Correct Answers
PART A

1. Which among the following banks <u>is not</u> a nationalized bank of our country?
(A) Andhra Bank.
(B) Bank of Baroda.
(C) Karnataka Bank.
(D) Canara Bank.
(E) Vijaya Bank.

2. Which of the following latitudes passes through India?
(A) Equator.
(B) Tropic of Cancer.
(C) Antarctic Circle.
(D) Arctic Circle.
(E) Tropic of Capricorn.

3. The value of (10% of 20 + 20% of 10) is equal to-
(A) 30% of 20.
(B) 30% of 10.
(C) 20 % of 30.
(D) 10 % of 30.
(E) 10% of 40.

4. Which of the following statements is correct regarding the Chairman and members of the Karnataka Public Service Commission?
(A) They are appointed by the Governor of Karnataka but can be removed by the President of India.
(B) They are appointed by the Governor of Karnataka and can be removed by the Governor of Karnataka.
(C) They are appointed by the President of India and can be removed by the President of India.
(D) They are appointed by the President of India but can be removed by the Governor of Karnataka.
(E) Their tenure is for a period of five years from the date on which they are appointed.

5. What is the tenure of a member of the Legislative Assembly of Jammu and Kashmir State?
(A) 4 years.
(B) 5 years.
(C) 5.5 years.
(D) 6 years.
(E) 6.5 years.

6. If $2^a = 8^{(b + 1)}$ and $9^b = 3^{(a - 9)}$ the sum of the values of 'a' and 'b' will be-
(A) 29
(B) 27
(C) 25
(D) 23
(E) 21

7. Column 'X' below contains the produce of industry/plant and Column 'Y' the districts in Karnataka where the industry/plant exists or is found frequently. The correct matching of these will be-

COLUMN X	COLUMN Y
1. Nuclear Power	a. Mandya
2. Sugar	b. Chamarajanagar
3. Paper	c. Raichur
4. Thermal Power	d. Shimoga
	e. Uttar Kannada

(A) 1b   2e   3a   4c
(B) 1c   2e   3a   4b
(C) 1c   2b   3d   4e
(D) 1e   2a   3c   4d
(E) 1e   2a   3d   4c

8. Which of the following States falls in the western part of India?
(A) West Bengal.
(B) Rajasthan.
(C) Jharkhand.
(D) Odisha.
(E) Tamilnadu.

9. Which of the following five figures marked 'A' to 'E' is different from the rest?

   a   b   c   d   e
(A) a
(B) b
(C) c
(D) d
(E) e

10. Which of the following category of people who are Indian citizens cannot vote in an election to the State Legislature or to the Indian Parliament, even if they are registered in an electoral roll?
(A) Those who are transgender.
(B) Those who are in jails due to preventive detention under any law.
(C) Those who are lodged in jails as under trials.
(D) Those who are members of any of the armed forces of the country.
(E) Those who are candidates in the election in which they want to vote.

11. The monthly incomes of Alka and Babita are in the ratio of 7:3. Their monthly expenditures are in the ratio of 5:2. Each of the ladies is able to save Rs 300 every month. The difference between the monthly incomes of Alka and Babita is-
(A) Rs 2800.
(B) Rs 3600.
(C) Rs 4000.
(D) Rs 4400.
(E) Rs 4800.

12. What is the number of members that Karnataka can send to the Lok Sabha and Rajya Sabha?
(A) Lok Sabha 26 and Rajya Sabha 10.
(B) Lok Sabha 26 and Rajya Sabha 12.
(C) Lok Sabha 28 and Rajya Sabha 12.
(D) Lok Sabha 28 and Rajya Sabha 10.
(E) Lok Sabha 28 and Rajya Sabha 26.

13. A hostel has 150 students residing in it. Each student reads 5 different weekly news magazines. If eachnews magazine book is read by 30 students, what is the minimum total number of weekly news magazine books that need to be purchased for the hostel?
(A) Exactly 25 per week.
(B) Less than 20 per week.
(C) More than 30 per week.
(D) Exactly 20 per week.
(E) Exactly 30 per week.

14. In the figure shown below, a circle is inscribed in a scalene triangle.
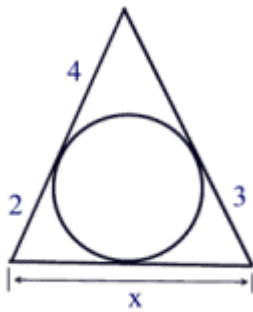
The value of 'x', the length of the base of the triangle is-
(A) 9 units.
(B) 8 units
(C) 7 units.
(D) 5 units.
(E) 4 units.

15. The mean and median of $x_1, x_2, x_3, \ldots\ldots\ldots\ldots, x_{99}$ were found to be 15 and 25 respectively. It was found that the largest value (x_{99})in the data was not 132 as taken in calculations, but 321. The correct mean and median will be-
(A) Mean more than 15 and Median more than 25.
(B) Mean more than 15 but Median equal to 25.
(C) Mean less than 15 but Median equal to 25.
(D) Mean less than 15 and Median less than 25.

(E) Nothing can be said until the entire data set is known.

