FIITJEE Admission Test

for students presently in **Class 9 (Paper 2)**

Time: 3 Hours (2:00 pm – 5:00 pm)   **CODE: 910-2**   *Maximum Marks: 272*

Instructions:

Caution: Class, Paper, Code as given above MUST be correctly marked on the answer OMR sheet before attempting the paper. Wrong Class, Paper or Code will give wrong results.

1. **You are advised to devote 55 Minutes on Section-I, 45 Minutes on Section-II, 40 Minutes on Section-III and 40 Minutes on Section-IV.**

2. This Question paper consists of 4 sections. Marking scheme is given in table below:

Section	Subject		Question no.	Marking Scheme for each question	
				Correct answer	Wrong answer
SECTION – I	PHYSICS	(PART-A)	1 to 12	+1	0
	CHEMISTRY	(PART-B)	13 to 24	+1	0
	MATHEMATICS	(PART-C)	25 to 36	+1	0
	BIOLOGY	(PART-D)	37 to 48	+1	0
SECTION – II	PHYSICS	(PART-A)	49 to 52	+4	−1
	CHEMISTRY	(PART-B)	53 to 56	+4	−1
	MATHEMATICS	(PART-C)	57 to 60	+4	−1
	BIOLOGY	(PART-D)	61 to 68	+4	−1
SECTION – III	PHYSICS	(PART-A)	69 to 76	+3	−1
	CHEMISTRY	(PART-B)	77 to 84	+3	−1
	BIOLOGY	(PART-C)	85 to 92	+3	−1
SECTION – IV	PHYSICS	(PART-A)	93 to 97	+3	0
	CHEMISTRY	(PART-B)	98 to 102	+3	0
	MATHEMATICS	(PART-C)	103 to 107	+3	0
	PHYSICS	(PART-D)	108 to 110	+3	0
	CHEMISTRY	(PART-E)	111 to 113	+3	0
	MATHEMATICS	(PART-F)	114 to 116	+3	0

3. Answers have to be marked on the OMR sheet. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.

4. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.

5. **Before attempting paper write your OMR Answer Sheet No., Registration Number, Name** and **Test Centre** in the space provided below.

6. **See method of marking of bubbles at the back of cover page for question no. 108 to 116.**

Note: *Please check this Question Paper contains all **116** questions in serial order. If not so, exchange for the correct Question Paper.*

OMR Answer Sheet No. : _____

Registration Number : _____

Name of the Candidate : _____

Test Centre : _____

For questions **108 to 116**

Numerical based questions single digit answer 0 to 9

Example 1:

If answer is 6.

Correct method:

⓪ ① ② ③ ④ ⑤ ● ⑦ ⑧ ⑨

Example 2:

If answer is 2.

Correct method:

⓪ ① ● ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Recommended Time: 55 Minutes for Section – I

Section – I

PHYSICS – (PART – A)

*This part contains **12 Multiple Choice Questions** number **1 to 12**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1. The magnitude of displacement is equal to the distance covered in a given internal of time if the particle
   (A) moves with fast velocity
   (B) moves with Slow velocity
   (C) moves with constant velocity
   (D) none of these

2. If a particle starts from rest with acceleration 2 m/sec^2 find distance moved in 10th second.
   (A) 18 m
   (B) 19 m
   (C) 20 m
   (D) None of these

3. A stone dropped from the top of the tower touches the ground in 4 sec. The height of the tower is about
   (A) 80 m
   (B) 40 m
   (C) 20 m
   (D) 160 m

4. The area under a speed-time graph is represented by the unit
   (A) m
   (B) m^2
   (C) m^3
   (D) m^{-1}

5. The force of gravitation is
   (A) Repulsive
   (B) attractive
   (C) (A) & (B) both correct
   (D) none of these
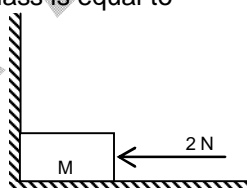
Space for Rough Work

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6.   Which graph shown in the following ones represents a state of rest for an object?

