NTSE Stage – 1_2020-21 SAT

Physics

1. In Circular motion which one is correct
   (1) Constant Velocity
   (2) Zero Acceleration
   (3) Constant Speed
   (4) Speed Changes

2. A car travels half distance with speed 20m/sec and next half distance travel with 30 m/sec the average speed of the car is
   (1) Zero
   (2) 25 m/sec
   (3) 24 m/sec
   (4) 5 m/sec

3. A body is travelling with speed 20 m/sec having acceleration 4 m/sec^2 the speed of the body after 2 sec is
   (1) 8 m/sec
   (2) 12 m/sec
   (3) 16 m/sec
   (4) 28 m/sec

4. The weight of a body is 9.8 Newton, when g=9.8 m/sec^2 the mass of the body is
   (1) Zero
   (2) 9.8 Kg
   (3) 10 Kg
   (4) 1 Kg

5. Flying birds has
   (1) Only kinetic energy
   (2) Only potential energy
   (3) Both kinetic energy and potential energy
   (4) Only pressure energy

6. The bodies of mass 2 gram and 4 grams having same kinetics energy having their ratio of linear momentum as
   (1) 2:1
   (2) $\sqrt{2}:1$
   (3) 1:2
   (4) 1:16

7. The ratio of gravitational acceleration on the surface of Earth and Moon is
   (1) $\sqrt{6}:1$
   (2) $1:\sqrt{6}$
   (3) 1:6
   (4) 6:1

8. The weight of wooden block is w. The append weight of the body on a floating water
   (1) w
   (2) More than w
   (3) Less than w
   (4) Zero

9. In a simple Pendulum the displacement is equal to amplitude. Then kinetics energy will be
(1) Highest
(2) Zero
(3) No change
(4) None

10. Heat and work done by the heat was discovered by
(1) James Watt
(2) Dr. D. Joule
(3) Rudolf Diesel
(4) Newcomen

11. The focal length of a convex lens is 20 cm. The images formed is double the length of the object. The distance of the object from the lens is
(1) -30 cm
(2) -20 cm
(3) -60 cm
(4) 30 cm

12. An Electric motor takes 37.5 Amp to start. Then its efficiency is
(1) 1 Horse Power
(2) 500 Watt
(3) 54 Watt
(4) 750 Horse Power

13. The intensity of the bulb will decrease when a resistance is connected
(1) In series
(2) In parallel
(3) Series or parallel
(4) Intensity cannot be decreased

Chemistry

14. Assertion: 2-Bromobutane on reaction with sodium ethoxide in ethanol given 2-butene as a major product.
Reason: 1-Butene is more stable than 2-butene.
Read the assertion and reason carefully to mark the correct option.
(1) Both assertion and reason are true and, the reason is the correct explanation of the assertion.
(2) Both assertion and reason are true and the reason is not the correct explanation of the assertion.
(3) Assertion is true but the reason is false.
(4) Assertion is false but the reason is true.

15. KO_2 (potassium superoxide) is used in oxygen cylinders in space and submarines because it.
(1) absorbs CO_2 and increases O_2 content.
(2) eliminates moisture
(3) absorbs CO_2
(4) produces Ozone

16. A solution of sodium sulphate in water is electrolysed using inert electrodes. The products at the
anode and cathode are respectively.
(1) H_2 , O_2
(2) O_2 ,H_2
(3) O_2 , Na
(4) O_2 , SO_2

17. A substance on treatment with dilute H_2SO_4 liberates a colourless gas which produces (i) turbidity with baryta solution and (ii) turns acidified dichromate solution green. The reaction indicates the presence of –

(1) CO_3^{2-}

(2) S^{2-}

(3) SO_3^{2-}

(4) NO_3^-

18. A gas formed by the action of alcoholic KOH on ethyl iodide decolourises alkaline $KMnO_4$ solution, the gas is-

(1) CH_4

(2) C_2H_6

(3) C_2H_4

(4) C_2H_2

19. Given pH of a solution A is 3 and it is mixed with another solution B having pH 2. The resultant pH of solution will be-

(1) 3.2

(2) 1.9

(3) 3.4

(4) 3.5

20. A light greenish salt is soluble in water. On passing H_2S gas into the solution, a black precipitate is obtained which dissolves readily in HCI. The metal ion present is –

