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PREVIOUS YEAR PAPER · 2023

OLYMPIAD · STAGE I

NSEJS

National Standard Examination in Junior Science

2023

Question paper with official answer key

60	216	120 min	51
Questions	Maximum marks	Time	Paper code

Question paper and official answer key: Indian Association of Physics Teachers (IAPT), NSEJS 2023, paper code 51.
Solutions and notes: Zigyan. This booklet is not an IAPT publication.

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Sulokya Bibhuty

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- Priyanshi — 4 Years Classroom

Saksham Bishnoi qualified the Chemistry Olympiad twice and was selected for the Orientation-cum-Selection Camp at HBCSE, Mumbai.

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Given in the question paper

Physical constants you may need….

Mass of electron $m_e = 9.11\times10^{-31}$ kg	Magnitude of charge on electron $e = 1.60\times10^{-19}$ C
Mass of proton $m_p = 1.67\times10^{-27}$ kg	Planck's constant $h = 6.625\times10^{-34}$ Js
Acceleration due to gravity $g = 9.81$ ms^{-2}	Density of water at $\rho = 1.0\times10^{3}$ kg m^{-3}
Universal gravitational constant $G = 6.67\times10^{-11}$ Nm^{2}kg^{-2}	$(1+x)^n \approx 1+nx$, if $\lvert x\rvert << 1$
Universal gas constant $R = 8.31$ Jmol^{-1} K^{-1}	1 eV = 1.6×10^{-19} J
Boltzmann constant $k = 1.38\times10^{-23}$ J K^{-1}	$\sin(A-B) = \sin A\cos B - \cos A\sin B$
Avogadro's constant $A = 6.02\times10^{23}$ mol^{-1}	$E = mc^2$, It's an equation which gives mass and energy equivalence.
Atmospheric pressure (at STP) = 1.013×10^5 Nm^{-2}	One unit of electric power = 1kWh
Speed of light in free space $c = 3.0\times10^8$ ms^{-1}	

PART A-1 · ONE CORRECT OPTION

Q. 1 – 48 · +3 for a correct answer, –1 for a wrong one

1. In animals, heart is the main pumping station, supplying and collecting blood from various parts of the body. In mammals, which of the following structures regulates the unidirectional flow of blood and found between left auricle and ventricle?

(A) Tricuspid valve
(B) Aortic semilunar valve
(C) Pulmonary seminular valve
(D) Mitral valve

2. Which of the following refer to the units involved in most of the Reflex Arcs?

(A) Stimulus receptor, afferent nerve, efferent nerve and an effector neuron
(B) Two receptor neurons, one or more internuncial neuron(s) and an effector neuron
(C) One receptor neuron, one or more internuncial neuron(s) and an effector neuron
(D) One receptor neuron, afferent nerve and an effector neuron

3. Through the process of cross-breeding/mutation breeding or cytoplasmic hybridization of animals and plants, new improved, high yielding varieties or exclusively distinct hybrids are obtained. Which of the following are cytoplasmic hybrids/cybrids?

(A) Triticale & Fairchild Mule
(B) Tigon & Leopon
(C) Pomato & Bromato
(D) Jaya & Ratna Rice

4. In a kind of animal tissue all cells rest on a basement membrane, but the basal cells do not reach the free surface of the epithelium. Two layers of cells and two layers of nuclei are, therefore, observable. Thus, without being stratified, the epithelium appears to have 2 or 3 layers of cells. Such epithelia are mostly ciliated and contain mucus-secreting goblet cells. These epithelia are characteristic to which of the following?