(A)

(B)

(C)

(D)
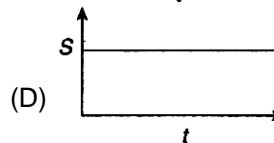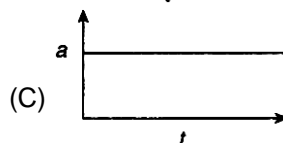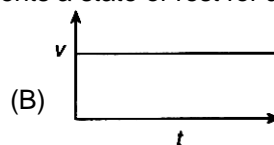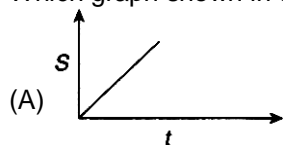
7.   Figure shows velocity time graph for a particle in rectilinear motion. Find the displacement covered by the object in thirty seconds
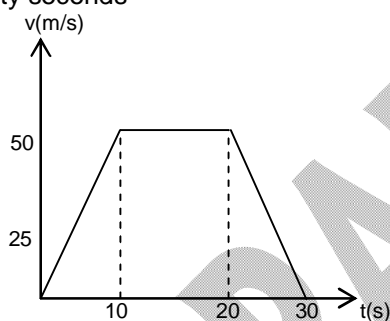
(A) 500 m   (B) 750 m
(C) 650 m   (D) 1000 m

8.   The gravitational force between two stones of mass 1 *kg* each separated by a distance of 1 *metre* is
(A) Zero   (B) 6.675×10^{-5} *newton*

(C) 6.675×10^{-11} *newton*   (D) 6.675×10^{-8} *newton*

9.   A 2 N force is applied to a mass M that is adjacent to a wall, as shown. If the mass is 2kg the force that the wall exerts on the mass is equal to

(A) 0 N   (B) 2 N
(C) 15 N   (D) 19.6 N

Space for Rough Work

10. Relation between 'Newton' and 'Dyne'
    (A) $1 N = 10^5$ dyne
    (B) $1 N = 10^2$ dyne
    (C) $1 N = 1$ dyne
    (D) 1 dyne $= 10^5 N$

11. In doubling the mass and acceleration of the mass, the force acting on the mass with respect to the previous value
    (A) Decreases to half
    (B) Remains unchanged
    (C) Increases two times
    (D) Increases four times

12. Force of gravity is least at
    (A) The equator
    (B) The poles
    (C) A point in between equator and any pole
    (D) None of these

Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **12 Multiple Choice Questions** number **13 to 24**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

13. Homogeneous mixture is formed by mixing
    (A) Benzene and water
    (B) iron filing and sand
    (C) Silver chloride and water
    (D) ethanol and water

14. The total number of electrons present in 16g of methane gas is
    (A) 96.352×10^{23}
    (B) 48.176×10^{23}
    (C) 60.220×10^{23}
    (D) 30.110×10^{23}

15. Diamond is lustrous because
    (A) it is colourless
    (B) it is pure
    (C) Both (A) and (B) are correct
    (D) its refractive index is high

16. When the liquid is spun rapidly, the denser particles are forced to the bottom and the lighter particles stay at the top. This principle is used in:
    (A) Centrifugation
    (B) Fractional distillation
    (C) Evaporation
    (D) Tunneling

17. The symbol of cadmium is
    (A) Ca
    (B) Cu
    (C) Cm
    (D) Cd

18. Which of the following describes an isotope with a mass number of 99 that contains 56 neutrons in its nucleus?
    (A) $^{99}_{56}Ba$
    (B) $^{119}_{56}Ba$
    (C) $^{99}_{43}Tc$
    (D) $^{56}_{23}Tc$

19. $^{55}_{25}Mn^{++}$ has:
    (A) 25 protons and 30 neutrons
    (B) 25 neutrons and 25 protons
    (C) 25 electrons and 40 protons
    (D) None of these

Space for Rough Work

20. Which elements are used in atomic reactors to control the speed of neutrons?
    (A) Boron & Cadmium
    (B) Cadmium & Aluminium
    (C) Boron & Iron
    (D) Sodium & Potassium

21. The unified atomic mass unit has a value of
    (A) $1.66 \times 10^{-27} g$
    (B) $1.66 \times 10^{-27} kg$
    (C) $1.66 \times 10^{-25} g$
    (D) $1.66 \times 10^{-26} kg$

22. Mass per cent of Na in Na_2CO_3 is
    (A) 21.52%
    (B) 31.20%
    (C) 38.20%
    (D) 43.40%

23. The Brownian motion is due to the
    (A) temperature fluctuation within the liquid phase
    (B) electrostatic interactions between charged particles
    (C) Convection current
    (D) impact of solvent molecules on the colloidal particle

24. Milk is
    (A) fat dispersed in water
    (B) water dispersed in fat
    (C) fat and water dispersed in an oil
    (D) a homogeneous solution of fat and water
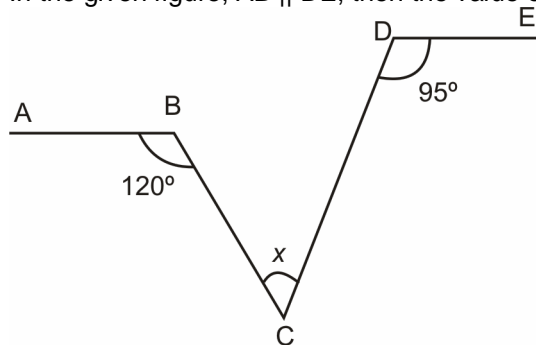
Space for Rough Work