(1) Fe^{2+}

(2) Co^{2+}

(3) Ni^{2+}

(4) Mn^{2+}

21. Bonds present in $CuSO_4.5H_2O$ are –

(1) Electrovalent and Covalent

(2) Electrovalent and Co-ordinate

(3) Electrovalent, Covalent and co-ordinate

(4) Covalent and Co-ordinate

22. An organic compound (X) on treatment with acidified $K_2Cr_2O_7$ gives a compound (Y) which reacts with I_2 and sodium carbonate to form tri-iodomethane. The compound (X) is –

(1) CH_3OH

(2) $CH_3-\overset{\overset{O}{\|}}{C}-CH_3$

(3) CH_3CHO

(4) $CH_3-\underset{\underset{OH}{|}}{CH}-CH_3$

23. How many litres of CO_2 at STP will be formed when 100 ml of 0.1 M H_2SO_4 reacts with excess ofNO_2CO_3?

(1) 22.4

(2) 2.24

(3) 0.224

(4) 5.6

24. Which Compound has the weakest bond?

(1) Diamond

(2) Neon (solid)

(3) KCI

(4) Water (ice)

25. Which one of the following is used as antiknock compound?
(1) Lead tetrachloride
(2) Lead acetate
(3) Lead formate
(4) Tetraethyl lead

26. A bottle of ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends. The white ammonium-chloride ring first formed will be-
(1) At the centre of the tube
(2) Near the hydrogen chloride bottle
(3) Near the ammonia bottle
(4) Throughout the length of the tube

Biology

27. The Xylem are responsible for –
(1) Transport of the food in plants
(2) Transport of water in plants
(3) Transport of amino acids
(4) Transport of oxygen

28. Which of the following is not a polymer?
(1) Cellulose
(2) Glycogen
(3) Protein
(4) Glucose

29. The disease that affects our lungs is –
(1) AIDS
(2) Rabies
(3) Polio
(4) Tuberculosis

30. Which of the following is not a plant hormone?
(1) Auxin
(2) Florigen
(3) Cytokinin
(4) Oxytocin

31. Selected the odd one from the following :
(1) Stigma : Style : Ovary
(2) Anther : Filament : Pollen
(3) Cotyledon : Radicle : Plumule
(4) Pollen : Pollen Tube : Pellicle

32. The mode of nutrition in Fungi is –
(1) Autotrophic nutrition
(2) Holozoic nutrition
(3) Saprotrophic nutrition
(4) Parasitic nutrition

33. Which of the following composition represents energy rich food?
(1) Vitamins and minerals
(2) Carbohydrates and fats
(3) Water and roughage
(4) Proteins and mineral salts

34. The product obtained during anaerobic respiration in plants are –
(1) Lactic acid + Energy
(2) Pyruvic acid + Energy
(3) Ethanol + Carbon dioxide + Energy
(4) Carbon dioxide + Energy

35. What will happen it all the deer are killed in the given food chain?
Grass → Deer → Lion
(1) The population of Lion increase
(2) The population of grass decrease
(3) The population of Lion decrease and grass increase
(4) The population of Lion remain unchanged

36. The pores in a leaf through which respiratory exchange of gases takes place are –
(1) Xylem
(2) Stigma
(3) Lenticels
(4) Stomata

37. When we destroy forest, we destroy –
(1) Population of wild life
(2) The trees
(3) The environment
(4) Food and shelter of wild animals

38. Which of the following is not a natural resources?
(1) Soil
(2) Water
(3) Electricity
(4) Air

39. Pure Bred Pea Plant A is crossed with pure bred pea plant B. It is found that the plants which look like A do not appear in F1 generation, which of the plants A and B are tall and dwarf?
(1) A are tall and B are also tall
(2) A are tall and B are dwarf
(3)A are dwarf and B are tall
(4) A re dwarf and B are also dwarf

40. Pick the right combination of terms which has no fossil fuel –
(1) Wind, Wood, Sun
(2) Kerosene, Wind, Tide
(3) Petroleum, Wood, Sun
(4) Wind, Ocean, Coal

Mathematics

41. Three number prime to each other are such that the product of the first two is 437 and the product of the last two is 551. The sum of the numbers is …..
(1) 59
(2) 63
(3) 69
(4) 71

42. If the sum of the remainders obtained by dividing each of $x^3 + 8x^2 - 3kx + 7$ and $2x^3 + kx^2 - 5x + 6$ by x – 1 is 9 then k=……
(1) 0
(2) 2
(3) 3
(4) 5

43. A polynomial of degree 2 is divided respectively by x – 1, x - 2, and x – 3. The reminders obtained are 1, 2 and 3 respectively. The polynomial is …….

