PART – A

1. Arrange the given words in alphabetical order and choose the one that comes second.
   A) Explosion   B) Emergency   C) Ecstasy   D) Eager

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

2. esprit de corps
   A) Eternal truth   B) Pertaining to the senses
   C) Similar feeling shared by the group   D) Linguistic group

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

3. In Maharashtra the <u>turmoil</u> in the education system has percolated right down to the preprimary level.
   A) State of confusion   B) State of uproar
   C) State of negligence   D) State of change

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

4. A bird's- eye view
   A) without care   B) within the walls
   C) an overall view   D) out of place

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

5. _____ about nine month ago, john was in excellent health.
   A) Until   B) In   C) At   D) As

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

6. A) Everyone of the students have produced his identity card.
   B) Everyone of the students has produced his identity card.
   C) Everyone of the student has produced his identity card.
   D) Everyone of the students have produced their identity card.

Direction : 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. My friend asked me <u>when had I completed my work</u>.
   A) when I will have complete my work   B) when had I completed my work
   C) when I had completed my work   D) I would have my work completed

Direction : 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. DAMAGE
   A) CLOCLET   B) UNIJRY   C) TEOTLRAE   D) AEDMND

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

9. DETER
   A) distract
   B) suppress
   C) discourage
   D) contaminate

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

10. EXPEDIENT
    A) necessary
    B) harmful
    C) relevant
    D) imprudent

Direction : 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. Clock : Time : : Thermometer : ?
    A) Heat
    B) Radiation
    C) Energy
    D) Temperature

Direction : 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. 1 : 1 : : 25 : ?
    A) 26
    B) 125
    C) 240
    D) 625

Direction : 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) Chair
    B) Bench
    C) Table
    D) Stool

Direction : 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) 10
    B) 26
    C) 24
    D) 21

Direction : In the given question, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern.
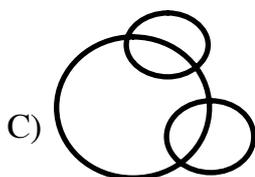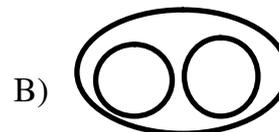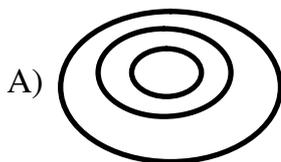
15. 2, 3, 5, 7, 11, (…), 17
    A) 12
    B) 13
    C) 14
    D) 15

16. If in a certain language, MONKEY is coded as XDJMNL, how is TIGER coded in that code ?
    A) QDFHS
    B) SDFHS
    C) SHFDQ
    D) UJHFS

17. Which of the following diagrams correctly represents Carrot, Food, Vegetable ?

18. If × means ÷, – means ×, ÷ means + and + means –, then

    (3 – 15 ÷ 19) × 8 + 6 =?
    A) 8 B) 4 C) 2 D) –1

19. If Mary was 32 years old 8 years ago, how old was she, x years ago ?
    A) x-40 B) x-24 C) 40-x D) 24-x

20. If one third of one fourth of a number is 15, then three tenth of that number is:
    A) 35 B) 36 C) 45 D) 54

21. Choose the odd one

    A) Throw down the gauntlet: UN peace keeping

    B) In the altogether: Bath tub

    C) The halcyon days: Childhood

    D) The real McCoy: Darjeeling Tea

22. If A : B = 2 : 3 , B : C = 4 : 5 and C : D = 6 : 7, then A : B : C : D is equal to

    A) 16 : 22 : 30 : 35   B) 16 : 24 : 15 : 35

    C) 16 : 24 : 30 : 35   D) 18 : 24 : 30 : 35

23. A speed of 14 meters per second is the same as
    A) 28 km/hr B) 46.6 km/hr C) 50.4 km/hr D) 70 km/hr

24. The Kane Wildlife Sanctuary is located in the State of

    A) Madhya Pradesh   B) Arunachal Pradesh

    C) Uttrakhand   D) Bihar

25. Four States in India will jointly conduct elephant census using direct and indirect methods. These States are

    A) Uttar Pradesh, Uttrakhand, Jharkhand, Orissa

    B) Uttar Pradesh, West Bengal, Orissa, Jharkhand

    C) Jharkhand, Orissa, West Bengal, Chhattisgarh

    D) Madhya Pradesh, Uttar Pradesh, Jharkhand, Orissa

26. What is self-plagiarism ?
    A) It's when authors claim other ideas as their own
    B) Rephrasing the word of some other author without citing
    C) Failing to cite the source of information that was used in a work
    D) It's when authors present their previously published work as a new contribution