(A) Thin bronchioles, Uriniferous tubules, Ciliary body

(B) Bile ducts, lining of stomach, Trachea

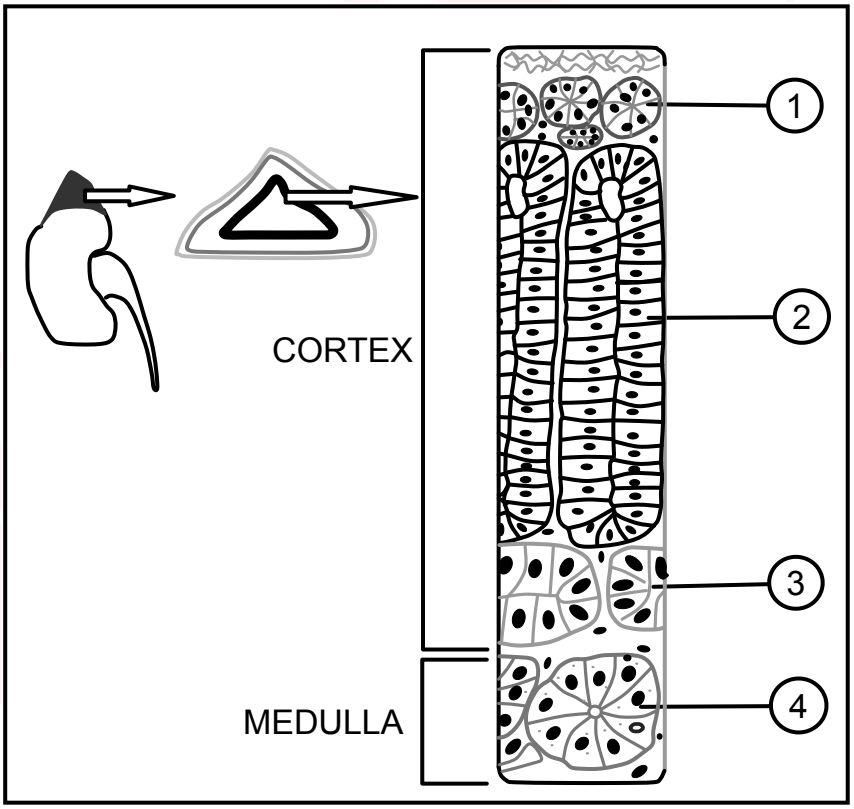
(C) Skin epidermis, Anal canal, Cornea of eye

(D) Trachea, Vasa deferentia, Epididymes

5. Phenylthiocarbamide (PTC) has a bitter taste. Non-tasting ability is reported to be due to recessive allele of the taster gene. In random populations about 30% people lack the ability to taste PTC. A non-taster woman is married to a PTC taster man and has three children. The first two children are born as non-tasters. What is the probability that their third child will be born a non-taster?

(A) 0.25 (B) 0.50 (C) 0.15 (D) 0.75

6. The diagram presented here is a sectional view of an endocrine gland. Its histologically characteristic layers are labeled as 1, 2, 3 and 4. Which of these is/are responsible for the secretion of C_{21} Cortisol and Corticosterone hormones?



(A) 1 (B) 1 and 3 (C) 2 and 4 (D) 2 and 3

7. Which of the following eye defects, arises due to gradual weakening of the ciliary muscles and diminishing flexibility of the eye lens?

(A) Hyperopia (B) Presbyopia (C) Astigmatism (D) Myopia

8. Which of the following is an Angoumois grain moth, causing severe damage to the stored grains, like paddy or wheat?

(A) *Sitophilus* sp. (B) *Sitotroga* sp.

(C) *Gnorimoschema* sp. (D) *Plodia* sp.

9. To effect fertilization in angiosperms, pollen grains germinate on the stigma and give out pollen tubes which grow through the style and reach the ovule where the male gametes are discharged close to the egg. Suppose a brinjal plant has to produce 300 seeds in a particular fruit. How many cell divisions will be required to produce the desired fruit?

(A) 250 Meiotic divisions (B) 375 Meiotic divisions

(C) 375 Mitotic divisions (D) 300 Mitotic and 125 Meiotic divisions.

10. In the Kingdom Plantae, which of the following examples is considered peculiar for the anatomical characters namely Carinal canals and Vallecular canals?

(A) *Magnolia* (B) *Gnetum* (C) *Equisetum* (D) *Lycopodium*

11. The secondary constriction on the chromosomes always has a constant position. Therefore, it can be used as marker to identify specific chromosomes. In addition to the centromere, one or more secondary constrictions can be observed in Metaphase stage chromosomes. These chromosomes are called Satellite or SAT chromosomes. In man they are usually associated with the short arm of acrocentric chromosomes. Select the correct option for such types of chromosomes