(1) $x^2 - x + 1$

(2) $x^2 - x + 2$

(3) $\frac{1}{2}x^2 - \frac{1}{2}x + 2$

(D) None of these

44. If the equations $x^2 + bx + a = 0$ and $x^2 + ax + b = 0$, $(a \neq b)$ have equal roots then a + b = …….

(1) -1
(2) 0
(3) 1
(4) None of these

45. In a right angled triangle, the difference of the hypotenuse and the base is 2 cm. the hypotenuse exceeds twice the height by 1 cm. The base of the triangle is …..cm

(1) 8
(2) 15
(3) 17
(4) 21

46. By adding 1 to the sum of all natural numbers between 1 and 300, which are divisible by 7 and 8 a number p is obtained then + $\sqrt{p}$ =……

(1) 25
(2) 29
(3) 33
(4) 37

47. If in an. A.P., the p^{th} term = $\frac{1}{q}$ and the q^{th} term = $\frac{1}{p}$, then the pq^{th} terms = …….

(1) -1
(2) 0
(3) 1
(4) None of these

48. If x = $2^{\sin^2\theta}$, y = $2^{\cos^2\theta}$ for all real values of θ, then

(1) x + y = 1
(2) x + y = 2
(3) x + y ≤ $2\sqrt{2}$
(4) x + y ≥ $2\sqrt{2}$

49. If, for all real values of θ: a = $\sin^2\theta + \cos^4\theta$ then

(1) a≥ $\frac{3}{4}$

(2) a≤ $\frac{3}{4}$

(3) a=1

(4) a = $\frac{1}{2}$

50. If $\sin\infty + \cos\infty$ = a and x = $\sin^6\infty + \cos^6\infty$ then

(1) x≤1
(2) x<1
(3) x = 1
(4) x> 1

51. The angle of elevation of the top of a H m. high tower from two points A and B on the horizontal plane are 60° and 30° respectively. If the distance of A from the foot of the tower is ä m. then the distance of B from the foot of the tower will be …….m

(1) $\frac{H^2}{a}$

(2) $\frac{2H^2}{a}$

(3) $\frac{\sqrt{H}}{a}$

(D) None of these

52. The co-ordinates of the vertices of a triangle are (3, 0), (0, 4) and (3, 4) respectively. The radius of the circle inscribed inside the triangle is ….units.

(1) $\frac{1}{\sqrt{2}}$

(2) $\sqrt{2}$

(3) $\frac{1}{2}$

(4) 1

53. In a $\Delta ABC, \angle C = 90^o$. On the sides CA and CB two points P and Q are taken such that they divide CA and CB in the ratio 2:1 respectively. Then, $\left(Aa^2 + BP^2\right)$: AB^2 = ……..

(1) $\frac{7}{9}$

(2) $\frac{4}{9}$

(3) $\frac{13}{9}$

(4) $\frac{11}{9}$

54. In $\Delta ABC, \angle C = 90^o$. D is a point on CA from which a perpendicular drawn to AB meets it at E. If $\angle EDA = \angle ABC$, BC = a cm., AD = x cm., AE = y cm., BE = Z cm. then DE = ……..cm.

(1) $\frac{ay}{z+x}$

(2) $\frac{az}{x+y}$

(3) $\frac{ax}{y+z}$

(4) None of these

55. Two circles of radii 9 cm. and 25 cm. touch each other externally. The length of a direct common tangent is …. Cm.

(1) 15

(2) 30

(3) $\sqrt{706}$

(4) $\sqrt{544}$

56. ABCD is a rectangle. Taking AD as diameter a semi-circle is drawn which cuts the diagonal DB at E. if AB = 12 cm. and AD = 9 cm. then BE= ……..cm.

(1) 9

(2) 9.6

(3) 10.2
(4) 10.6

57. A Semi-circular piece of paper of radius r cm. is folded to from a cone. The volume of the cone thus formed is …….cm^3.

(1) $\frac{\pi r^3}{\sqrt{3}}$

(2) $\frac{\pi r^3}{8\sqrt{3}}$

(3) $\frac{\pi r^3}{2\sqrt{3}}$

(4) $\frac{\pi r^3}{4\sqrt{3}}$

58. A variable x takes the values $X_1, X_2 \ldots X_n$Given $\sum(x_i - 2) = 110$ $\sum(x_i - 5) = 20$, i = 1, 2 ……n, then n = ……..