16. Yash goes on his bicycle at constant speed to reach his village at 09:00 A.M. He calculates that if his speed would have been less by 2 Kms/hour, he would have reached at 11:00 A.M. and had his speed been more by 2 Kms/hour, he would have reached at 08:00 A.M. itself. What is the speed at which he had travelled to his village?
(A) 6 Kms/hour.
(B) 7 Kms/hour.
(C) 8 Kms/hour.
(D) 9 Kms/hour.
(E) 10 Kms/hour.

17. Column 'X' below contains the names of Governor-Generals of India and Column 'Y' their deeds/acts for which they are known for in history. The correct matching of these will be-

COLUMN X	COLUMN Y
1. Lord Dalhousie	a. Abolition of Sati
2. Lord William Bentick	b. Establishing High Courts
3. Lord Wellesley	c. Establishment of Police *thanas*(Police stations)
4. Lord Cornwallis	d. System of Subsidiary Alliance
	e. Doctrine of Lapse

(A) 1b   2e   3a   4c
(B) 1c   2e   3a   4b
(C) 1c   2b   3d   4e
(D) 1e   2a   3c   4d
(E) 1e   2a   3d   4c

18. Of the 100 people residing in a colony 50 go for morning walks and 25 for evening walks. 10 persons go for morning as well as evening walks. How many people do not go for any of the two walks?
(A) 15
(B) 20
(C) 25
(D) 30
(E) 35

19. The volume of a cube is 216 cubic cms. What will be its surface area?
(A) 288 square cms.
(B) 256 square cms.
(C) 216 square cms.
(D) 196 square cms.
(E) 144 square cms.

20. The average time between two consecutive high tides in the Arabian sea is about-
(A) 6.5 hours.
(B) 8.5 hours.
(C) 10.5 hours.
(D) 12.5 hours.
(E) 14.5 hours.

21. Why two private sector banks have merged recently?
(A) Kotak Mahindra Bank and Nainital Bank.
(B) Nainital Bank and HDFC Bank.
(C) HDFC Bank and Federal Bank.
(D) Federal Bank and ING Vysya Bank.
(E) ING Vysya Bank and Kotak Mahindra Bank.

22. Group the nine figures '1' to '9' below into three classes, following a rule, using each figure only once.
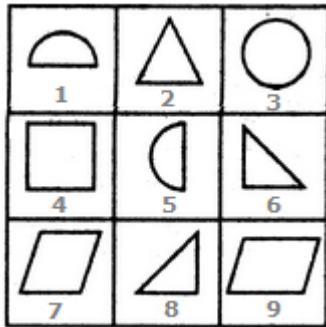
(A) (1,3,5) , (2,6,8) and (4,7,9)
(B) (1,3,5) , (2,6,9) and (4,7,8)
(C) (3,2,4) , (6,5,8) and (7,9,1)
(D) (3,2,4) , (1,6,8) and (5,7,9)
(E) (1,3,5) , (2,7,8) and (4,6,9)

23. Five friends A, B, C, D and E are facing north and standing in a line. C is standing immediately right of A. D is standing between B and E. E is standing between C and D. Who is standing in the centre of the line?
(A) A
(B) B
(C) C
(D) D
(E) E

24. The mean of the following data is-

Variable	1	3	4	5	7
Frequency	0	3	8	3	2

(A) 0.80
(B) 3.20
(C) 3.50
(D) 3.80
(E) 14.0

25. Fresh grapes are found to contain 90% water and 10% fruit, by weight. When fully sun-dried it is found to contain 10% water and 90% fruit, by weight. A stock of fresh grapes weighing 1000 kgs is fully sun dried. Its weight after full drying will be nearest to-
(A) 100 kgs.
(B) 111 kgs.
(C) 90 kgs.
(D) 99 kgs.
(E) More than 90 but less than 100 kgs.

26. A family consists of 8 adults and 4 children. If the average age of adults is 40 years and that of children 10 years, the average age of the family as a whole is-
(A) 18 years
(B) 20 years.
(C) 25 years.
(D) 30 years.
(E) 36 years.

27. The first two Kingdoms who used Kannada language in their administration are-
(A) Chalukya and Satvahana.
(B) Satvahana and Kadamba.
(C) Kadamba and Western Ganga.
(D) Western Ganga and Hoysala.
(E) Hoysala and Vijaynagara.

28. Which of the following statements is NOT CORRECT for the newly launched "*Pradhan Mantri Jan DhanYojna*"?
(A) Providing life insurance cover of Rs 30000 to the account holders.
(B) Providing accidental insurance cover of Rs 1 Lac to the account holders.
(C) Providing an overdraft facility of Rs 5000 after satisfactory operation of the account for six months available to only one member of the family.
(D) Providing credit cards, having a limit of Rs 50000, to account holders.
(E) Providing RuPay debit cards to account holders.

29. Anil starts a work and completes 7/10 of it in 10 days. Then he is joined by Charan. They finish the balance work in 3 days. If Anil and Charan had jointly done the work since the beginning, in how many days would they have completed the work?
(A) 10 days.
(B) 9 days.
(C) 8 days.
(D) 7 days.
(E) 6 days.