MATHEMATICS – (PART – C)

*This part contains **12 Multiple Choice Questions** number **25 to 36**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

25. What will be the value of k if $2^{100} - 2^{99} - 2^{98} + 2^{97} = k.2^{97}$
    (A) 1 (B) 2 (C) 3 (D) 4

26. If $a^{\frac{1}{3}} + b^{\frac{1}{3}} + c^{\frac{1}{3}} = 0,$ then
    (A) a + b+ c = 0 (B) $(a + b + c)^3 = 27abc$
    (C) a + b + c = 3abc (D) $a^3 + b^3 + c^3 = 0$

27. In the given figure, AB || DE, then the value of x is

    (A) 25⁰ (B) 35⁰ (C) 45⁰ (D) 55⁰

28. The lengths of the sides of a triangle are integral. If the perimeter of triangle is 6 cm, then how many such triangles are possible ?
    (A) 0 (B) 1 (C) 2 (D) 3

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

30. Which of the following case corresponding line does not pass through origin ?
    (A) y = x (B) y = – x (C) x = 2y (D) 2x + 3y = 10

Space for Rough Work

31. The H.C.F. of the polynomials $(x + 1)(x^2 - 4)$ and $(x^2 - 1)(x + 2)$ is
(A) $(x-1)(x-2)$ (B) $(x + 1)(x-2)$
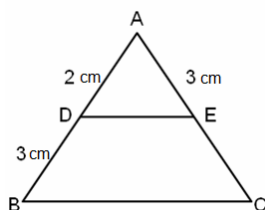(C) $(x + 1)(x + 2)$ (D) $(x - 1)(x + 2)$

32. If $\left(x + \sqrt{2}\right)$ is a factor of $kx^2 - \sqrt{2}x + 1$, the value of k is :

(A) $-\dfrac{3}{2}$ (B) $-\dfrac{2}{3}$ (C) $\dfrac{3}{2}$ (D) $\dfrac{2}{3}$

33. If $\dfrac{2x}{a} + \dfrac{y}{b} = 2, \dfrac{x}{a} - \dfrac{y}{b} = 4$, then x = ?, y = ?

(A) $\dfrac{2}{a}, \dfrac{2}{b}$ (B) $2a, -2b$ (C) $-2a, 2b$ (D) $\dfrac{a}{2}, -\dfrac{b}{2}$

34. In the figure $\angle ADE = \angle ABC$, then CE

(A) 2 cm   (B) 5 cm   (C) 9/2 cm   (D) 3 cm

35. The product of any three consecutive positive integers is always divisible by
(A) 6   (B) 7   (C) 8   (D) 9

36. In the figure measures of $\angle D$ and $\angle F$ are respectively
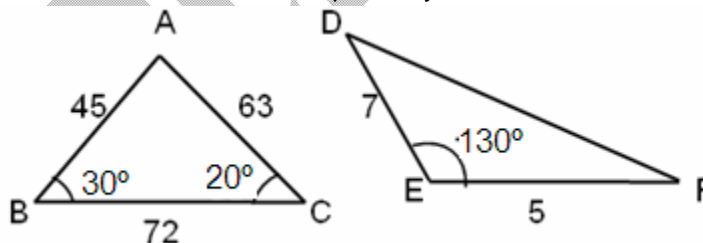
(A) 50°, 40°   (B) 20°, 30°   (C) 40°, 50°   (D) 30°, 20°

Space for Rough Work

BIOLOGY – (PART – D)

*This part contains **12 Multiple Choice Questions** number **37 to 48**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

37. Cristae are:
    (A) In growths of plasmalemma
    (B) Ingrowths of thylakoids
    (C) In growths of the outer mitochondrial membrane
    (D) Folds of the inner mitochondrial membrane

38. Nucleoid is found in
    (A) plant cells   (B) Animal cells
    (C) Bacterial cells and cyanobacteria   (D) Plant cells, Bacteria and blue – green algae

39. The organelle that is involved in the formation of lysosome is
    (A) Golgi apparatus   (B) Mitochondria
    (C) Thylakoid   (D) Vacuole

40. Continuity of cytoplasm from cell to cell is maintained through
    (A) Middle Lamella   (B) Plasmodesmata
    (C) Endoplasmic Reticulum   (D) Cell membrane system

41. Cytokinesis refers to
    (A) division of nucleus   (B) division of cytoplasm
    (C) division of chromosomes   (D) none of these

42. Collenchyma can be differentiated from parenchyma by
    (A) Living protoplasm   (B) Pecto-cellulosic deposits at corners
    (C) Cellulosic wall   (D) No protoplasm.

