FIITJEE NTSE MOCK TEST-1

for

Class – X

Scholastic Aptitude Test (SAT)

Time: 2 Hrs. Maximum Marks : 100

Instructions

- The question paper consists of **100** multiple choice questions divided into five sections.
  Section – I contains **13** questions of **Physics.**
  Section – II contains **13** questions of **Chemistry.**
  Section – III contains **14** questions of **Biology.**
  Section – IV contains **20** questions of **Mathematics.**
  Section – V contains **40** questions of **Social Science.**
- Each question carries **+1** marks.
- There is no **negative** marking.
- Attempt **All** questions.
- Use of Calculator is **NOT PERMITTED**.
- All symbols have their usual meanings, if not mentioned in the question.
- The Question Paper contains blank spaces for your rough work.
  No additional sheets will be provided for rough work.
- This booklet also contains **OMR** answer sheet.

Name of the Candidate **: ……...**

Enrollment Number **:……..**

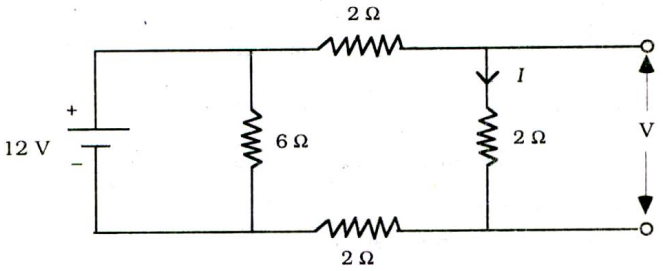
SECTION – A (PHYSICS)

1. A body covers a distance L metre along a semi-circular path. The ratio of distance to magnitude of displacement is given by
(A) $2/\pi$ (B) π (C) $\pi/2$ (D) $L/2\pi$

2. On a bulb is written 220 Volt and 60 watt. Find out the resistance of the bulb and the value of the current flowing through it :
(A) 806.66 ohm and 0.27 ampere (B) 500 ohm and 2 ampere
(C) 200 ohm and 4 ampere (D) 100 ohm and 1 ampere

3. A body is thrown up with an initial velocity u and covers a maximum height of h, then h is equal to :
(A) $\frac{u^2}{2g}$ (B) $\frac{u}{2g}$ (C) 2 ug (D) None of these

4. The value of current I and voltage V in the given circuit will be :

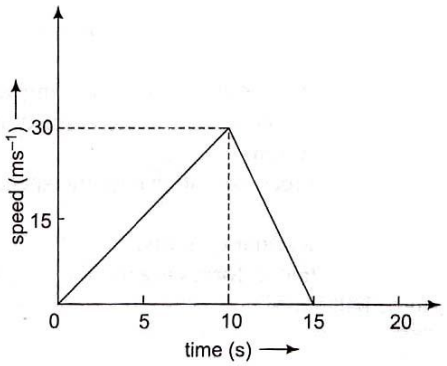


(A) 2A, 4V (B) 4A, 2V (C) 1A, 2V (D) 2A, 1V

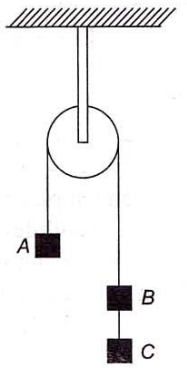
5. A passanger in moving train tosses a coin which falls behind him. It means that motion of the train is :
(A) Uniform (B) Accelerated (C) Retarded (D) Along circular tracks

Space for rough work

6. A body of mass 20 kg starts from rest, accelerates uniformly to speed of 30 ms^{-1} in 10s. Brakes are applied and the body stops in next 5 seconds. Then the accelerating force and stopping force are respectively
(A) 30 N, –60 N (B) 60 N, 0
(C) 60 N, –120 N (D) None of these



7. Three equal blocks of mass 2kg each are hanging on a string passing over a fixed pulley as shown in the figure. The tension in the string connecting the weights B and C is about
(A) Xero (B) 13 N
(C) 3.3 N (D) 19.6 N



8. A certain household has consumed 200 units of energy during a month. Its value in joules will be
(A) 3.6×10^{10} (B) 7.2×10^{10} (C) 3.6×10^{8} (D) 7.2×10^{8}

9. 1 dyne is equal to
(A) 981 g wt (B) 1 gwt/981 (C) 981 kg wt (D) None of these

10. A bullet of mass m moving with a speed v strikes a wooden block of mass M and gets embedded into the block. The final speed is
(A) $\sqrt{\frac{M}{M+m}}\,v$ (B) $\sqrt{\frac{m}{M+m}}\,v$ (C) $\frac{M}{M+m}v$ (D) $\frac{v}{2}$