30. In a group of 9 persons sitting in a hall. Each person shakes hands with all others only once. No pair shakes hands twice. How many hand-shakes took place in the hall?
(A) 32
(B) 36
(C) 48
(D) 60
(E) 72

31. The correct order of increasing age of Indian mountains i.e. youngest first and oldest last is-
(A) Vindhyas, Himalayas, Western Ghats, Aravallis
(B) Himalayas, Vindhyas, Western Ghats, Aravallis.
(C) Vindhyas, Himalayas, Aravallis, Western Ghats.
(D) Himalayas, Vindhyas, Aravallis, Western Ghats.
(E) Western Ghats, Aravallis, Himalayas, Vindhyas

32. The difference between the compound interest and simple interest payable on an investment made for two years, with the rate of interest 4% per annum, is Rs 10. What is the amount invested?
(A) Rs 5000.
(B) Rs 6000.
(C) Rs 6250.
(D) Rs 6500.
(E) Rs 6750.

33. A farmer has a square field which he wire fences by fixing wooden poles in the ground at constant intervals. If along the east-west side 23 poles are seen and counted, what is the total number of wooden poles used in fencing the complete field?(The sides of the field are perpendicular and along the east-west, along west-north and so on.)
(A) 92
(B) 91
(C) 89
(D) 88
(E) 86

34. An old wall clock momentarily flashes a light five times at equal intervals at 05:00 P.M. The total timeelapsed between the first and fifth flash is 5 seconds. The time between the first and ninth flash of the Clock at 09:00 P.M will be-
(A) 9 seconds.
(B) 10 seconds.
(C) 8 seconds.
(D) 9.5 seconds.
(E) 8.5 seconds.

35. A, B and C sit to play a game. At the starting, A had 'a' rupees, B had 'b' rupees and C had 'c' rupees with them. First A gave 'b' rupees to B. Then B gave C an amount of 'c' rupees. After this, C gave A an amount, equal to what A was left with him. Now all count their money. It is found that- (1) A had an amount of 'a' rupees with him, and (2) The amounts in the hands of B and C are equal.What is the ratio 'a': 'b': 'c'?
(A) 4:1:2
(B) 2:4:1.
(C) 1:1:2.
(D) 4:2:1.
(E) 2:1:1.

Information for answering questions 36 and 37
A, B, C, D and E are five teachers in a School. A and B teach Kannada and English.
B and C teach English and Geography. A and D teach Maths and Kannada. B and E teach History and Tulu.
Based on these, please answer questions 36 and 37.
36. Which teacher is teaching the maximum number of subjects?
(A) A
(B) B
(C) C
(D) D
(E) E

37. Which subject is being taught by more than two teachers?
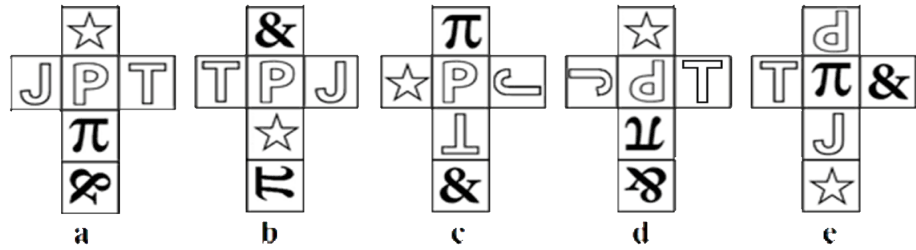(A) Kannada.
(B) Tulu.
(C) Geography.
(D) Maths.
(E) History.

38. In number series is given below, there is one term missing. Choose the alternative that will follow the series rule and fill the blank space.
3, 7, 15, 31, 63, 127, ____
(A) 196.
(B) 201.
(C) 255.
(D) 289.
(E) 343.

39. Which of the following two dimensional card cuts on the right can be folded to make the three dimensional hollow cube on the left?

(A) a
(B) b
(C) c
(D) d
(E) e

40. A drum full of oil weighs 100 Kgs. When half the oil is removed, its weight becomes 60 Kgs. If another half of the oil is removed, the drum (with oil filled in it) will weigh-
(A) 30 Kgs.
(B) 32.5 Kgs.
(C) 35 Kgs.
(D) 37.5 Kgs.
(E) 40 Kgs.

41. Which of the following titles conferred on Mahatma Gandhi by the British was surrendered by him during the Non-Cooperation movement?
(A) Kaiser-e-Hind.
(B) Right Honorable.
(C) Rai Bahadur.
(D) Raj Ratna.
(E) DewanBahadur.

42. The values in the data set 18, 20, 23, 29, a, (a + 2), 42, 44, 47 and 55 are in ascending order. The Median of the data set is 33. The value of 'a' is-
(A) 30.
(B) 31.
(C) 32.
(D) 33.
(E) 34.

43. Which of the following is not a fundamental right under the Constitution of India?
(A) Right to Education.
(B) Right to accept titles from foreign countries.
(C) Freedom of Speech.
(D) Equality before law.
(E) Freedom to profess any religion.