43. Match the plant tissue of column I with its location in column II and select the correct combination.

	Column – I (Plant tissue)		Column – II (Location)
(i)	Apical meristem	1.	Cambium
(ii)	Intercalary meristem	2.	Leaf
(iii)	Lateral meristem	3.	Shoot apex
(iv)	Parenchyma	4.	Base of node

	i	ii	iii	iv
(A)	1	4	3	2
(B)	2	3	4	1
(C)	1	2	3	4
(D)	3	4	1	2

Space for Rough Work

44. Which of the following is not a function of blood plasma?
    (A) Uniform distribution of heat
    (B) Hormone distribution
    (C) Mechanical support to body
    (D) Transport of nutrients

45. BCG is given for
    (A) Tetanus
    (B) Polio
    (C) Tuberculosis
    (D) Cholera

46. Hepatitis-A can spread through
    (A) Air pollution
    (B) Dog bite
    (C) Insect vector
    (D) Oral faecal route

47. Which of the following does not obey cell theory.
    (A) Bacteria
    (B) Virus
    (C) Plant Cell
    (D) Protozoa

48. The longest cell of human body is
    (A) Sperm
    (B) Osteocyte
    (C) Neuron
    (D) Chondrocyte

Space for Rough Work

Recommended Time: 45 Minutes for Section – II

Section – II
PHYSICS – (PART – A)

*This part contains **4 Multiple Choice Questions** number **49 to 52**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

49. A ball of mass m_1 and another ball of mass m_2 are dropped from equal height. If time taken by the balls are t_1 and t_2 respectively, then

(A) $t_1 = \dfrac{t_2}{2}$ 　　　　　　　　　　(B) $t_1 = t_2$

(C) $t_1 = 4t_2$ 　　　　　　　　　　(D) $t_1 = \dfrac{t_2}{4}$

50. Velocity of a body on reaching the point from which it was projected upwards, is
(A) $v = 0$ 　　　　　　　　　　(B) $v = 2u$
(C) $v = 0.5u$ 　　　　　　　　　　(D) $v = u$

51. When a body is projected vertically upwards with a velocity 10 m/s, its speed after 1 seconds is (g =10 m/s^2):
(A) 20 m/s 　　　　　　　　　　(B) zero
(C) 10 m/s 　　　　　　　　　　(D) 15 m/s

52. A ball is thrown upwards. After leaving the hand, the acceleration of ball
(A) remains constant 　　　　　　　　　　(B) increases
(C) decreases 　　　　　　　　　　(D) is zero

Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **4 Multiple Choice Questions** number **53 to 56**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

53. What is the correct formula for chromium (III) sulfate?
    (A) $Cr_3(SO_4)_2$
    (B) $Cr_2(SO_4)_3$
    (C) $Cr(SO_4)_2$
    (D) Cr_2SO_4

54. Which of the following fundamental particle has highest mass?
    (A) Electron
    (B) Proton
    (C) Neutron
    (D) All have same masses

55. Cathode rays have same charge to mass ratio as:
    (A) α-particles
    (B) β-rays
    (C) Anode rays
    (D) Protons

56. When cathode rays fall on metal such as tungsten they prduce:
    (A) γ-rays
    (B) X-rays
    (C) β-rays
    (D) Cosmic rays

Space for Rough Work

MATHEMATICS – (PART – C)

*This part contains **4 Multiple Choice Questions** number **57 to 60**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

57. If $\sqrt{13 - x\sqrt{10}} = \sqrt{8} + \sqrt{5}$, then find the value of x
    (A) – 5   (B) –6   (C) –4   (D) –2

58. Number of positive zeros of $f(x) = 2x^5 + 4x^2 + 5$ is
    (A) 6   (B) 5   (C) 1   (D) 0

59. If $2x + \dfrac{1}{3x} = 5$, then find the value of $\dfrac{5x}{6x^2 + 20x + 1}$

    (A) $\dfrac{1}{4}$ (B) $\dfrac{1}{6}$ (C) $\dfrac{1}{5}$ (D) $\dfrac{1}{7}$

60. In the given figure $\angle A + \angle B + \angle C + \angle D + \angle E + \angle F + \angle G$ is
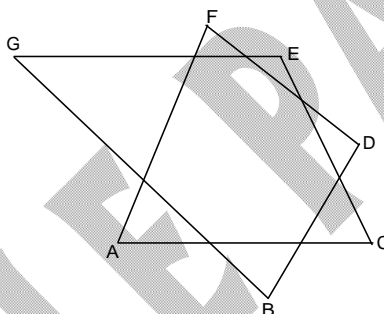
    (A) 360^0 (B) 540^0 (C) 1020^0 (D) 180^0

