Which of the following is not the general characteristic of good writing ?
    A) Simple   B) Use of short sentences
    C) Deliberate use of complex words   D) Flow in the text

29. What is/are the driving force(s) for research ?
    A) Search for solution to a problem
    B) Enhancement of knowledge in a specific field
    C) Recognition of work
    D) All of the above

30. Text books are generally protected by following intellectual property
    A) Copyright   B) Patent
    C) Industrial design   D) Geographical indication

31. If a class of 40 students is consisted of 20 students of age of 19 years, 08 students of age of 20 years and 12 students of 25 years, the average age of class comes out to be
    A) 21.3 years   B) 21 years
    C) 19 years   D) 22 years

32. The pH of a buffer is generally derived from
    A) Henderson–Hasselbalch equation   B) de-Broglie's equation
    C) Poiseuille's law   D) Newton's law

33. Which kind of research exclusively deals with numeric data ?
    A) Qualitative   B) Quantitative
    C) Both   D) None

34. Which portion of the thesis or dissertation, generally is the last section ?
    A) Literature review   B) Methods
    C) Conclusion   D) Results

35. Which is the correct answer for 1.00 + 2.149 + 4.1 ?
    A) 7.249   B) 7   C) 7.2   D) 7.3

36. The volume of a fluid is never expressed in
    A) dm^3 B) L   C) Gallons   D) Pounds

37. Which of the following is not a method for data collection ?
    A) Interviews   B) Schedules
    C) Questionnaires   D) None of the above

38. Which of the following equipments is used to quantitatively suck liquids in laboratories ?
    A) Pipettes   B) Beakers   C) Test tubes   D) Clamps

39. Which of the following instruments is not used in physics laboratory ?
    A) Dissection box   B) Vernier caliper
    C) Young's Modulus Apparatus   D) None of the above

40. Turmeric becomes _____ in presence of soap/detergent solution.
    A) Green   B) Black   C) Red   D) Yellow

41. Which of the following is an unethical act ?
    A) Plagiarism   B) Innovation   C) Honesty   D) Dedication

42. Which of the following equipments is employed to visualize the eukaryotic cells ?
    A) Telescope   B) Microscope   C) NMR   D) FT-IR

43. Which of the following chemicals is not a commodity of daily use ?
    A) Hydrogen oxide   B) Sodium chloride C) Sucrose   D) Nitric acid

44. Which of the following arrangements is correct ?
    A) $Km > \mu m > mm > cm$ B) $Km > cm > mm > \mu m$
    C) $Km > mm > cm > \mu m$ D) $Km > \mu m > cm > mm$

45. Citric acid is present in
    A) Sugar cane   B) Sun light   C) Lemon   D) Potato

46. Which of the following is not a bacterium ?
    A) Salmonella   B) Yeast   C) E. Coli   D) Both (B) and (C)

47. Which of the following is not a laboratory safety device ?
    A) Lab coats   B) Goggles
    C) Gloves   D) None of the above

48. Wavelength of visible rays is
    A) 400 μm to 700 μm   B) 400 nm to 700 nm
    C) 40 mm to 70 mm   D) None of the above

49. Which of the following is not related to volumetric titrations ?
    A) Concordant volume   B) Indicator
    C) Burette   D) Bunsen burner

50. The increase in temperature of an incubator was read as 12º C, the change in temperature is equal to
    A) 285 K   B) 12 K   C) 53.6º F   D) None of the above

PART – B

51. Iodine is generally used to visualization of unsaturated and aromatic compounds in sample by using Thin Layer Chromatography (TLC). The spots appear after using iodine are
    A) Dark purple
    B) Black
    C) Brown
    D) None of the above

52. Ammonium sulphate is used to increase _____ between the solute and the stationary phase.
    A) Ionic interaction
    B) Affinity
    C) Hydrophobic interaction
    D) None of the above

53. Water softening, a process of preparation of high purity water, is generally well known application of
    A) High pressure liquid chromatography
    B) Good chromatography
    C) Adsorption chromatography
    D) Ion-exchange chromatography

54. Only those substances that vaporize and stable up to at a specific temperature, can be measured by quantitatively by GC at
    A) <300° C
    B) >300° C
    C) 300° C
    D) None of the above

55. According to Beer Lambert's law, when a parallel beam of monochromatic light passes through a liquid medium, the amount of light that is absorbed is directly proportional to
    A) Conc. of the liquid medium
    B) Conc. of the sample
    C) Density of the liquid medium
    D) Both (A) and (B)

56. When the power of objective lens is 20X and power of the ocular lens is 10X, the magnification is
    A) 200X
    B) 20X
    C) 2000X
    D) 10X

57. _____ is the ability to reveal closely adjacent points as separate and distinct.
    A) Magnification
    B) Resolution
    C) Numerical Aperture
    D) None of the above