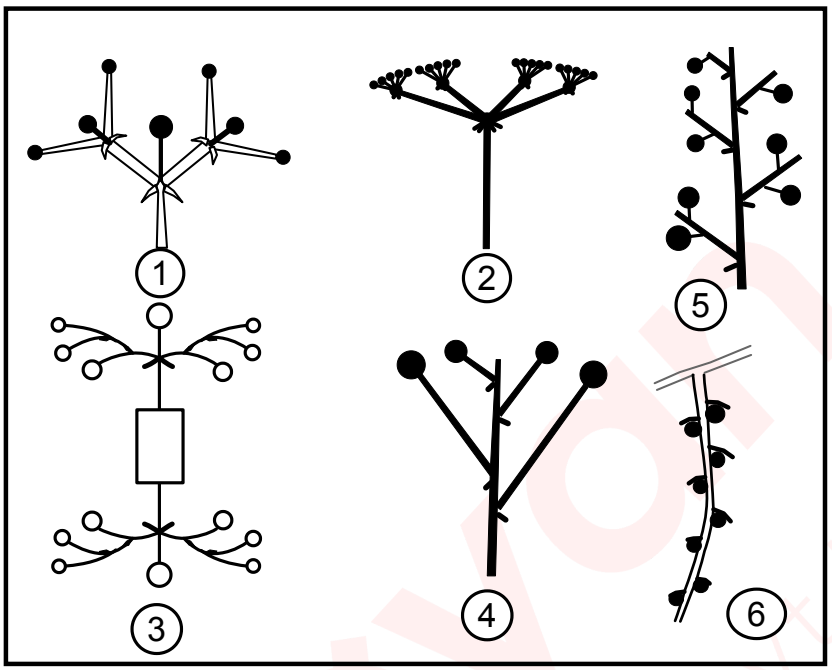
(A) 1, 10, 15, 16 and Y (B) 13, 14, 15, 21 and 22

(C) 13, 14, 16, 18 and 21 (D) 13, 14, 18 and 22

12. In some plants the secondary cell wall has depressions or pits. Adjacent pits are separated by the middle lamella and the primary cell wall, together forming the pit membrane. Which of the following is the thickening formed on the pit membrane by circular deposition of microfibrils?

(A) Margo (B) Torus (C) Zona occludens (D) Sclereid

13. The arrangement of flowers and their mode of distribution on the shoot system is characteristic to a particular plant. The diagrammatic presentation given herewith, illustrates various types of inflorescences. Select the option exemplifying a kind of Cymose type:



(A) 2 and 4 (B) 1 and 6 (C) 1 and 3 (D) 3 and 5

14. Genes that are normally important in mammalian embryogenesis include members of all of the following classes, EXCEPT:

(A) Proto-oncogenes (B) Growth factor genes
(C) Tumor suppressor genes (D) *Hox* genes

15. During a type of Carbon dioxide fixation occurring at night while the stomata are still open, the first step is the combination of CO_2 with phosphoenolpyruvate (PEP) to form 4-carbon oxaloacetate in the chloroplast of mesophyll cells. To which kind of ecological type of plant this process is related to?

(A) *Cocos* (B) *Rhizophora* (C) *Aloe* (D) *Vallisneria*

16. Some plants are specifically called hemiparasitic epiphytes. Included among them are the plants called as mistletoes. Which of the following is the most common hemiparasitic mistletoe occurring in India?

(A) *Monotropa uniflora* (B) *Dendrophthoe falcata*
(C) *Orobanche cernua* (D) *Cuscuta reflexa*

17. During the formation of which of the following ionic species, the process will be exothermic and endothermic respectively:

(A) Na^+ and Cl^- (B) Cl^- and O^{2-} (C) He^+ and Mg^{2+} (D) F^- and Br^-

18. H_2 reacts faster with Cl_2 at 13 times faster rate than D_2 because:

(A) H_2 has high activation energy

(B) In H_2, H – H bond energy is higher than D – D bond energy in D_2

(C) H_2 has low activation energy because H – H bond energy is lower than D – D bond energy

(D) In H_2 there is no neutron therefore it reacts faster

19. Select the correct order of dielectric constant, refractive index and intermolecular forces for water (H_2O) and heavy water (D_2O) at 293 K respectively among those given below

(i) Dielectric constant – $H_2O > D_2O$

(ii) Dielectric constant – $D_2O > H_2O$

(iii) Refractive index – $H_2O > D_2O$

(iv) Refractive index – $D_2O > H_2O$

(v) Intermolecular forces – $H_2O > D_2O$

(vi) Intermolecular forces – $D_2O > H_2O$

The option containing all correct statements is

(A) (i), (iii), (vi) (B) (i), (iv), (v) (C) (ii), (iii), (v) (D) (i), (iv), (vi)

20. The compound which is used to purify air in space shuttles, submarines and breathing masks is:

(A) K_2O_2 (B) KO_2 (C) K_2O (D) Na_2O

21. The total number of lone pairs of electrons in I_3^-.

(A) 3 (B) 6 (C) 2 (D) 9

22. Among the elements of atomic number (Z) from 1 to 92 (i.e., from H to U), the elements having atomic number ..... and ..... are not found in nature.