27. Which one of the following applications is best suited for plotting and analysis on computers ?
    A) Spreadsheet application   B) Word processor
    C) Presentation application   D) Photo editing application

28. Which one of the following parts of a computer is a memory storage device ?
    A) RAM　　　　　　B) CPU　　　　　　C) Mother Board　D) Wifi Card

29. A researcher records the blood group from many patients. To which data type does this data collected fall under ?
    A) Binary　　　　　B) Categorical　　　C) Count　　　　D) Ordinal

30. Which one of the following is not an operating system ?
    A) Microsoft Windows　　　　　　　B) Linux
    C) Ubuntu　　　　　　　　　　　　D) Microsoft Word

31. Which one of the following is correct ?
    A) C++ is an operating system　　　B) C++ is a programming language
    C) C++ is an internet protocol　　　D) C++ is a machine language

32. Which one of the following journals is very likely to be the one with high standards of publishing ?
    A) Journals with a large number of pages　B) Journals with a high impact factor
    C) Journals with online version　　　　　D) Journals without peer review

33. Which one of the following parameters is widely used to judge the citation impact of a scholar ?

    A) TRP rating
    B) h-index
    C) Number of articles he/she has published
    D) Number of awards the scholar has won

34. An open access journal is one
    A) in which one does not have to pay to read articles
    B) in which one does not have to pay to submit articles
    C) in which the articles can be modified and resubmitted by anyone
    D) which does not require a login but one is required to pay to read articles

35. The outcome of an experiment is Boolean-valued. Which probability distribution will the observations very likely follow ?
    A) Binary　　　　　B) Poisson　　　　C) Binomial　　　D) Gaussian

36. The probability distribution for a random error that is as likely to move the value in either direction is called
    A) Poisson distribution　　　　　　B) Gaussian distribution
    C) Levy distribution　　　　　　　D) Hermite distribution

37. Random errors in experimental studies can be reduced by
    A) Repeating experiments and carrying out statistical analysis
    B) reducing mistakes made in calculations
    C) ensuring proper calibration of instruments
    D) by reducing the time to carry out the experiments

38. The length of an object is 5.0 cm. Researcher 'A' makes measurement of the length and reports a mean of 4.9 cm with an error of 0.2 cm. Researcher 'B' makes a similar measurement and reports a mean of 3.00 cm with an error of 0.02 cm. What conclusions about the measurements can you derive from these statements?
    A) Measurements of both A and B are precise
    B) Measurements of B is accurate but not as precise as A
    C) Measurements of A is accurate but not as precise as B
    D) Measurements of both A and B are accurate

39. An experimentalist reports the value of his measurements of the height of an object. Which one of the following is the correct way of quoting the results ?
    A) $15 : 00 - 1: 23$ cm   B) $15: 00 -1 : 23$ cm
    C) $15 : 0 - 1 : 23453$ cm   D) $15 : 000 - 1 : 23$ cm

40. If a dependent variable x is related to a measured quantity m by the relation $x = m+a$, where a is a constant, then the relative error in x is given by

    A) $\dfrac{\sigma m}{a}$ B) $\dfrac{\sigma m}{m}$ C) $\dfrac{\sigma m}{m+a}$ D) $\dfrac{\sigma m}{ma}$

41. Approximately, what percentage of the measurements in a Gaussian distribution will fall within -1 standard deviation ?
    A) 90 %   B) 68 %   C) 99 %   D) 50 %

42. The function $y = ax^k$, where a and k are constants, when plotted on a log-log graph will yield a
    A) Parabola   B) Straight line
    C) Exponential curve   D) Logarithmic curve