11. Conductivity of a super conductor is
(A) infinite (B) very large (C) very small (D) zero

Space for rough work

12. Two particles having charges q, & q_2 when kept at a certain distance, exert force F on each other. If distance is reduced to half force between them becomes
(A) F/2 (B) 2F (C) 4F (D) F/4

13. A heater coil is cut into two equal parts & only one part is now used in the heater. The heat generated will now be
(A) Doubled (B) Four times (C) One-fourth (D) Halved

SECTION – B (CHEMISTRY)

14. A little soil was stirred into water taken in a beaker. The beaker was allowed to stand. The mu was foun to settle own. The contents were filtered. The filtrate will be
(A) a true solution
(B) a colloidal solution
(C) can be a true solution or a colloidal solution
(D) a suspension

15. Purity of a solid substance can be checked by its characteristic
(A) boiling point (B) melting point (C) solubility in water (D) solubility in alcohol

16. Benzene with molecular formula C_6H_6 has :
(A) 6 single bonds and 6 double bonds (B) 12 single bonds and 3 double bonds
(C) 18 single bonds only (D) 12 double bonds only

17. The difference in mol. Wt. of the thirteenth an ninth homologue of alkene series is :
(A) 42u (B) 56u (C) 48u (D) None of these

18. In the reaction
$3MnO_2 + 4\ Al \rightarrow 3\ Mn^{+2} + 2\ Al_2O_3$
The oxidizing agent is :
(A) MnO_2 (B) Al (C) Al_2O_3 (D) Mn

19. Mercury is use as a thermometric liquid because it has :
(A) lowest latent heat of fusion (B) Lowest specific heat among all the liquids
(C) High specific heat among all the liquis (D) Can't say

20. Our palm feels cold when we put a drop of acetone on it :
(A) Heat is absorbed from surrounding (B) Heat is absorbed from our palm
(C) Acetone is non-volatile liquid (D) All of these

Space for rough work

21. The acidity of soil, which is due to excessive use of fertilizer ammonium sulphate can be neutralized by adding
(A) Lime (B) Caustic soda (C) Washing soda (D) None of these

22. A solution reacts with crushed egg-shells to give a gas that turns lime-water milky. The solution contains.
(A) NaCl (B) HCl (C) LiCl (D) KCl

23. Removal of impurities from ore is known as :
(A) crushing an grinding (B) concentration of ore (C) calcination (D) roasting

24. Which of the following elements produces basic oxide on reacting with oxygen ?
(A) Chlorine (B) Sulphur (C) Phosphorus (D) Magnesium

25. The pH of a sample of pure water is 7 at room temperature. What will be its pH when a pinch of solid baking soda is dissolved in it ?
(A) Very near to 7 (B) Less than 7 (C) More than 7 (D) Exactly 7

26. The characteristic property of the following chemical reaction is :

$$Na_2CO_3 + 2HCl \rightarrow 2NaCl + CO_2 + H_2O$$

(A) Change in colour (B) Precipitation (C) Effervescence (D) Absorption of heat

SECTION – C (BIOLOGY)

27. Which of the following statements about erythrocytes is correct ?
(A) They fight infection
(B) They clot blood
(C) They lack a nucleus
(D) They are produced in spleen

28. An increased white blood cell count is indicative of which disease
(A) Lapus (B) Leukemia (C) Anaemia (D) Malanome

29. Oxygen and food substances are provided to heart through
(A) Pulmonary arch (B) Aortic arch (C) Coronary arteries (D) Subclavian artery

30. Bundle of His is a network of
(A) Muscle fibres distributed throughout heart walls
(B) Muscle fibres found only in ventricle wall
(C) Nerve fibres distributed in ventricle wall
(D) Nerve fibres found throughout the heart

Space for rough work

31. Oedema is due to
(A) Increased permeability of capillary walls
(B) Increased capillary pressure
(C) Reduced return of lymph to blood
(D) All of the above

32. If husband has blood group O and wife blood group AB, the blood group of the child can not be
(A) A (B) AB (C) B (D) O or AB

33. In uraemia there is
(A) Increased urine output (B) Increased urea in blood
(C) Increased serum cholestrol (D) Increased blood sugar

34. Chances of erythroblastosis foetalis occurring during second pregnancy when the baby is :
(A) Rh^+ and mother Rh^+ (B) Rh^- and mother Rh^+ (C) Rh^+ and mother Rh^- (D) Rh^- and mother Rh^-