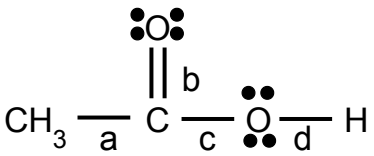
(A) 89, 92 (B) 83, 89 (C) 48, 61 (D) None of these

23. Which state of matter exists at very high temperature and at very low temperature (near absolute zero) respectively? BEC stands for Bose Einstein Condensate.

(A) BEC, fermionic condensate (B) Plasma, BEC

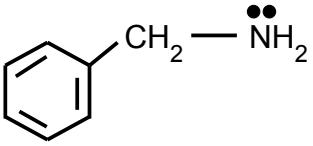
(C) Fermionic condensate, Plasma (D) Gas, BEC

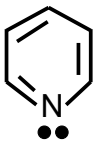
24. The bond which will break in first step when following compound reacts with H_3O^+ is

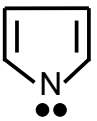


(A) bond a (B) bond b (C) bond c (D) bond d

25. Arrange the following compounds in increasing order of Lewis base strength

(i) 

(ii) 

(iii) 

The option containing correct increasing order is

(A) iii, ii, i (B) i, ii, iii (C) ii, i, iii (D) iii, i, ii

26. The maximum number of $-CH_3$ groups which may be present in alkane $C_{11}H_{24}$ is close to

(A) 6 (B) 7 (C) 8 (D) 2

27. A glass bulb of 1 liter capacity contains 4 g methane. The bulb is so as to burst out if the pressure exceeds just 10 atm. The temperature, at which the pressure of gas reaches the bursting point is close to (Given: R = 0.0821 lit atm K^{-1} mol^{-1})

(A) 480 K (B) 487.6 K (C) 500 K (D) 373 K

28. The pH of 10^{-8} M HCl is

(A) 7 (B) < 7 (C) 8 (D) > 8

29. An element X has two natural isotopes: $^{10}_{5}X$ (atomic mass 10.013 u) and $^{11}_{5}X$ (atomic mass 11.009 u). Relative abundance of these isotopes in nature has been recorded 19.8 % and 80.2 % respectively. On the basis of these data, average atomic mass of element X is close to

(A) 10.210 u (B) 10.511 u (C) 10.799 u (D) 10.812 u

30. A mass 0.75 g of the mixture of Na_2CO_3 and K_2CO_3 is completely neutralized by 50 mL 0.25 N HCl. The percentage of Na_2CO_3 in the mixture is:

(A) 50.6 (B) 49.4
(C) 50 (D) data insufficient

31. A boy gifted a diamond ring to his mother on her wedding anniversary. If this diamond ring contains 3 carat diamond then number of carbon atoms he gifted to his mother is

Given – (1 carat = 200 mg)

(A) 3.01×10^{23} (B) 2.1×10^{23} (C) 3.01×10^{22} (D) 2.1×10^{22}

32. Which of the following will form foam in water containing Ca^{2+} and Mg^{2+} ions?

(A) Ba-stearate (B) Na-palmitate
(C) Potassium n-dodecyl benzene sulphonate (D) All of these

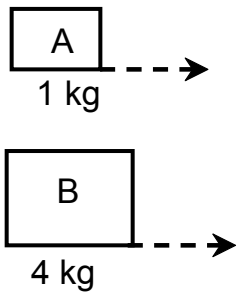
33. Two blocks A and B of masses 1 kg and 4 kg respectively are moving with equal kinetic energies

Read the following statements S_1 and S_2

Statement S_1: Ratio of speed of the block A to that of B is 1: 2

Statement S_2: Ratio of magnitude of linear momentum of A to that of B is 1: 2

Now choose the correct option:



(A) Both S_1 and S_2 are true

(B) Both S_1 and S_2 are false

(C) S_1 is true, S_2 is false

(D) S_1 is false, S_2 is true

34. The mass of a straight copper wire is 20.95 g and its electrical resistance is 0.065 Ω. If the density and resistivity of copper are d = 8900 kg/m^3 and ρ = 1.7 × 10^{-8} ohm-meter respectively, the length of the copper wire is