Space for Rough Work

BIOLOGY – (PART – D)

*This part contains **8 Multiple Choice Questions** number **61 to 68**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

61. Eukaryotic ribosomes break into:
    (A) 50 S and 30 S
    (B) 60 S and 40 S
    (C) 60 S and 50 S
    (D) 40 S and 40 S

62. Antibodies are produced by
    (A) Erythrocytes
    (B) Thrombocytes
    (C) Monocytes
    (D) Lymphocytes

63. Dum-dum fever is caused by _____ and is transmitted by _____
    (A) *Leishmania donovani, Glossina*
    (B) *Trypanosoma, Glossina*
    (C) *Giardia, Tsetse* fly
    (D) *Leishmania donovani, Phlebotomus*

64. Mitotic anaphase differs from metaphase in possessing:
    (A) same number of chromosomes and half number of chromatids
    (B) half number of chromosomes and same number of chromatids
    (C) half number of chromosomes and half number of chromatids
    (D) same number of chromosomes and same number of chromatid

65. Which one of the following pairs of disease can spread through blood transfusion?
    (A) Cholera and Hepatitis A
    (B) Hepatitis B and AIDS
    (C) Diabetes mellitus and Malaria
    (D) Hay fever and AIDS

66. Fever in malaria is due to
    (A) entry of sporozoites into blood capillaries
    (B) entry of merozoites into liver cells
    (C) release of merozoites from red blood cells
    (D) entry of cryptomerozoites into red blood cells

67. Active immunity is obtained by
    (A) antibodies taken from other animals
    (B) weakened germs infection
    (C) mothers' milk
    (D) antibiotics

68. Select the wrong statement:
    (A) Plant cells are surrounded by a living, rigid outer layer called cell wall.
    (B) Plant cell wall is made up of cellulose.
    (C) Bacterial cell wall is made up of peptidoglycan
    (D) Both prokaryotic and eukaryotic plasma membranes are composed of lipids and proteins

Space for Rough Work

Recommended Time: 40 Minutes for Section – III

Section – III
PHYSICS – (PART – A)

*This part contains **8 Multiple Choice Questions** number **69 to 76.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

69. The normal force acting on the block by the floor is (g = 9.8 m/s²)
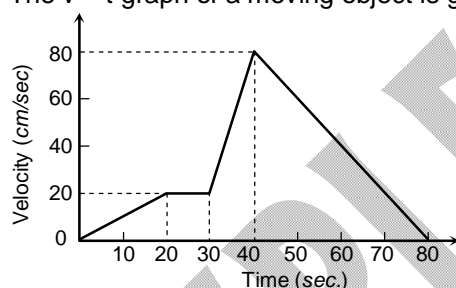   (A) 100 N
    (B) 135 N
    (C) 150 N
    (D) 96 N

70. Two spheres of masses *m* and *M* are situated in air and the gravitational force between them is *F*. The space around the masses is now filled with a liquid of specific gravity 3. The gravitational force will now be
    (A) F/9   (B) 3F
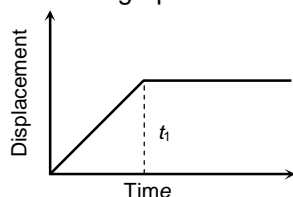   (C) F   (D) F/3

71. The v – t graph of a moving object is given in figure. The maximum acceleration is

    (A) 1 cm/sec²   (B) 2 cm/sec²
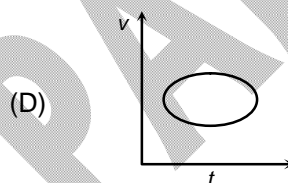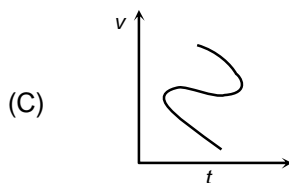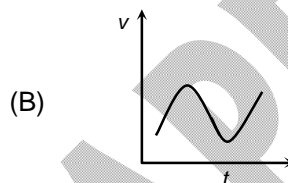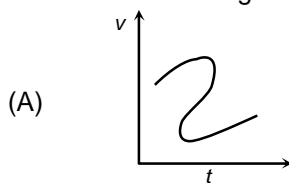   (C) 3 cm/sec²   (D) 6 cm/sec²

Space for Rough Work

72. The x – t graph shown in figure represents

(A) Constant velocity
(B) Velocity of the body is continuously changing
(C) zero velocity
(D) The body travels with constant speed upto time t_1 and then stops