(1) 30
(2) 80
(3) 85
(4) 90

59. C is the mid-point of the line segment AB of length L cm. two points P and Q are taken randomly on the line segments CA and CB. Then, the probality for $PQ < \frac{1}{2}$

(1) $\frac{1}{2}$

(2) $\frac{1}{4}$

(3) $\frac{1}{8}$

(4) None of these

60. If a, b, c, d denote the sides of a quadrilateral ABCd then,
$\frac{a}{b+c+d} + \frac{b}{c+d+a} + \frac{c}{a+b+d} + \frac{d}{a+b+c}$ is

(1) <1
(2) ≥ 1
(3) > 1
(4) None of these

History

61. After the defeat of Napoleon where did the Victor Power assemble in 1815 ?

(1) Vienna
(2) London
(3) Paris
(4) Rome

62. Which dynasty succeeded the Bourbon dynasty after the 1830 revolution ?

(1) Habsburg
(2) Orleans
(3) Tsardom
(4) None of these

63. Charles Albert was the King of which country ?

(1) Naples
(2) Parma
(3) Modena
(4) Sardinia

64. What was Zollverein ?

(1) Intellectual's Union
(2) Clergy's Union
(3) Revolutionaries Union
(4) Trader's Union

65. When was Karl Marx born ?

(1) 1810
(2) 1818
(3) 1825
(4) 1830

66. Who was the author of 'War and Peace" ?

(1) Tolstoy
(2) Karl Marx
(3) Lenin
(4) St. Simon

67. Who built the Angkorwat Temple?

(1) Jayavarman
(2) Suryavarman II
(3) Mahendravarman
(4) Rudravarman

68. In 1878 which Viceroy passed the "Vernacular Press Act"?

(1) Lord Ripon
(2) Lord Lytton
(3) Lord Curzon
(4) Lord Chelmsford

69. Who established the Ramakrishna Mission ?

(1) RamkrishnaParamhans
(2) Ishwar Chandra Vidyasagar
(3) Swami Vivekananda
(4) DevendraNathThkur

70. After which incident RabindraNathtagore surrendered the title "Knight"?

(1) Rowlatt Act
(2) Khilafat Movement
(3) JallianwalaBagh Massacre
(4) Coming of Simon Commission

71. Who invented the "Safety lamp"

(1) Humphrey Dury
(2) Richard Arkwright
(3) James Hargreaves
(4) Edmund Cartwright

72. Who published the newspaper "Som Prakash"?

(1) Ishwar Chandra Vidyasagar
(2) Bal GangadharTilak
(3) Ram Mohan Roy
(4) M. G Ranade

Geography

73. Bharatpur Bird sanctuary is situated in –

(1) Gujarat
(2) Rajasthan
(3) Assam
(4) Bihar

74. The highest Literacy rate in India is in ……..?

(1) West Bengal
(2) Maharashtra
(3) Kerala
(4) Punjab

75. Where is ropeway in Bihar?

(1) Bihar Shariff
(2) Rajgir
(3) Gaya
(4) Munger

76. Select the correct statements –

(a) Koshi river is sorrow of Bihar
(b) Parrot is the national bird of India
(c) Maruti Industry is situated in Delhi
(d) Varanasi is situated on the bank of river ganges

(1) a and d

(2) b and c

(3) B, C and d

(4) a, c and d

77. Which one is correct?

(1) Jammu and Kashmir – Jojila
(2) Himachal Pradesh – Thagla
(3) Uttarakhand – Nathula
(4) Sikkim – Shipkila

78. Which name is correct for Patna Airport?

(1) Jai Prakash Narayan International Airport
(2) Patna Airport
(3) Rajendra Prasad International Airport
(4) Bihar Airport

79. The main problem of industrial backwardness of Bihar is –

(1) Lack of raw material
(2) Lack of capital / money
(3) Lack of electricity
(4) All the above

80. Which statement is not correct?

(a) MedhaPatekar is related with Narmada BachaoAndolan
(b) New alluvial soil is termed as Bangar
(c) Mangrove Forest found in the coastal area in India
(d) Plantation agriculture is one of the type of commercial farming.
(1) a
(2) b
(3) b, c, and d
(4) c and d

81. Which of the following cities are located on the Western Coast of India

(1) Puri, Chennai, Vishakhapattanam
(2) Hyderabad, Nagpur, Bengaluru
(3) Kozhikode (Calicut), Goa, Mumbai
(4) Amrawati, Puna, Pudduchery (Pondicherry)

82. Select the correct statements –

a) Mount K^2 is the highest peak of India
b) Sunderban is in West Bengal
c) Nuclear disaster is very dangerous for the world.
d) Cactus plants found in evergreen forest
(1) a and b
(2) a and c
(3) a, b and c
(4) a, b and d