35. Glomerular filterate contain glucose in comparison to plasma
(A) More (B) Same (C) Less (D) Nil

36. Major function of contractile vacuole of amoeba is
(A) Excretion (B) Circulation (C) Osmoregulation (D) All the above

37. Which blood vessel takes blood away from the kidney
(A) Renal portal vein (B) Renal vein (C) Afferent arteriole (D) Efferent arteriole

38. Find the correct answers about glomerular filterate
(1) Formed continuously through ultrafilteration of blood
(2) Lipid free fluid collects in the lumen of bowman's capsule
(3) Protein free fluid collects in the lumen of Bowman's capsule
(4) Formed by process of selective reabsorption
(A) 1, 2, 3 correct (B) 1, 2 correct (C) 2, 4 correct (D) 1, 3 correct

39. Which of the following are uricotelic animals
(A) Rohu and Frog (B) Lizard and crow (C) Camel & frog (D) Earthworm & eagle

40. Which one of the following statement in regard to the excretion by the human kidney is correct ?
(A) Ascending limb of loop of Henle is impermeable to electrolyte
(B) Descending limb of loop of Henle is impermeable to water
(C) Distal convoluted tubuler is incapable of reabsorbing HCO_3
(D) Nearly 99% of the glomerular fiterate is reabsorbed by the renal tubules

Space for rough work

SECTION – D (MATHEMATICS)

41. If $-5 \le x \le 5$ and $-5 \le y \le 5$, then what is the highest possible value of $(5x - 6y)$?
(A) 24 (B) 55 (C) 65 (D) 11

42. If $(-1)^n + (-1)^{4n} = 0$, then n is :
(A) any positive integer (B) any negative integer
(C) any odd natural number (D) any even natural number

43. Pick up the irrational numbers from $\frac{3}{2}$, $(\pi\text{-}1)$, $(3+\sqrt{2}) - \sqrt{3}$, -7, $\sqrt{4}$, 8, $\frac{-9}{8}$ and π
(A) $\sqrt{4}$, 8 (B) $\frac{3}{2}, \sqrt{4}, -7, \frac{-9}{8}$
(C) π, $(\pi-1)$, $(3+\sqrt{2}) - \sqrt{3}$ (D) None of these

44. If $x > 0$, $y > 0$ and $z > 0$, and $12xyz = 108$, find the minimum value of $2x + 3y + 4z$:
(A) 12 (B) 18 (C) 24 (D) 27

45. If $x + y + z = 0$ and $x^2 + y^2 + z^2 = 26$, find $x^4 + y^4 + z^4$:
(A) 174 (B) 260 (C) 338 (D) 676

46. If $(2x - 1)(2x - 2)(2x - 3)(2x - 4)(2x - 5) >, 0$, how many single-digit whole number values can x assume :
(A) 10 (B) 9 (C) 8 (D) 7

47. Solve for x : $9x^2 - 6a^2x + (a^4 - b^4) = 0$
(A) $a^2 - b^2, a^2 + b^2$ (B) $\frac{a^2 - b^2}{9}, \frac{a^2 + b^2}{9}$ (C) $\frac{a^2 - b^2}{3}, \frac{a^2 + b^2}{3}$ (D) None of these

48. A fast train takes 3 hours less than a slow train for a journey of 600 km. If the speed of the slow train is 10 km/hr less than that of the fast train, find the speed of the fast train.
(A) 40 km/hr (B) 60 km/hr (C) 30 km/hr (D) 50 km/hr

49. The speed of a boat in still water is 11 km/hr. It can go 12 km upstream and return downstream to the original point in 2 hours 45 minutes. find the speed of the stream.
(A) 2 km/hr (B) 4 km/hr (C) 5 km/hr (D) None of these

50. $1^2 + 2^2 + 3^2 + 4^2 + \ldots + 100^2 =$:
(A) 5050 (B) $(5050)^2$ (C) 42925 (D) None of these

Space for rough work

51. Find the value of :
$100^2 - 99^2 + 98^2 - 97^2 + ... + 2^2 - 1^2$
(A) 5010 (B) 5040 (C) 5050 (D) 4050

52. The value of $(21^2 + 22^2 + 23^2 + ...30^2)$ is :
(A) 19755 (B) 6585 (C) 6590 (D) None of these

53. In a ΔABC, $\angle C = 90°$, AB = 29 cm, BC = 21 cm and $\angle ABC = \theta$ then $\cos^2\theta - \sin^2\theta$ =
(A) $\frac{39}{841}$ (B) $\frac{40}{841}$ (C) $\frac{42}{841}$ (D) $\frac{41}{841}$