44. The age wise number of visitors to Ballari Zoo on 01st January 2015 is as in table below.

Age (in years)	0-10	10-20	20-30	30-40	40-50
Numbers visited	70	40	100	60	90

The mode of the age of visitors for that day is-
(A) 20 years.
(B) 22 years.
(C) 24 years.
(D) 26 years.
(E) None of the above..

45. From April 2014, inflation is measured on which of the following indexes in India?
(A) Production Price Index.
(B) Gross Domestic Product Index.
(C) Cost of Living Index.
(D) Wholesale Price Index.
(E) Consumer Price Index (Combined).

46. Which of the following statements is false about "*Bharatiya Mahila Bank*"?
(A) All employees of the bank are women.
(B) It is a commercial Bank.
(C) It is a nationalized Bank of India.
(D) It accepts deposits from men as well as women.
(E) It is lending mainly to women and companies that focus on women's activities/products.

47. Mahatma Gandhi's Dandi March started which of the following movements in history?
(A) Home Rule Movement.
(B) Non-Cooperation Movement.
(C) Civil Disobedience Movement.
(D) Khilafat Movement.
(E) Quit India Movement.

48. The alpha-numeric series given below is made following some rule.

Z __ 25 Y B 23 X C __ W __ 19 __ E 17

The four blanks can be correctly filled by-
(A) A, 27, C and V respectively.
(B) A, 21, D and V respectively.
(C) X, 27, C and V respectively.
(D) X, 21, D and V respectively.
(E) A, 21, D and U respectively.

49. If THEREFORE is coded as TEEOERFRH then HELICOPTER will be coded as-
(A) HOCPERTLIE
(B) HLREPCTOIE
(C) HLRPECTOIE
(D) HLCEPRTOIE

(E) HLCPERTOIE

50. Which of the following statements about Tipu Sultan is false?
(A) He gave annual grants to more than a hundred temples of his kingdom.
(B) He was a member of the Jacobian club located in Srirangapatna.
(C) He used rockets against the British in the wars of 1792 and 1799 with great effect.
(D) He considered the French to be an enemy worse than the British.
(E) He attempted to have a Navy on modern lines.

51. Which day every year has been chosen to be celebrated as "Good Governance day"
from last year?
(A) 25th December.
(B) 14th November.
(C) 31st October.
(D) 02nd October.
(E) 30th January.

52. Which of the following is wrongly matched for the 2013 State film awards announced in January 2015?
(A)   Best Actor- Nikhil Manju.
(B)   Best Movie- Jatta.
(C)   Best Actress- Nivedita.
(D)   Dr. PuttanaKanagal Award- P H Vishwanath.
(E)   DrRajkumar Award- Srinath.

53.   "Mission Indradhanush" launched in December 2014 aims to-
(A)   Promote music and dance amongst the rural youth of the country.
(B)   Propagate seven methods of water conservation in dryland farming.
(C)   Immunize all unvaccinated and partially vaccinated children to prevent them against seven diseases by the year 2020.
(D)   Provide scholarships to talented children studying in recognized music schools.
(E)   Promote Indian art and culture in countries abroad.

54.   The Bharatratna awardees announced in December 2014 is/are-
(A)   Atal Bihari Vajpayee.
(B)   Gobind Ballabh Pant.
(C)   Madan Mohan Malviya.
(D)   Atal Bihari Vajpayee and Gobind Ballabh Pant.
(E)   Atal Bihari Vajpayee and Madan Mohan Malviya.

55.   The theme of Indian government's calendar for 2015 which was released by the Information and Broadcasting Minister Shri Arun Jaitley is-
(A)   Sabka Saath SabkaVikas.
(B)   This year- Make in India.
(C)   India -Ever Forward.
(D)   Clean India Green India.

(E)   None of the above.

PART B

56. An inertial frame of reference is the frame-(A) moving with uniform velocity along a straight line.(B) moving with uniform acceleration along a straight line.
(C) moving with uniform speed in a circle.
(D) rotating about a fixed point or an axis.
(E) moving with uniform retardation along a straight line.

57. Shearing strain is a measure of-(A) Change in shape.(B) Change in length.
(C) Change in volume.
(D) Change in area.
(E) None of these.

58. In Joule - Thomson effect, for a given gas, at the temperature of inversion, the gas-
(A) Gets cooled.
(B) Gets heated.(C) Neither gets cooled nor heated.(D) Disappears.
(E) All the above.

59. A stone is thrown vertically upward. When it reaches the maximum height, its acceleration is-
(A) zero.(B) 'g' m/s^2.(C) more than 'g' m/s^2.
(D) dependent on its mass.
(E) none of these.

60. Carnot's cycle consists of-
(A) two isothermal and two adiabatic expansions.
(B) two isothermal and two adiabatic compressions.
(C) two isothermal expansions and two adiabatic compressions.
(D) two isothermal compressions and two adiabatic expansions.(E) none of these.