73. Which of the following velocity-time graphs shows a realistic situation for a body in motion

(A)

(B)

(C)

(D)

74. If a particle moves in a circle describing equal angles in equal times, its velocity vector
(A) Remains constant   (B) Changes in magnitude
(C) Changes in direction   (D) Changes both in magnitude and direction

75. The earth E moves in an elliptical orbit with the sun S at one of the foci as shown in figure. Its speed of motion will be maximum at the point
(A) C
(B) A
(C) B
(D) D
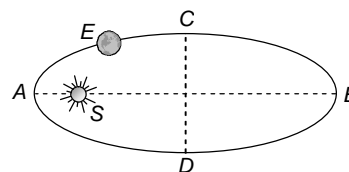
76. Choose the correct option (T - true; F - False):
(i) Unbalanced forces cannot set a stationary body in motion.
(ii) A Balanced force acts on a body moving with constant velocity.
(iii) If net force on a body is zero, its acceleration is zero.
(A) TFT   (B) FFT
(C) FTT   (D) FTF

Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **8 Multiple Choice Questions** number **77 to 84**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

77. Charge on α-particle is:
    (A) 2 unit   (B) 4 unit
    (C) 1 unit   (D) zero

78. The number of electron in an element with atomic number X and mass number Y will be
    (A) X-Y   (B) Y-X
    (C) X + Y   (D) X

79. Sol and gel are examples of
    (A) Solid-solid colloids
    (B) sol is a solid-liquid colloid and gel is liquid solid colloid
    (C) Sol is a solid-solid colloid and gel is solid-liquid colloid
    (D) Sol is a liquid solid colloid and gel is a solid liquid colloid

80. All noble gases are
    (A) Monoatomic   (B) Diatomic
    (C) Triatomic   (D) Both I and II

81. The path of light gets illuminated when passed through the
    (A) Blood   (B) Brine solution (aq)
    (C) Copper soulphate solution (aq)   (D) Acetic acid solution (aq)

82. Tyndall effect is due to
    (A) scattering of light by colloidal particles   (B) reflection of light by colloidal particles
    (C) refraction of light by colloidal particles   (D) Absorption of light by colloidal particles

83. How many total number of atoms are present in $CaCO_3$
    (A) 3   (B) 5
    (C) 7   (D) 9

84. Thomson's atomic model is known as:
    (A) Plum pudding model   (B) Raisin pudding model
    (C) Watermelon model   (D) All of these

Space for Rough Work

BIOLOGY – (PART – C)

*This part contains **8 Multiple Choice Questions** number **85 to 92**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

85. Which of the following statements are wrong?
    (i) Mitosis involves two sequential divisions, mitosis I and mitosis II.
    (ii) Meiosis results in the formation of four daughters cells with half of the number of chromosomes.
    (iii) Simple permanent tissues are made up of only one type of cell.
    (iv) Collenchyma provides stiffness to the plant body
    (A) ii and iii   (B) i and iv
    (C) iii and iv   (D) ii and iv

86. Match the following:
    a. *Trypanosoma gambiense*   (i) Kala azar
    b. *Leishmania donovani*   (ii) Amoebic dysentary
    c. *Giardia intestinalis*   (iii) African sleeping sickness
    d. *Entamoeba histolytica*   (iv) Diarrhoea

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

87. Where will sporozoite of malarial parasite be found
    (A) Within RBC of infected human
    (B) WBC of infected human
    (C) Salivary glands of infected female Anopheles mosquito
    (D) Salivary glands of young male Anopheles mosquito

88. Which is true of mycoplasma
    (A) they lack cell wall   (B) they are the smallest cells
    (C) they can survive without oxygen   (D) All of the above

89. In hyaline cartilage the matrix
    (A) contains loose fibres
    (B) contains blood vessels and valksmann's canal
    (C) contains ossein protein, chondrin proteins and osteocytes
    (D) is formed of chondrocytes and chondrin protein

Space for Rough Work

90. A cell will swell up if:
     (A) The concentration of solution in the cell is higher than the concentration of solution in surrounding medium
     (B) The concentration of solution in surrounding medium is higher than the concentration in the cell.
     (C) The concentration of water molecules is same in the cell and in the surrounding medium.
     (D) Concentration of water molecules does not play any significant role.