(A) 3 m

(B) 6 m

(C) 12 m

(D) date is insufficient

35. It is known that the speed of sound in a gas is directly proportional to square root of its absolute temperature T measured in Kelvin i.e. $v \propto \sqrt{T}$ Speed of sound in air at 0°C is 332 m/s. On a hot day, the speed of sound was measured 360 m/s in NCR Delhi, the temperature of air in Delhi on that very day must have been close to

(A) 40°C (B) 42°C (C) 44°C (D) 48°C

36. A small bar magnet is allowed to fall vertically through a metal ring lying in a horizontal plane. During its fall, the acceleration of the magnet in the region close to the ring must be (g is the acceleration due to gravity)

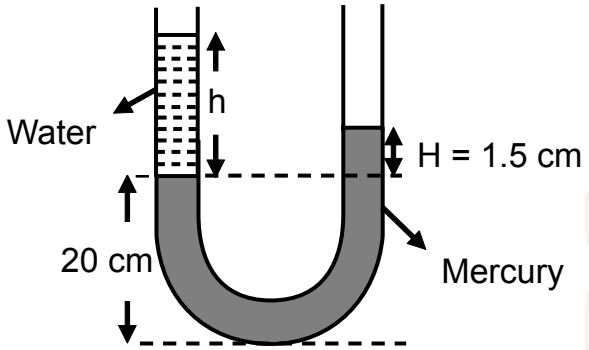
(A) equal to g

(B) less than g and uniform

(C) less than g and non-uniform

(D) greater than g and uniform

37. A U-tube of uniform cross section contains two different liquids in its limbs namely water (density 1.0 × 10^3 kg / m^3) and Mercury (density 13.6 × 10^3 kg / m^3) as shown in figure. The difference of height of mercury column in two limbs of the tube is H = 1.5 cm. The height h of the water column in the left limb above the Mercury column must be nearly (Neglect surface tension effects)

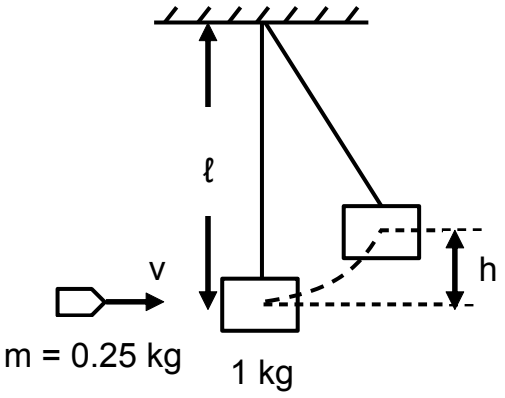


(A) 13.6 cm (B) 20.4 cm (C) 27.0 cm (D) 9.0 cm

38. An object pin is placed at a distance 10 cm from first focus of a thin convex lens on its principal axis, the lens forms a real and inverted image of this object pin at a distance 40 cm beyond the second focus. The focal length of the lens is

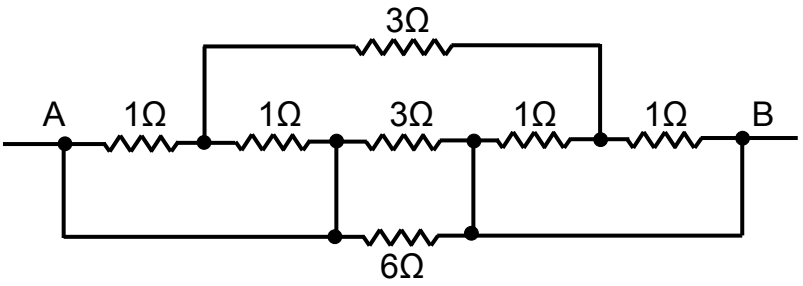
(A) 16 cm (B) 20 cm (C) 25 cm (D) 40 cm

39. A bullet of mass 0.25 kg moving horizontally with velocity v (m/s) strikes a stationary block of mass 1.00 kg suspended by a long inextensible string of negligible mass and length ℓ. The bullet gets embedded in the block and the system rises up to maximum height h = 19.6 cm (as shown in the figure. The string still remains taut). The value of initial speed v of the bullet is