61. If V_E is the escape velocity on Earth, then escape velocity $V_P$ona planet having mass twice the mass of Earth and radius half that of the Earth is-
(A) $V_P = V_E$
(B) $V_P = (1/2)V_E$
(C) $V_P = 8V_E$
(D) $V_P = 4V_E$(E) $V_P = 2V_E$

62. A simple harmonic oscillator of frequency 50Hz shows a maximum displacement 20mm from its mean position. Then its velocity at the mean position will be-
(A) zero
(B) 12.57 cm/s
(C) 12.57 m/s
(D) 6.284 mm/s
(E) none of these

63. Power factor of a series L C R circuit at resonance is -(A) 1
   (B) 0.5
   (C) 0.25
   (D) 0.75
   (E) zero

64. At neutral temperature, the thermos-emf of a thermocouple is-
   (A) minimum.(B) maximum.(C) changes its direction.
   (D) becomes zero.
   (E) none of the above.

65. Polarization of light is the phenomenon concerned with-(A) electric field vectors of
   light.(B) magnetic field vectors of light.
   (C) both electric and magnetic field vectors of light.
   (D) neither electric nor the magnetic vectors of light.
   (E) none of the above.

66. A convex lens of power 5D is in contact with a concave lens of power 10D. The
   equivalent lens is-
   (A) convex lens of focal length 2m.(B) concave lens of focal length 0.2m.(C) convex lens of
   focal length 2cm.   (D)
   concave lens of focal length 0.2cm.
   (E) plano convex lens of focal length 2D.

67. Natural frequency of a Helmoltz resonator is-
   (A) directly proportional to V^2
   (B) directly proportional to V
   (C) inversely proportional to V^2 (D) inversely proportional to $V^{1/2}$
   (E) directly proportional to $V^{1/2}$

68. Plank's constant represents-(A) quantum of angular momentum.(B) quantum of linear
   momentum.   (C) quantum of
   energy.   (D)
   frequency.
   (E) all the above.

69. The AND gate gives the output-
(A) Only when inputs are low.
(B) Only when one of the inputs is low and the other is high.
(C) For any combination of inputs.
   (D) Only when the inputs are shorted.(E) Only when the inputs are high.

70. The Lagrangian and Hamiltonian of a system are 20 J & 30 J respectively, Then Kinetic
   and Potential Energies of the system are-(A) 25 J and 5 J respectively.(B) 5 J and 25 J

respectively.   (C) 25 eV and 5 eV respectively.   (D) 5eV and 25 eV
respectively.
(E) 600 J each.

71. Relation between Thevenin's resistance (R_{TH}) & Norton's resistance(R_{NOR}) of an
electrical network is-
(A) $R_{TH} > R_{NOR}$
(B) $R_{TH} < R_{NOR}$ (C) $R_{TH} = R_{NOR}$ (D) $R_{TH} = 2R_{NOR}$
(E) $R_{TH} = R_{NOR}/2$

72. Miller indices {h k l } of a crystal represents-
(A) set of intersecting planes.
(B) set of planes perpendicular to each other.
(C) set of planes in which atoms are missing.
(D) set of planes in which atoms are maximum.(E) none of the above.

73. A cricket ball of mass 0.3 kg is thrown with a velocity 120 km/s. Its deBroglie wavelength
is-
(A) $36A^o$(B) 3.6×10^{-30}mts.
(C) 3.6×10^{-27} mts.
(D) $1.84 \times 10^{-38}A^o$(E) 0.184×10^{-37}mts.

74. In Raman spectrum, Anti Stoke's lines have the wavelength
(A) more than the primary wavelength.(B) less than the primary wavelength.(C) may be more
or less than the primary wavelength.
(D) all of the above.
(E) none of the above.

75. In a nuclear reactor, energy is released by-   (A) Nuclear fusion.(B) Nuclear
fission.(C) Pair conversion.   (D) Radioactivity.   (E) None of
these.

76. A rod of length L_o is moving along its length with 75% the velocity of light. Its length L,
as seen by the person at rest is given by-(A) $L = (\sqrt{7}/4)L_o$(B) $L = (\sqrt{4/7})L_o$
(C) $L = (4/7)^{1/2} L_o$
(D) $L = (2/3) L_o$
(E) $L = L_o/2$

77. A Gaussian surface encloses an electric dipole inside it. The net flux through the surface
is-
(A) zero.(B) maximum.
(C) non zero.
(D) infinite.
(E) all the above are possible.

78. The gradient of a scalar is-
(A) A scalar. (B) A vector. (C) both scalar and vector.
  (D) neither a scalar nor a vector.
  (E) cannot be defined.

79. IUPAC name of the following compound $CH_2=CH-CH_2-I$ is-
  (A) 1-iodo-2-propane.
  (B) 2-iodo-1-propane. (C) 1-iodo-2-propene. (D) 1-iodo-2-ethene.
  (E) 2-iodo-1-butane.

80. A Racemic mixture is-
  (A) dextrorotatory.
  (B) laevorotatory. (C) optically inactive. (D) optically more active.
  (E) none of these.

81. Iodine number of a fat or oil represents the number of grams of iodine which will add to-
  (A) 1000gm of fat or oil.
  (B) 1000mg of fat or oil.
  (C) 1mole of fat or oil.
  (D) 100mg of fat or oil. (E) 100gm of fat or oil.

82. The compound with highest boiling point amongst the following is- (A) n- Hexane. (B) Neopentane.
  (C) n-pentane.
  (D) 2-methyl butane.
  (E) None of the above.