54. In ΔOPQ, right angled at P, $\angle POQ = \theta$, OP = 7 cm and OQ –PQ = 1 cm then $\tan\theta$ =
(A) $\frac{24}{7}$ (B) $\frac{7}{24}$ (C) $\frac{24}{25}$ (D) $\frac{7}{25}$

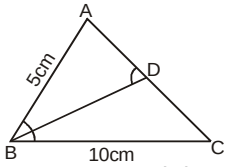
55. $2(\sin^6\theta + \cos^6\theta) - 3(\sin^4\theta + \cos^4\theta)$ is equal to :
(A) 0 (B) $\sin\theta + \cos\theta$ (C) – 1 (D) None of these

56. If the centroid of the triangle formed by the points (a, b), (b, c) and (c, a) is at the origin, then $a^3 + b^3 + c^3$ =
(A) abc (B) 0 (C) a + b + c (D) 3abc

57. If (1, a), (2, b), $(c^2, 3)$ are the vertices of a triangle then centroid
(A) Lies on the x-axis (B) Lies on the y-axis
(C) Is origin it self (D) Does not lie on the y-axis

58. Find the area bounded by line 3x + 4y = 12 and both axes :
(A) 6 cm^2 (B) 16 cm^2 (C) 8 cm^2 (D) 9 cm^2

59. In given figure, $\angle ABC = \angle ADB$, AB = 5cm, BD = 4cm and BC = 10cm. Find DC



(A) 4cm (B) 3cm (C) 7.5cm (D) 10.5

Space for rough work

60. The length of the sides of a triangle are $x + 1$, $9 - x$ and $5x - 3$. The number of values of x for which the triangle is isosceles is :
(A) 0 (B) 1 (C) 2 (D) 3

SECTION – E (SST)

61. Match the columns :

(a)	State Flower of Rajasthan	(i)	Khejri
(b)	State Tree of Rajasthan	(ii)	Rohida
(c)	State Bird of Rajasthan	(iii)	Godawan
(d)	State Dance of Rajasthan	(iv)	Ghoomar

(A) a – ii; b – i, c – iv; d – ii (B) a – ii; b – i, c – iii; d – iv
(C) a – i; b – ii, c – iii; d – iv (D) a – iv; b – iii, c – ii; d – i

62. The northern plain lies between :
(A) the Delhi range and the Rajmahal hills (B) the Delhi range and the Vindhyachal range
(C) the Delhi range and the Aravallis (D) all of the above

63. The jet streams are the fast blowing air currents in the upper layers of the atmosphere, they control:
(A) the advancement of monsoon climate (B) western disturbances which affect India's climate
(C) monsoon breaks (D) all of the above

64. The Coromandel coast of Tamil Nadu receives rainfall due to:
(A) north west trade winds (B) north east trade winds
(C) Bay of Bengal Branch of Monsoon winds (D) all of the above

65. Type of resource obtained from biosphere that contains life is.
(A) Abiotic resource (B) Human made resource
(C) Non- renewable (D) Biotic

66. Treaty of Vienna held in which year
(A) 1816 (B) 1817 (C) 1815 (D) 1814

67. Which is cultivable waste land?
(A) left uncultivated for a long time
(B) the land which has become wasteland due to loss of fertility
(C) the total arable land in our country
(D) none of the above

68. Which among the following is not a criteria of differentiation between khadar and bangar.
(A) Age of the soil (B) Particle size (C) Iron content (D) Fertility

Space for rough work

69. In addition to the powers given in the Union and Concurrent List, the Union Government has the -
(A) Residuary powers (B) Federal powers
(C) Power to legistate in State List (D) None of these

70. Who decides whether a bill is a finance bill or an ordinary bill?
(A) President (B) Chairmen (C) Speaker (D) Prime minister

71. The Panchayati Raj system was adopted to -
(A) make people aware of politics (B) decentralise the power of democracy
(C) to provide political education to the rural people (D) all of the above

72. The need for local government can be justified primarily on the grounds of -
(A) Administrative efficiency (B) The principle of grass root democracy
(C) Promoting local leadership (D) All of the above

73. The Election Commission does not conduct the election to the —
(A) Lok Sabha (B) Rajya Sabha (C) Local bodies (D) President election

74. Which of the following is the Presiding Officer of Rajya Sabha?
(A) President (B) Vice President (C) Prime Minister (D) Chief Justice

75. Zollverein was
(A) Custom Union (B) Name of French army
(C) Trade union (D) Language spoken in Germany

76. Territorial waters of a country extend upto :
(A) 12 Nautical miles (B) 13 Nautical miles (C) 10 Nuautical miles (D) 14 Nuautical miles