91. The important function of lymph is to
     (A) transport oxygen to the brain   (B) return RBCs to the lymph node
     (C) return interstitial fluid to the blood (D) transport CO_2 to the lungs

92. Connective tissue is
     (A) ectodermal in origin without intercellular spaces
     (B) mesodermal in origin without intercellular spaces
     (C) endodermal in origin without intercellular spaces
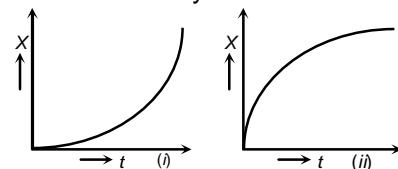   (D) mesodermal in origin with intercellular spaces
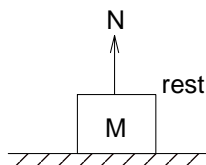
Space for Rough Work

Recommended Time: 40 Minutes for Section – IV

Section – IV

PHYSICS – (PART – A)

*This part contains **5 Multiple Choice Questions** number **93 to 97**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

93. Figures (i) and (ii) below show the displacement-time graphs of two particles moving along the *x*-axis. We can say that

    (A) Both the particles are having a uniformly accelerated motion
    (B) Both the particles are having a uniformly retarded motion
    (C) Particle (i) is having a uniformly accelerated motion while particle (ii) is having a uniformly retarded motion
    (D) (a),(b)&(c) all are correct

94. Three different objects of masses m_1, m_2 and m_3 are allowed to fall from rest and from the same point 'O' along three different frictionless paths. The speeds of the three objects, on reaching the ground, will be in the ratio of
    (A) $m_1 : m_2 : m_3$
    (B) $m_1 : 2m_2 : 3m_3$

    (C) 1 : 1 : 1
    (D) $\dfrac{1}{m_1} : \dfrac{1}{m_2} : \dfrac{1}{m_3}$

95. A particle is dropped under gravity from rest from a height $h(g = 9.8\,m/\sec^2)$ and it travels a distance $9h/25$ in the last second, the height h is
    (A) 100 m
    (B) 122.5 m
    (C) 145 m
    (D) 167.5 m

96. A force F_1 acts on a particle so as acclerate it from rest to a velocity v. The force F_1 is then replaced by F_2 which decelerates it to rest
    (A) F_1 must be equal to F_2
    (B) F_1 may be equal to F_2
    (C) F_1 must be unequal to F_2
    (D) none of these

97. When the normal force is doubled the coefficient of friction is

    (A) doubled
    (B) halved
    (C) not changed
    (D) tripled

Space for Rough Work

CHEMISTRY – (PART – B)

*This part contains **5 Multiple Choice Questions** number **98 to 102**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

98. An atom with 3 protons and 4 neutrons will have a valency of
    (A) 3   (B) 7
    (C) 1   (D) 4

99. The average atomic mass of a sample of an element 'X' is 16.2 u. What are the percentages of isotopes $^{16}_{8}X$ and $^{18}_{8}X$ in the sample?
    (A) $^{16}_{8}X = 80\%, ^{18}_{8}X = 20\%$ (B) $^{16}_{8}X = 60\%, ^{18}_{8}X = 40\%$
    (C) $^{16}_{8}X = 90\%, ^{18}_{8}X = 10\%$ (D) $^{16}_{8}X = 45\%, ^{18}_{8}X = 55\%$

100. Principle of chromatography is:
    (A) Rate of absorption   (B) Rate of adsorption
    (C) Rate of diffusion   (D) None of these

101. When two liquids do not mix, they form two separate layers and are known as
    (A) Miscible liquids   (B) Immiscible liquids
    (C) Saturated liquids   (D) Super saturated liquids

102. Which of the following will not sublime?
    (A) Camphor   (B) Ammonium chloride
    (C) Bromine   (D) Iodine

Space for Rough Work

MATHEMATICS – (PART – C)

This part contains **5 Multiple Choice Questions** number **103 to 107.** Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

103.   In the given figure, a+ b + c + d is

(A) 360^0 (B) 230^0 (C) 180^0 (D) 130^0
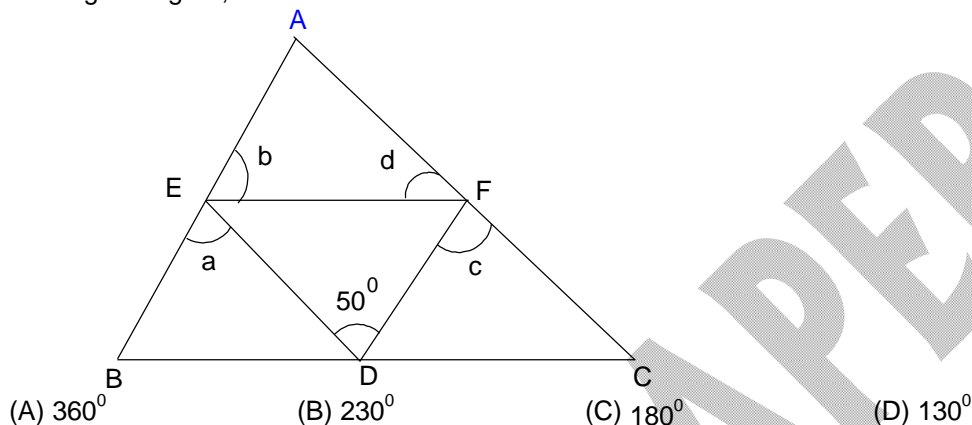
104.   98a63 is always divisible by 3, hence 'a' can not be
(A) 1   (B) 3   (C) 4   (D) 7