43. The graph below shows the percentage of candidates qualifying an examination over a 7 year period. In which pair of years the number of qualified candidates was the same ?
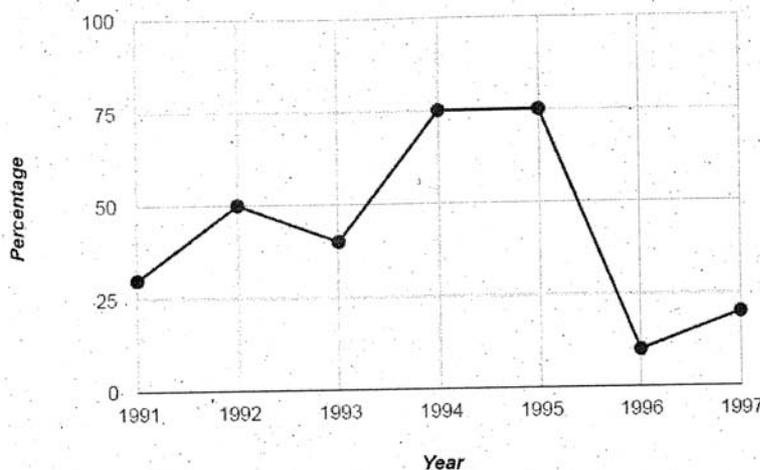
    A) 1994 and 1995
    B) 1996 and 1997
    C) 1993 and 1994
    D) The data in the graph is inadequate to conclude

44. In a histogram, if the bin width is set to a very large value,
    A) all small scale features and fluctuations will be lost
    B) all small scale features and fluctuations will be prominent
    C) No information is lost in all cases
    D) The height of the histogram will become bigger

45. Consider the data points in the table below. Which fitting function would be most appropriate to describe this trend ?

x	y
0	0
10	102
20	398
30	899
40	1598

    A) Linear   B) Exponential
    C) Second order polynomial   D) Gaussian

46. A hypothesis is
    A) a proposition considered as a starting point based on the limited knowledge
    B) a fact assumed to be true without proof
    C) a logical conclusion based on evidences and can always be proved correct using experiments
    D) a corollary to a theorem

47. A null hypothesis in statistical testing is
    A) one which is not used for statistical testing
    B) the hypothesis that there is no statistically significant differences between specified observations
    C) an invalid hypothesis
    D) the hypothesis that there is very large statistically significant differences between specified observations

48. Which one of the following methods is not used for statistical hypothesis testing
    A) Unit test   B) Z-test   C) Chi-squared test   D) F-test

49. Which one of the following should not be used in a journal article ?
    A) Personally identifiable information of human subjects
    B) Experimental setup or Theory
    C) Results and discussion
    D) References

50. The term multivariate analysis refers to
    A) the statistical procedure of analyzing one variable multiple times
    B) the statistical procedure of analyzing one variable by multiple experimentalists
    C) the statistical procedure of analyzing one variable by multiple methods
    D) the statistical procedure of analyzing more than one variable simultaneously

PART – B

51. LANDSAT 8 carries

    A) OLI (Operational Land Imager) only

    B) OLI (Operational Land Imager) and TIRS (Thermal Infrared Sensor)

    C) TIRS (Thermal Infrared Sensor) only

    D) Neither OLI (Operational Land Imager) nor TIRS (Thermal Infrared Sensor)