58. XRD is a
    A) Constructive technique
    B) Destructive technique
    C) Non-destructive technique
    D) Interference technique

59. Analytical Ultracentrifugation technique is used to determine
    A) Molecular size and shape
    B) Sedimentation coefficient
    C) Density and frictional coefficient
    D) All of the above

60. In reference to Light, the distance from one peak to another peak is called
    A) Frequency
    B) Wavelength
    C) Speed
    D) Velocity

61. Isopycnic point
    A) Where the density of the solution equal to density of the particle
    B) Where the particle stop moving
    C) Both (A) and (B)
    D) None of these

62. In Rocket Immunodiffusion the length of the rocket is
    A) Proportional to the amount of antibody placed in each well
    B) Inversely proportional to the amount of antibody placed in each well
    C) Inversely proportional to the amount of antigen placed in each well
    D) Proportional to the amount of antigen placed in each well

63. Which one is not a free radical ?
    A) Superoxide
    B) Ozone
    C) Hydrogen peroxide
    D) Singlet oxygen

64. _____ is an endogenous antioxidant of non enzymatic origin.
    A) Superoxide dismutase
    B) Catalase
    C) Ascorbic acid
    D) Glutathione peroxidase

65. Haber Weiss reaction includes
    A) $H_2O_2 + O_2 -> OH^. + OH^-$
    B) $H_2O_2 + O_2^. -> OH^. + OH^-$
    C) $H_2O_2 + Fe^{+2} -> OH^. + OH^-$
    D) $H_2O_2 + Cu^{+2} -> OH^. + OH^-$

66. $H_2O_2 -> 2 H_2O + O_2$ in mitochondria is primarily due to
    A) GSHPx
    B) GR
    C) Glutathione
    D) All of the above

67. ABA is mainly synthesized in
    A) Chloroplast
    B) Mitochondria
    C) Cytosol
    D) ER

68. Cynogenic glycosides is a
    A) Nitrogen containing compound with sugar
    B) Without nitrogen as a part of heterocyclic ring
    C) Phenolics
    D) Sugars with adenine

69. Shikimic acid pathway leads to formation of
    A) Phenolics   B) Phenolics and aromatic amino acids
    C) Terpenes   D) Terpenes and phenolics

70. An amino acid which regulate phenolics biosynthesis is
    A) Tyrosine   B) Tryptophan   C) Methionine   D) Phenylalanine

71. Artimisinin is a
    A) Monoterpene   B) Sesquiterpene   C) Diterpene   D) Triterpene

72. Azetidene-2 carboxylic acid is a representative of
    A) Phenolics   B) Alkaloids
    C) Terpene   D) Non protein amino acid

73. "Law of Tolerance" was proposed by
    A) Carl Sprengel   B) F F Blackman   C) V E Shelford   D) J V Liebig

74. Which of the following is floating hydrophyte ?
    A) Salvinia   B) Eichhornia
    C) Both (A) and (B)   D) None

75. *Cuscuta* is an example of
    A) Mutualism   B) Commensalism   C) Parasitism   D) Predation

76. The term "Niche" was first time used by
    A) Joseph Grinnel   B) Charles Elton   C) Kendeigh   D) Hutchinson

77. The concept Multidimensional/Hypervolume niche was given by
    A) Joseph Grinnel   B) Charles Elton   C) Kendeigh   D) Hutchinson

78. Each species adopts a pattern of resource usage without any competition is called
    A) Niche breadth   B) Resource partitioning
    C) Character displacement   D) Niche overlap

79. Radiation largely absorbed by the ozone layer in the stratosphere is
    A) Infrared   B) Visible   C) Ultraviolet   D) X-ray

80. *Takakia* is a
    A) Pteridophyte   B) Bryophyte   C) Gymnosperm   D) Angiosperm

81. Cercinate vernation is found in
    A) Cycas   B) Fern
    C) Both (A) and (B)   D) None

82. How does the mismatch repair system distinguish between the parental (i.e. correct) DNA strand and the newly synthesized strand containing the mismatched base ?
    A) Thymine in the parental strand of the helix is methylated at GATC
    B) Thymine in the new strand of the helix is methylated at GATC
    C) Guanine in the parental strand of the helix is methylated at GATC
    D) Guanine in the new strand of the helix is methylated at GATC

83. Which of the following statements about DNA structure is correct ?
    A) Stacked base pairs of DNA interact by Van Der Waal's interactions
    B) The A form of DNA is the form usually found in cells
    C) The diameter of the DNA double helix (B form) is 10 nm
    D) The DNA double helix is left handed

84. In *E. coli*, inactivation of DNA cellular DNA methylase enzyme causes severe mutation in the genomic DNA. Which of the following DNA repair mechanism would be most probably inhibited ?
    A) Double strand break repair   B) Mismatch repair
    C) Base excision repair   D) Nucleotide excision repair