77. By-elections are held:
(A) out of the normal schedule.
(B) if an elected member of the Lok Sabha dies while in office
(C) if an elected member of the Lok Sabha or a state legislative assembly dies while in office or resigns or his office falls vacant due to some other reasons
(D) all of the above

78. Which of the following products is not distributed through PDS.
(A) Pulses (B) Wheat (C) Rice (D) Sugar

79. Rajasthan day is celebrated every year or:
(A) 20th March (B) 15th March (C) 30th March (D) 28th March

Space for rough work

80. Which is the only perennial river in Rajasthan?
(A) Jojri (B) Sabarmati (C) Chambal (D) Aravari

81. World trade organization is the organization whose aim is to liberalize
(A) Internal trade (B) international trade (C) external trade (D) national trade

82. The restriction imposed on imports is known as
(A) trade formality (B) trade barrier (C) trade control (D) trade shortage

83. Who are the most severally affected from WTO rules made by developed countries?
(A) Indian farmers (B) Farmer of USA (C) Industrialist in India (D) Industrialist in China

84. "Ferrel's law" is followed by
(A) Jet streams (B) wiond forces (C) Coriolis force (D) cyclonic force

85. EL-Nino is
(A) warm current (B) reversal of wind
(C) broad trough of low pressure (D) wind of upper atmosphere

86. The factor responsible for the rainfall in months of winter in northern India is
(A) Tropical easterly jets (B) Tropical westerly jets
(C) Western cyclonic disturbances (D) Trade winds

87. The physical feature that protects the Indian subcontinent from extremely cold winds from central Asia is
(A) Peninsular plateau (B) Himalayan mountain (C) Coastal region (D) Northern plains

88. Organisation estimating poverty line in India is
(A) Survey design and Research Division (B) Central Statistical Organization
(C) National Sample Survey Organization (D) Economic Census

89. Where was Napoleon finally defeated ?
(A) Austria-Hungary (1818) (B) Bosnia - Herzigovina (1820)
(C) Paris (1817) (D) Water Loo (1815)

90. National food for Work Programme was launched in
(A) 2001 (B) 2003 (C) 2004 (D) 2005

91. The Gaddi shepherds are found in more numbers in the state of
(A) Assam (B) Bengal (C) Himachal Pradesh (D) Tamilnadu

92. The Maasai cattle herders live primarily in
(A) Central Africa (B) Eastern Africa (C) Northern Africa (D) West Africa

Space for rough work

93. "Raikas' the Pastoral community lived in which of the Indian state?
(A) Andhra Pradesh (B) Jharkhand (C) Chhatisgarh (D) Rajasthan

94. The main article of the profit for the East India Company in India was
(A) Opium (B) Indigo (C) Tea (D) Cotten

95. With the rise in the price of wool, rich farmers
(A) increased wages of the labour (B) started enclosing common land
(C) moved wsestward (D) started fighting with natives

96. The Election Commissioners can be removed by the
(A) Attorney General (B) Chief Justice of India (C) President (D) Governer

97. Decision on every issue related to the elections are taken by the
(A) Prime Minister (B) Chief Minister
(C) Chief election commissioner (D) Chief Commissioner

98. Minimum age required to contest the electrons for Lok Sabha is
(A) 23 (B) 24 (C) 25 (D) 28

99. The "Election Day" means
(A) nominations filling day (B) last campaigning day
(C) counting of votes day (D) polling day for the voters

100. The no Confidence motion can be moved in
(A) Lok Sabha (B) Rajya Sabha (C) Both (A) and (B) (D) Joint sitting

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Space for rough work

Answer Key (NTSE Mock Test-1) Class X (SAT)

1. C	2. A	3. A	4. A	5. B	6. C	7. B	8. D
9. B	10. C	11. A	12. C	13. A	14. B	15. B	16. B
17. B	18. A	19. B	20. B	21. A	22. B	23. B	24. D
25. C	26. C	27. C	28. B	29. C	30. B	31. C	32. D
33. B	34. C	35. B	36. C	37. B	38. D	39. B	40. D
41. B	42. C	43. C	44. B	45. C	46. B	47. C	48. D
49. C	50. D	51. C	52. B	53. A	54. A	55. C	56. D
57. D	58. A	59. D	60. D	61. B	62. D	63. D	64. B
65. D	66. C	67. B	68. C	69. A	70. C	71. D	72. C
73. C	74. B	75. A	76. A	77. C	78. A	79. C	80. C
81. B	82. B	83. A	84. C	85. A	86. A	87. B	88. B
89. D	90. C	91. C	92. B	93. D	94. C	95. B	96. B
97. C	98. C	99. D	100. A				

Space for rough work