52. Indo-French joint mission to study water cycle and energy exchange in the tropics

    A) SARAL   B) GAGAN

    C) Megha-Tropiques   D) Jugnu

53. A healthy green vegetation has higher absorption in wavelength region of

    A) blue   B) green

    C) red   D) blue and red both

54. Which wavelength region is more suitable to investigate species diversity ?

    A) Near Infrared   B) Green

    C) Red   D) Blue

55. In satellite imagery wheat and corn crops have _____ and _____ texture, respectively.

    A) smooth, coarse   B) coarse, smooth

    C) smooth, smooth   D) coarse, coarse

56. Red edge is the steep increase in reflectance in the wavelength region roughly between

    A) 520 – 550 nm   B) 550 – 690 nm

    C) 690 – 730 nm   D) 490 – 520 nm

57. In short wave infrared region the leaf reflection is dominantly controlled by its

    A) chlorophyll content   B) water content

    C) cell structure   D) cuticle layer

58. Identify landform which is not associated with glacial activity

    A) cirque   B) moraine

    C) drumlin   D) barkhan

59. Glacial sediments and fluvial sediments are usually _____ and _____ , respectively.

    A) sorted, not sorted   B) not sorted, sorted

    C) not sorted, not sorted   D) sorted, sorted

60. River of India not forming delta at its mouth is
    A) Narmada   B) Cauvery
    C) Godavari   D) Mahanadi

61. Coral bleaching is an indicator of
    A) fall in sea level   B) global warming
    C) rise in sea level   D) decrease in ozone concentration

62. Monazite is an ore of
    A) thorium   B) uranium
    C) polonium   D) plutonium

63. MODIS stands for
    A) Modelled Resolution Imaging Spectroradiometer
    B) Moderate Resolution Imaging Spectroradiometer
    C) Medium Resolution Imaging Spectroradiometer
    D) Mixed Resolution Spectroradiometer

64. The eye of tropical cyclone usually has
    A) calm wind with nearly no cloud   B) intense wind with heavy rainfall
    C) intense wind but no rainfall   D) calm wind but heavy rainfall

65. Diurnal range of temperature are usually very high in
    A) Coastal region   B) Mountain region
    C) Island region   D) Desert region

66. Which one is not a payload of ISRO's Mangalyaan(MOM) Mission ?
    A) MSM(Methane Sensor for Mars)
    B) MENCA (Mars Exospheric Neutral Composition Analyser)
    C) MCC(Mars Colour Camera)
    D) OCM(Ocean Colour for Mars)

67. A narrow and shallow mobile zone of water witnessing continuous sedimentation and subsidence is called
    A) Anticline   B) Mesocline
    C) Geosyncline   D) Synclinorium

68. As per Rayleigh's criteria a surface is said to be smooth if
    A) $h < (\lambda / 8\cos\theta)$ B) $h = (\lambda / 8\cos\theta)$
    C) $h > (\lambda / 8\cos\theta)$ D) $h \geq (\lambda / 8\cos\theta)$

69. An hypothetical object which perfectly absorbs all radiations falling over it and re-emits entire absorbed energy is called

    A) green body   B) yellow body

    C) black body   D) red body

70. Cloud and snow can be differentiated using their reflectance in wavelength region of

    A) Near Infrared   B) Mid-Infrared

    C) Green   D) Red

71. The gap between reflectance of dry and moist soil will be maximum in wavelength region of

    A) Near Infrared   B) Mid-Infrared

    C) Green   D) Red

72. The range of available brightness values, which in the image correspond to the maximum range of Digital Numbers, is known as

    A) radiometric resolution   B) spatial resolution

    C) temporal resolution   D) spectral resolution

73. When in a multi spectral image analysis the colour of the target does not corresponds with its true colour, it is called

    A) True Colour Composite   B) False Colour Composite

    C) Single Colour Composite   D) Multi Colour Composite

74. Which one of the following is a data reduction technique ?

    A) Regression   B) Correlation

    C) ANOVA   D) PCA

75. Which one is wrongly matched ?

    A) GPS - USA   B) GLONASS - Russia

    C) Galileo - European Union   D) BeiDou - Japan

76. An example of discrete and continuous data are _____ and _____ , respectively.

    A) well, tank   B) temple, temperature

    C) temperature, elevation   D) road, tank

77. The process of stitching many small continuous image together to create an single image of larger area is called

    A) Layer stack   B) Mosaic

    C) Buffer   D) Mask

78. LIDAR is an optical means of measuring reflected light from distant objects to determine range, and from this information, to determine the position. LIDAR stands for