85. The main difference between NER and BER is
    A) In NER double strand breaks are repaired where as in BER single strand breaks are repaired
    B) NER is a light dependent reaction whereas BER is light independent process
    C) In NER phosphodiester backbone is first cleaved whereas in BER phosphodiester backbone is cleaved later
    D) All of these

86. In bacterial promoters, which of the following describes the 'Pribnow box' ?
    A) The 5' untranslated region   B) The -10 box
    C) The -35 box   D) The termination sequence

87. The role of the sigma factor in bacterial RNA polymerase is
    A) To catalyze RNA synthesis
    B) To position RNA polymerase correctly on the template DNA
    C) To terminate RNA synthesis
    D) To unwind the DNA template

88. In a Mendelian monohybrid cross, which generation is always completely homozygous ?
    A) F1 generation   B) F2 generation   C) F3 generation   D) P generation

89. Some plants fail to produce chlorophyll, and this trait appears to be recessive. If we locate a plant that is heterozygous for this trait, self-pollinate it and harvest seeds, what are the likely phenotypes of these seeds when they germinate ?

    A) All will be green with chlorophyll since that is the dominant trait

    B) All will be white and lack chlorophyll since this is self-pollinated

    C) About one-half will be green and one-half white since that is the distribution of the genes in the parents

    D) About one-fourth will be white and three-fourths green since it is similar to a monohybrid cross

90· In Drosophila, singed bristles (sn) and carnation eyes (car) are both caused by recessive, X-linked alleles. The wild-type alleles (sn+ and car+) are responsible for straight bristles and red eyes, respectively. A sn car female is mated to a sn+ car+ male and the F1 progeny are interbed. The F2 are distributed as follows :

sn car	55
sn car+	45
sn+ car	45
sn+ car+	55
Total	200

    What is the value of X2 for a test of the hypothesis that the sn and car genes are unlinked ?

    A) 0.5   B) 1.0   C) 2.0   D) 0.4

91. The pairwise map distances for four linked genes are as follows : A-B = 22m.u., B-C = 7 m.u., C-D = 9 m.u., B-D = 2 m.u., A-D = 20 m.u., A-C = 29 m.u. What is the order of these four genes ?

    A) ABCD   B) ADBC

    C) ABDC   D) BADC

92. In humans, the genes for red-green color blindness (R = normal, r = color-blind) and hemophilia A (H = normal, h = hemophilia) are both X-linked and only 3 map units apart. Suppose a woman has four sons, and two are color-blind but have normal blood clotting and two have hemophilia but normal color vision. What is the probable genotype of the woman ?

    A) HR/hr   B) Hr/hr

    C) hr/hR   D) Hr/hR

93. Some of the larger human chromosomes typically contain multiple chiasmata during meiotic prophase. If you were to carefully study the distribution of these chiasmata, what would be your opinion ?
    A) Chiasmata are randomly distributed along chromosomes
    B) All chromosome pairs have the same number of chiasmata
    C) A single chromosome pair always has the same number of chiasmata in every meiotic cell
    D) Chiasmata are spaced along a chromosome arm more regularly than would be expected by chance

94. Mutation caused by a base substitution that causes regular codon to change in to another codon that codes for different amino acid is said to be
    A) Nonsense mutation   B) Silent mutation
    C) Missense mutation   D) None of the above

95. Normally DNA has A-T, G-C pairing. However, these bases can exist in alternative valency status, owing to rearrangements called
    A) Point Mutations   B) Frameshift mutations
    C) Analogue substitutions   D) Tautomerisational substitution

96. A wild-type chromosome can be represented as ABC * DEFGH, and from this a chromosomal aberration arises that can be represented AED * CBFGH. This is known as (* = centromere)
    A) Deletion   B) Pericentric inversion
    C) Translocation   D) Paracentric inversion

97. A female mouse has been identified in which the vast majority of active X chromosomes were inherited from her father. Which of the following statements may explain this ?
    A) The TsiX allele inherited from her father is particularly weak
    B) The Xce allele inherited from her father is particularly weak
    C) The Xic region is missing from the chromosome inherited from her father
    D) The Xist allele inherited from her father is particularly strong

98. PGA as the first CO_2 fixation product was discovered in photosynthesis of
    A) Alga   B) Bryophyte   C) Gymnosperm   D) Angiosperm

99. The primary form of sugar transported from the site of photosynthesis to the rest of the plant is
    A) Glyceraldehyde 3-phosphate   B) Fructose
    C) Glucose   D) Sucrose

100. Which one of the following doesn't play any role in photosynthesis ?
    A) Phycocyanin   B) Xanthophylls   C) Phycoerythrin   D) Anthocyanin

_____

SPACE FOR ROUGH WORK