83. Which of the following statements is correct-
  (A) Acetone does not respond to Schiff's test.
  (B) Acetone responds quickly to Schiff's test. (C) Acetone responds slowly to Schiff's test. (D) All the above.
  (E) none.

84. CH_3Br is ----------- at room temperature. (The blank can be filled up by)-
  (A) solid. (B) gas. (C) liquid.
  (D) may be solid or liquid.
  (E) mixture of solid & liquid.

85. The rate constant for a first order reaction is 1.54×10^{-3} s^{-1}. Its half life time is-
  (A) 300seconds. (B) 450 seconds. (C) 45seconds.   (D) 30 seconds.
  (E) 3seconds.

86. With increase in pressure, the melting point of ice-
  (A) increases. (B) decreases. (C) remains same.
  (D) nothing can be concluded.
  (E) none of these.

87. If L is length and C is the concentration of a solution, then according to Beer-Lambert's law, intensity of transmitted beam through a solution-
(A) is independent of L and C.

(B) increases exponentially with L and C. (C) increases linearly with L and C. (D) decreases linearly with L and C.(E) decreases exponentially with L and C.

88. NMR spectra lies in-(A) RF region.(B) Visible region.
   (C) UV region.
   (D) IR region.
   (E) none of these regions.

89. According to kinetic theory of gases, at a temperature T,the velocity of a gas molecule is-
   (A) directly proportional to T.
   (B) inversely proportional to T.(C) directly proportional to $T^{1/2}$
   (D) Inversely proportional to $T^{1/2}$
   (E) independent of T.

90. The change in entropy for a reversible process is-
(A) $\Delta S > 0$
   (B) $\Delta S = 0$
   (C) $\Delta S < 0$
   (D) all the above are possible.
   (E) none of the above options are correct.

91. pH of 0.0001M HCl solution under complete dissociation is-
   (A) 10^{-4}(B) 4
   (C) 0.04
   (D) 10^{-3}
   (E) 10^{3}

92. The angular momentum of an electron revolving in 4th orbit is-   (A) 4 h/π
   (B) $4\pi h^2$ (C) 2 h/π(D) 2 h^2/π(E) $2\pi h^2$

93. The modern periodic table is arranged based upon-
   (A) mass number.
   (B) chemicalsymbol.
   (C) atomic radius.
   (D) atomic density.(E) atomic number.

94. Schrodinger equation is the Eigen value equation for-(A) energy.(B) linear momentum.
   (C) angular momentum.
   (D) any of the above.
   (E) none of the above.

95. Which of the following pair of elements will display the most similar chemical properties-
   (A) Aluminium and Calcium.   (B) Nickel and Phosphorus.(C) Chlorine and Sulphur.
   (D) Carbon and Sulphur.(E) Lithium and Potassium.

96. Among the following rare gases, the most liquefiable gas is-
   (A) Argon.
   (B) Neon.(C) Xenon.(D) Krypton.   (E) All are equally liquefiable.

97. An electron takes transition from third orbit to first orbit in hydrogen atom. The wave number of emitted spectral line is- (A) (8/3)R.
 (B) (9/8)R.
 (C) (4/3R).
 (D) (1/3)R.(E) (8/9)R.

98. The metallurgical process in which a metal is obtained in a fused state is called-
 (A) smelting.
 (B) roasting.   (C) calcination.(D) froth floatation.(E) none of these.

99. In the coordination compound $Na_2[Pt(CN)_4]$, the Lewis acid is-
 (A) $[Pt(CN)_4]^{2-}$
 (B) Na^+
 (C) Pt
 (D) Pt^{2+}(E) CN^-

100.Quantized orbits in atoms was proposed by-
 (A) Rutherford.
 (B) Schrodinger.
 (C) Chadwick.
 (D) Max Planck.(E) Bohr.

PART C

101.How many times a blood cell has to pass through the auricles of the heart to reach dorsal aorta from anterior vena cava?

(A) 1

(B) 2

(C) 3

(D) 4

(E) 5

102.Which is the group of organisms characterized by the presence of multicellular body having ostia and an aquatic mode of Life?

(A) Porifera

(B) Coelenterata

(C) Protozoa

(D) Mollusca

(E) Annelida

103. The nature of fruit developing from a flower depends on the type of

(A) Androecium

(B) Fertilization

(C) Gynoecium

(D) Placentation

(E) Pollination

104. In a double stranded DNA molecule, 18 % of the total bases is cytosine. What will be the percentage of adenine in it?

(A) 18%

(B) 64%

(C) 36%

(D) 32 %

(E) 82%

105. Natural Killer Cells are granular lymphocytes which play an important role in our immune system by destroying tumor and infected cells. They kill virus infected cells by the process of-

(A) Phagocytosis

(B) Pinocytosis

(C) Endocytosis

(D) Apoptosis

(E) None of these

106. Two statements regarding Ozone are given below. Select the answer which is true for these statements.

Statement 1. Stratospheric Ozone acts as a shield against UV radiations.

Statement 2. Tropospheric Ozone acts as a Greenhouse Gas.