105.   If x, y and z are real numbers such that $\dfrac{x^2}{2} + y^2 + z^2 = (xy + yz + z) - \dfrac{1}{2}$, then possible value of

$x + y - 2z$ is
(A) 1   (B) 2   (C) –1   (D) 0

106.   There is a difference 12 years in the age of two students. If four years ago the age of the older student was 2 times the age of younger student, find age of younger student.
(A) 10 years   (B) 8 years   (C) 12 years   (D) 16 years

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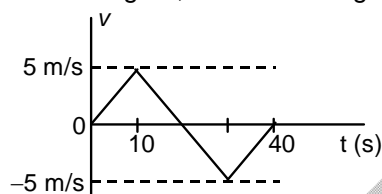(A) 6   (B) 16   (C) 8   (D) 9

Space for Rough Work

PHYSICS – (PART – D)

*This part contains **3 Numerical Based Questions** number **108 to 110**. Each question has **Single Digit Answer 0 to 9**.*

108. A ball is thrown vertically upward with velocity 20 m/s. Total distance covered by ball before striking the ground is 10n. meter. The value of n is _____

109. From the velocity-time plot shown in figure, find the average velocity during 40s.

110. A body of mass 2 kg moving with a velocity of 3 m/s collides head on with a body of mass 1kg moving in opposite direction with a velocity 4 m/s. After collision two bodies stick together and move with a common velocity of K/3 m/s, find the value of K.

Space for Rough Work

CHEMISTRY – (PART – E)

*This part contains **3 Numerical Based Questions** number **111 to 113**. Each question has **Single Digit Answer 0 to 9**.*

111. Calculate the number of protons in O^{-2} ion.

112. SO_2 is how many times heavier than O_2.

113. In the lithium atom, the number of electrons in the L shell is

Space for Rough Work

MATHEMATICS – (PART – F)

*This part contains **3 Numerical Based Questions** number **114 to 116**. Each question has **Single Digit Answer 0 to 9**.*

114. f(x) is a monic quadratic polynomial with f(–1) = 0 and f(1) + f(2) = 0.

Find $f\left(\dfrac{8}{5}\right)$

115. If $\dfrac{3^{2x-8}}{225} = \dfrac{5^3}{5^x}$ then the value of x will be :

116. The remainder when 1! + 2! + 3! + …. +100! Is divided by 24 is (Here n! = 1 × 2 × 3 × ……× n)

Space for Rough Work

FIITJEE Admission Test

for students presently in Class 9 (Paper 2)

SAMPLE PAPER ANSWER KEY

1.	C	2.	B	3.	A	4.	A
5.	B	6.	D	7.	D	8.	C
9.	B	10.	A	11.	D	12.	A
13.	D	14.	C	15.	D	16.	A
17.	D	18.	C	19.	A	20.	A
21.	B	22.	D	23.	D	24.	A
25.	C	26.	B	27.	B	28.	B
29.	D	30	D	31.	C	32.	A
33.	B	34.	C	35.	A	36.	B
37.	D	38.	C	39.	A	40.	B
41.	B	42.	B	43.	D	44.	C
45.	C	46.	D	47.	B	48.	C
49.	B	50.	D	51.	B	52.	A
53.	B	54.	C	55.	B	56.	B
57.	C	58.	D	59.	D	60.	B
61.	B	62.	D	63.	D	64.	A
65.	B	66.	C	67.	B	68.	A
69.	B	70.	C	71.	D	72.	D
73.	D	74.	C	75.	B	76.	C
77.	A	78.	D	79.	B	80.	A
81.	A	82.	A	83.	B	84.	D
85.	B	86.	D	87.	C	88.	D
89.	D	90.	A	91.	C	92.	D
93.	C	94.	C	95.	B	96.	B
97.	C	98.	C	99.	C	100.	B
101.	B	102.	C	103.	B	104.	B
105.	D	106.	D	107.	A	108.	4
109.	0	110.	2	111.	8	112.	2
113.	1	114.	0	115.	5	116.	9