83. The Golden Quadrilateral Super highway connected with the following –

(1) Jammu, Bikaner, Jodhpur, Rajkote
(2) Porbandar, Bikaner, Amritsar, Srinagar
(3) Delhi, Mumbai, Chennai, Kolkata
(4) Sikkim, Siliguri, Jorhat, Agartalla

84. Select the correct statements –

a) Muscovite is known as Bengal Ruby.
b) Gold is metallic mineral
c) Kahalgaon Super Thermal Power is in Uttar Pradesh.
d) Anthracite is one type of iron

(1) a

(2) a and d

(3) a, b and c

(4) a, b and d

Civics

85. Which one of the following term is not included in the preamble to the Indian Constitution?

(1) Republic
(2) Justice
(3) Monarchy
(4) Equality

86. Which of the following does not lead to the spread of democracy?

(1) Struggle by people

(2) Invasion by Foreign Government
(3) End of Colonialism
(4) People's desire for freedom

87. Which one of the following statement about the Indian President is true?

(1) He appoints Chief Minister in States.
(2) He is exercise real power
(3) He is elected directly by the people
(4) He is the formal head in the Country.

88. Which of the following institutions can amend the constitution of India?

(1) The Parliament
(2) The Cabinet
(3) The Prime Minister
(4) The President

89. Which of the following are the features of Federal Governmnet?

I. Unwritten Constitution
II. Division of Powers
III. Single Citizenship
IV. Independent Judiciary
V.

(1) I and II

(2) II and III

(3) I and IV

(4) II and IV

90. Dealing with social division which one of the following statements is not true about democracy?

(1) Democracy is the best way to accommodate social diversity.
(2) Democracy always leads to disintegration of society
(3) In a democracy, it is possible for communities to voice their grievances in a peaceful manner.
(4) Due to political competition in a democracy, social division get reflected in politics

91. What do the civil servants do?

(1) They take policy decisions
(2) They implement minister's decision
(3) They settle the disputes.
(4) None of these

92. Which one of the following does not help in the formation of Public Opinion?

(1) Newspaper
(2) Radio
(3) Playground
(4) Educational Institutional

Economics

93. At present which form of money is increasingly used apart from paper money?

(1) Commodity money
(2) Metallic money
(3) Plastic money

(4) All of the above

94. Choose the correct combination

Standardized Marks	Product
(i) ISI	(a) Jewellery
(ii) FPO	(b) Electrical
(iii) Hallmark	(c) Food
(iv) Agmark	(d) Agricultural product

(1) I-a, ii-b, iii-c, iv-d
(2) I-c, ii-d, iii-a, iv-b
(3) I-b, ii-c, iii-a, iv-d
(4) I-d, ii-c, iii-b, iv-a

95. There are 1000 households in the villages of Almora, of which the loan taken by 200 households are from the state Bank of India, another 200 household from their friends and relatives, 50 households from Indian Bank, 100 households from Regional rural Bank, 150 households from businessmen, 100 households from village headmen and 200 households from cooperative societies. Which of the following statement is / are correct?

iFormal sources of credit are lower than the others
ii Institutional sources of credit are higher than others
iiiNon-institutional sources of credit are higher than others
ivInformal sources of credit are higher than others

(1) Only I

(2) Only II

(3) Only I and II

(4) III and IV

96. Which of the following statement about Sustainable Development is / are correct?

iThe word 'Sustainable Development' came into existence in the year 1980.
iiSustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs
iiiBrundtland Commission is related to Sustainable Development.

(1) I and II

(2) I and III

(3) Only II

(4) I, II and III

97. Which of the following statement is /are correct about the NITI Aayog?

iNitiAayog was established on 1 January 2015
iiThe prime Minister of India is the ex officio Chairperson of the NITI Aayog
iiiNITI Aayog replaced the Planning Commission of India in 2014

(1) I and II

(2) II and III

(3) Only I

(4) I, II and III

98. Mixed Economy means an economy where there is

(1) Existence of Capitalism
(2) Privatization, Liberalization and globalization
(3) Existence of both public and private sectors
(4) Growing crop along with rearing animals

99. Which of the following is not a function of the commercial bank in an economy?

(1) Accepting Deposits
(2) Providing Loans
(3) Locker Facilities
(4) Acting as a Banker's Bank

100. If GDP for a country X is $ 130 million in 2020 and its population is 20,000, GDP per capita is –

(1) 6500
(2) 130
(3) 0.0065
(4) 650