(A) 5.9 m/s (B) 7.8 m/s (C) 9.8 m/s (D) 11.8 m/s

40. The equivalent resistance between points A and B in the following electrical network is

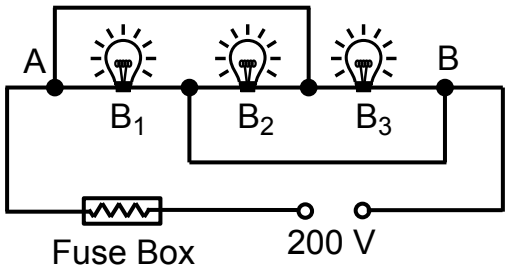


(A) $\frac{3}{4}\,\Omega$ (B) $\frac{4}{3}\,\Omega$
(C) $\frac{2}{5}\,\Omega$ (D) $\frac{9}{14}\,\Omega$

41. The order of magnitude of the pressure (in pascal) exerted by an adult human on the Earth when he stands bare footed on the Earth on both of his legs, is

(A) 10^2 (B) 10^4 (C) 10^7 (D) 10^9

42. On the board of an experiment, three bulbs B_1 (100 W, 200 V), B_2 (60 W, 200 V) and B_3 (40 W, 200 V) are connected to a 200 V fluctuating supply with a fuse in series as shown in the figure. The electric current rating of the fuse required in the circuit to protect all the three bulbs must be



(A) 0.2 Amp (B) 0.3 Amp (C) 0.5 Amp (D) 1.0 Amp

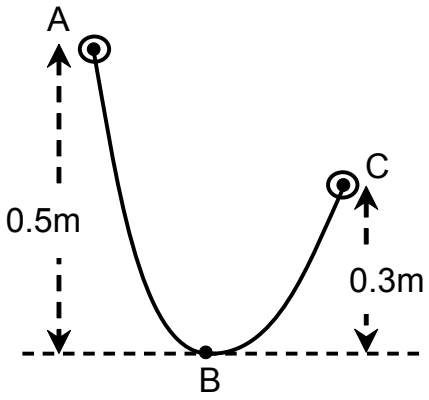
43. An ant is sitting on the principal axis of a convex mirror of focal length f, at a distance 2f from the pole in front of the mirror. It starts moving on principal axis towards the mirror. During the course of motion, the distance between the ant and its image

(A) throughout increases (B) throughout decreases
(C) first increases, then decreases (D) first decreases, then increases

44. You are given three resistance of values 2 Ω, 4 Ω and 6 Ω. Which of the following values of equivalent resistance is not possible to get by using/arranging these three resistors in any circuit?

(A) Less than 2 Ω (B) Equal to 4.4 Ω (C) Equal to 5.5 Ω (D) Equal to 7.6 Ω

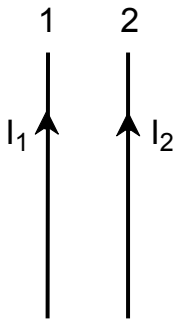
45. ABC is a 0.8 meter long curved wire track in a vertical plane. A bead of mass 3 g is released from rest at A. It slides along the wire and comes to rest at C. The average frictional force opposing the motion in a single trip from A to C is



(A) 18.40×10^{-3} N (B) 29.4×10^{-3} N (C) 11.04×10^{-3} N (D) 7.36×10^{-3} N

46. Two long straight conductors 1 and 2, carrying parallel currents I_1 and I_2 in the same direction, are lying parallel and close to each other, as shown in the figure. F_e and F_m respectively represent the electric and the magnetic forces, applied by conductor 1 on conductor 2.

Choose the correct alternative regarding nature of F_e and F_m



(A) F_e is repulsive while F_m is attractive

(B) F_e is repulsive and F_m is repulsive too

(C) F_e is zero and F_m is repulsive

(D) F_e is zero and F_m is attractive

47. A doctor measures the temperature of a patient by a digital thermometer as 37.3° C. As a Physics student you will record his temperature in Kelvin as

(A) 310.30 K (B) 310.45 K (C) 310.46 K (D) 310.31 K

48. Two planets P_1 and P_2 are moving around the Sun, in circular orbits of radii 10^{13} m and 10^{12} m respectively. The ratio of the orbital speeds of planets P_1 and P_2 in their respective orbits is

(A) $\sqrt{10}$ (B) 10

(C) $10\sqrt{10}$ (D) $\frac{1}{\sqrt{10}}$

PART A-2 · ONE OR MORE CORRECT OPTIONS

Q. 49 – 60 · 6 marks only if all correct options are marked · no negative marking

49. In a classroom, students were taught typical mammalian characters along with the names of Orders and representative examples. In the Table given below, column 1 includes the names of examples or Orders whereas column 2 shows related characteristics.