(A) Both statements are true

(B) Both statements are not true

(C) Statement 1 is true, 2 is not true.

(D) Statement 2 is true, 1 is not true.

(E) Statement 1 is always true, 2 is true only in the Polar Regions.

107.The predominant type of food chain in a mangrove ecosystem is-

(A) Parasitic

(B) Grazing

(C) Detritus

(D) Coprapagous

(E) None of these

108.Chyme of a person who had consumed only starchy food is collected before it reaches the duodenum and analyzed chemically. It is more likely to show the presence of-

(A) Only starch.

(B) Starch & Dextrin.

(C) Starch, Dextrin & Maltose.

(D) Starch, Dextrin, Maltose & Galactose.

(E) Starch, Dextrin, Maltose, Glucose & Galactose.

109.It is advantageous for animals which need to conserve water to excrete nitrogenous waste products in the form of-

(A) Ammonia

(B) Urea

(C) Guanine

(D) Amino acids

(E) Uric acid

110.If a cross is made between parental plants having the genotypes 'RrTT and 'rrtt' where R denotes dominant allele for red fruits and T is dominant allele for tall stem, what will be the percentage of plants with only recessive phenotypes in the F1 generation?

(A) 25%

(B) 75%

(C) 50%

(D) 100%

(E) 0%

111. A tree grows vertically at the rate of 0.5 m per year. If a nail was driven in the stem at a height of 1.5 m five years ago, at what height will it be found today?

(A) 4.0 m

(B) 1.5 m

(C) 0. 5 m

(D) 4.5 m

(E) 2. 0m

112.   According to Recycled Plastics (Manufacture and Usage) Rules 1999, the minimum thickness of carry bags must not be less than-

(A) 10 microns

(B) 20 microns

(C) 30 microns

(D) 40 microns

(E) 50 microns

113.The Bhopal gas tragedy was caused by the leakage of-

(A) Hydrogen Cyanide

(B) Carbon monoxide

(C) Methyl cyanide

(D) Cyanogen Chloride

(E) Methyl isocyanate

114.Vital Capacity of a person is calculated to be 4600 ml. Tidal Volume is 500 ml and Inspiratory Reserve Volume is 3200 ml. What will be the Expiratory Reserve Volume of this person?

(A) 900 ml.

(B) 3700 ml

(C) 4100 ml

(D) 3200 ml

(E) 1400 ml

115.Due to a brain injury, a person has lost the ability to maintain body equilibrium. Damage
to which part of the brain may have caused this?

(A) Medulla oblongata

(B) Cerebrum

(C) Diencephalon

(D) Cerebellum

(E) Mesencephalon

116.Which of the following parts of the sperm provides the energy needed for its motility?

(A) Acrosome

(B) Nucleus

(C) Nebenkern

(D) Centriole

(E) Axoneme

117.Identify the animal which does not belong to the group from the following, with regards to
the nature of coelom?

(A) Neries.

(B) Ascaris.

(C) Apis.

(D) Pila.

(E) Echinus.

118.Cell A has pressure potential of 8 bars and solute potential of 12 bars. Cell B has pressure
potential of 10 bars and solute potential of 18 bars. What will be the direction of net
movement of water by osmosis between these cells?

(A) From A to B.

(B) From B to A.

(C) No movement of water.

(D) Equal movement between A and B.

(E) None of these.

119. One growth ring in angiosperms consists of-

(A) Only spring wood formed in a year.

(B) Only autumn wood formed in a year.

(C) Both heart wood and sap wood formed in a year.

(D) Both xylem and phloem formed in a year.

(E) Both spring wood and autumn wood formed during a year.

120. The common factor between walls of arteries and air sacs of lungs is that they are lined by-

(A) Cuboidal epithelium.

(B) Columnar epithelium.

(C) Ciliated epithelium.

(D) Compound epithelium.

(E) Squamous epithelium.

121. If the Na-K Pump of the axon membrane becomes inactive, which of the following will be affected?

(A) Active transport of Na^+ out of and K^+ into the axon.

(B) Active transport of K^+ out of and Na^+ into the axon.

(C) Passive transport of Na^+ out of and K^+ into the axon.

(D) Passive transport of K^+ out of and Na^+ into the axon.

(E) None of these.

122. IUCN category of 'threatened species' includes-

(A) Endangered Species.

(B) Critically Endangered Species.

(C) Vulnerable species.

(D) Near threatened species.

(E) Endangered, Critically Endangered and Vulnerable species.

123. Proper legislation for the establishment of National Parks in India was provided by-

(A) The Forest Conservation Act, 1980.

(B) TheWildlife Protection Act, 1972.

(C) The Environmental Protection Act, 1986.

(D) The Biodiversity Act, 2002.

(E) The Karnataka Preservation of Trees Act, 1976.

124. The most appropriate sequence of events that occur during primary succession is as follows:

(A) Nudation – Colonisation – Migration – Aggregation.

(B) Aggregation – Colonization – Ecesis – Nudation.

(C) Ecesis – Nudation – Aggregation – Migration.

(D) Nudation – Migration – Ecesis – Aggregation.

(E) Colonisation – Nudation – Ecesis – Aggregation.