   A) Light Emitting Diode and Ranging

   B) Least Interference Detection and Ranging

   C) Light Detection and Ranging

   D) Low Incidence Detected and Ranging

79. A systematic transformation of graticules of three dimensional earth surface over two dimensional space is called

   A) Map Projection   B) Map Alignment

   C) Map Coordination   D) Map Orientation

80. Cadastral maps and atlas are _____ Scale and _____ Scale maps, respectively.

   A) small, large   B) large, small

   C) large, large   D) small, small

81. DEM (Digital Elevation Model) requires information pertaining to

   A) X and Y axis only   B) X and Z axis only

   C) Y and Z axis only   D) X, Y and Z axis

82. Internal coordinate system of a map or an aerial photo can be linked to a ground system of geographic coordinates is called

   A) Geoprocessing   B) Geofeaturing

   C) Georeferencing   D) Georouting

83. Chemical erosion will be most common in

   A) temperate region   B) frigid region

   C) humid tropical region   D) desert region

84. Satellite with Argos and Altika (SARAL) is an satellite jointly developed by ISRO and the French Space Agency CNES for _____ study.

   A) Oceanographic   B) Climate

   C) Cryosphere   D) Soil

85. AstroSat is the first dedicated Indian astronomy mission aimed at studying celestial sources in

   A) X-ray   B) Optical bands

   C) UV spectral bands   D) All the above three bands

86. Loess is a soil results from

   A) transport action of glacier

   B) transport action of wind

   C) transport action of river water

   D) transport action of marine water

87. Among bands of Landsat 8 which one is suitable for coastal and aerosol studies

   A) Band 1

   B) Band 2

   C) Band 3

   D) Band 4

88. Multi Spectral Instrument (MSI) of Sentinel-2 records data in

   A) 7 different bands

   B) 10 different bands

   C) 12 different bands

   D) 13 different bands

89. A standardised data always have its mean and standard deviation equal to
   _____ and _____ , respectively.

   A) 0, 1

   B) 0, 0

   C) 1, 1

   D) 1, 0

90. Wien's displacement law states that with the increase in temperature the peak of black body radiation shifts towards

   A) longer wavelength

   B) shorter wavelength

   C) remain constant

   D) sometime towards longer and sometimes towards shorter wavelength

91. The parallax effect is more noticeable for objects closer to the camera than objects located at distance from it

   A) statement is true

   B) closer object will witness less parallax

   C) both object will witness same parallax

   D) non is true

92. From the centre of the Earth towards its outer surface there are three dominant and contrasting layer of geomaterials called respectively

   A) crust, mantle and core

   B) core, mantle and crust

   C) mantle, core and crust

   D) mantle, crust and core

93. SCATSAT-1 is devoted to the study of

   A) mineral mapping

   B) oceanic resources

   C) vegetation study

   D) climate and environment

94. Which one is not a communication satellite ?

A) GSAT-1

B) INSAT-4B

C) EDUSAT

D) RISAT-2

95. Cartosat-2 is _____ While GSAT-18 is _____ , respectively.

A) sun synchronous, geosynchronous

B) sun synchronous, sun synchronous

C) geosynchronous, geosynchronous

D) geosynchronous, sun synchronous

96. El Nino and La Nina events are associated with a

A) warming and cooling of the central and eastern tropical Pacific ocean respectively

B) cooling and warming of the central and eastern tropical Pacific ocean respectively

C) high waves and low waves in the central and eastern tropical Pacific ocean respectively

D) low waves and high waves in the central and eastern tropical Pacific ocean respectively

97. Buffer is a

A) neighbourhood operation

B) overlay operation

C) merging operation

D) masking operation

98. Scatterometer

A) artificially helps in scattering

B) is a microwave radar sensor

C) is a visible range sensor

D) measures the ultraviolet scattering

99. The sequentially growing of different crops on same agricultural field, one after another, to naturally maintain soil fertility is called

A) crop rotation

B) crop combination

C) crop selection

D) crop diversification

100. Eutrophication of lakes leads into

A) decrease in dissolved plant nutrients and decrease in dissolved oxygen

B) decrease in dissolved plant nutrients and increase in dissolved oxygen

C) increase in dissolved plant nutrients and decrease in dissolved oxygen

D) increase in dissolved plant nutrients and increase in dissolved oxygen

_____

SPACE FOR ROUGH WORK