125. The monocotyledonous seed consists of one large and shield shaped cotyledon known as-

(A) Labellum.

(B) Scutellum.

(C) Coleoptile.

(D) Coleorhiza.

(E) Mycorrhiza.

126. Which of the following phytohormones may have to be used to fasten ripening of fruits?

(A) Ethylene.

(B) ABA.

(C) GA.

(D) Cytokinin.

(E) IAA.

127. The enzymes necessary for catalyzing Citric Acid Cycle have to be present in-

(A) Mitochondrial Cristae.

(B) Cytoplasm.

(C) Mitochondrial matrix.

(D) Outer membrane.

(E) Perimitochondrial space.

128.The hormone which can increase the rates of both heart beat and respiration is-

(A) Thymosin.

(B) Adrenaline.

(C) Thyroxine.

(D) Vasopressin.

(E) Oxytocin.

129.World Environment Day is celebrated every year on June 5. This day is actually the

   anniversary of   an UN Environmental Conference held at-

(A) Rio de Janeiro, 1992.

(B) Johannesburg, 2002.

(C) Copenhagen, 2009.

(D) Stockholm, 1972.

(E) Belgrade, 1975.

130.Which of the following is an endemic species of the Western Ghats?

(A) Rhinoceros unicornis.

(B) *Antilopecervicapra.*

(C) *Acinonyxjubatus.*

(D) *Elephasmaximusindicus.*

(E) *Macaca Silenus.*

131.Highest contribution to global warming is made by-

(A) Carbon dioxide.

(B) Methane.

(C) Nitrous oxide.

(D) Ozone.

(E) CFC's.

132. Which of the following plant physiological theories and the names of their proposers not correctly matched?

(A) Pulsatory theory – J. C. Bose.

(B) Transpiration Pull Theory – Dixon & Jolly.

(C) Mass Flow Theory – Munch.

(D) Protoplasmic streaming Theory – Steward.

(E) Relay Pump Theory – Goidlewski.

133. What may be the most probable result of failure of spindle assembly in an animal cell during mitosis?

(A) Nuclear membrane remains intact.

(B) No condensation of chromatids.

(C) No disappearance of nucleolus.

(D) No synapses.

(E) No movement of chromatids to poles of the cell.

134. Which of the following processes is affected if the malpighian tubules present in the alimentary canal of cockroach are removed?

(A) Digestion.

(B) Circulation.

(C) Respiration.

(D) Excretion.

(E) Reproduction.

135. Vertical stratification in a forest ecosystem is mainly due to-

(A) Soil.

(B) Wind.

(C) Light.

(D) Availability of nutrients in air.

(E) Humidity.

136. Highest species diversity is found in-

(A) Angiosperms.

(B) Insects.

(C) Birds.

(D) Mammals.

(E) Fishes.

137. Which of the following type of ecological pyramid is never inverted?

(A) Energy Pyramid.

(B) Number pyramid.

(C) Biomass pyramid.

(D) Both B and C.

(E) Both A and B.

138. According to 'India State of Forest Report – 2013' released by the Forest Survey of India (FSI),the percentage of total forest and tree cover of Indiaagainst the total area of the country is-

(A) 30%

(B) 33%

(C) 24.01%

(D) 21.23%

(E) 27.5%

139. Aromatic plant parts, quadrangular stem, thyrsus or verticillaster inflorescence andbilipped corolla are characteristic features of the Family-

(A) Asteraceae.

(B) Euphorbiaceae.

(C) Rutaceae.

(D) Rubiaceae.

(E) Lamiaceae.

140. Color and beauty of *Bougainvillea* flower is mainly due to-

(A) Corolla.

(B) Calyx.

(C) Bracts.

(D) Stamens.

(E) Epicalyx.

141.Locations identified as Global Biodiversity Hotspots are characterized by-

(A) High species diversity.

(B) High proportion of endemic species.

(C) High threats to biodiversity.

(D) All of the above.

(E) Only those mentioned in A and B above.

142.One of the important evolutionary features of alternation of generations from algae to flowering plants is-

(A) Gradual elaboration of gametophyte.

(B) Gradual elaboration of   sporophyte.

(C) Gradual reduction of sporophyte.

(D) Gradual elaboration of both gametophyte and sporophyte.

(E) Complete elimination of Gametophyte.

143.Which of the following is not properly matched with respect to the type of vascular bundles and examples?

(A) Collateral and Open – Sunflower Stem.

(B) Concentric – Selaginella.

(C) Bicollateral – Cucurbita stem.

(D) Collateral & Closed – Ficus root.

(E) Radial - Maize Root.

144. The joint present at the base of thumb which makes it more flexible than the other fingers is-

(A) Ball & Socket joint.

(B) Hinge joint.

(C) Saddle joint.

(D) Gliding joint.

(E) Pivot joint.

145. If radioactive CO_2 is given to a C3 plant during Calvin cycle of photosynthesis, radioactivity will first appear in-

(A) 3-phospho glycerate.

(B) Oxalo acetate.

(C) Ribulose biphosphate.

(D) Fructose biphosphate.

(E) 3 - phospho glyceraldehyde.