Order/ Representative example	Characteristics
1. Lagomorpha	(i) First finger clawed, tail enclosed in an interfemoral membrane.
2. Microchiroptera	(ii) Toothless and Polyembryony.
3. *Armadillo*	(iii) Baleen.
4. Proboscidea	(iv) Incisors open-rooted and continue to grow throughout life.

Choose the option(s) that has the correct match in the above table.

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

50. Continuous inheritance of some characteristics in certain human families had attracted the attention of scientists. To improve human race by selective breeding led Sir Francis Galton to collect and statistically analyze genealogies or pedigrees of a number of families where some or the other traits were regularly transmitted through generations. Which of the following relate(s) to pedigree of beggars and scoundrels?

(A) Bach family of Germany
(B) Zero family of Switzerland
(C) Kallikaks of America
(D) Jukes of New York

51. An important feature of plants is the ability to adapt their growth towards or away from external stimuli such as light, water, temperature and gravity. The physiological process of root gravitropism comprises gravity perception, signal transmission, growth response and the reestablishment of normal growth. Following are some of the modern concept(s) explaining the mechanism of root gravitropism. Which of the following best explain(s) the root gravitropism ?

(A) Statoliths within columella cells of root cap sediment in the direction of gravity, resulting in the generation of a signal that causes asymmetric growth.
(B) Auxin influx and efflux carriers facilitate creation of a differential auxin gradient between the upper and lower side of gravi-stimulated roots. This causes differential growth responses in the gravi-responding tissue of the elongation zone, leading to root curvature.
(C) Curvature in geo-stimulated roots is due the lateral redistribution of an inhibitor formed in the root cap.
(D) Proplastids in root cap containg carotenoids and protochlorophyll respond to gravity.

52. Photosynthesis is the process in which the phosphorylation of ADP to generate ATP occurs with the help of sunlight energy. The process is known as photo-phosphorylation. Only two sources of energy are accessible to living organisms: sunlight and reduction-oxidation (redox) reactions. Following are the requirements of cyclic and noncyclic phosphorylations occurring in green plants. Choose the correct option(s) related to cyclic photo-phosphorylation:

(A) Photo system II is not involved

(B) Only ATP molecules are generated but no NADH

(C) Water is required

(D) P 680 is the active reaction center

53. Select the correct statement(s) pertaining to Bohr model of an atom.

(A) An electron near the nucleus is attracted more by the nucleus; thereby has lower potential energy.

(B) An electron continuously radiates energy as long as it revolves in a discrete orbit.

(C) The model could not explain the spectra of multi-electron atoms.

(D) This is the first atomic model based on quantization of energy.

54. The correct order(s) of first ionization energy for the following pairs is/are:

(A) Ag < Au (B) Pd < Pt (C) Pb > Sn (D) Sb > Bi

55. Every solvent undergoes self-ionization (autodissociation) and gives cations and anions. The substances which give solvent **cations** when dissolved in that particular solvent (or) increase the concentration of solvent cations are called acids. Similarly substances which give solvent **anions** when dissolved in that particular solvent (or) increase the concentration of solvent anion are called bases. Autoionisation of H_2O and H_2SO_4 are as below

$2H_2O \rightleftharpoons H_3O^+ + OH^-$

$2H_2SO_4 \rightleftharpoons H_3SO_4^+ + HSO_4^-$

(A) CH_3COOH acts as a strong acid in liquid NH_3 solvent

(B) H_2SO_4 acts as strong acid in H_2O and liquid NH_3 solvent

(C) CH_3COOH acts as base in liquid HCl

(D) H_2O acts as base in liquid NH_3 solvent

56. The reaction $KI + I_2 \rightarrow KI_3$ involves

(A) oxidation (B) reduction

(C) complex formation (D) neutralization

57. Crane A and crane B take 1 minute and 2 minute respectively to lift a car of mass 2 ton (2000 kg) upward through a vertical height h = 3 meter. If the efficiencies of the engines (defined as the ratio of work output to fuel energy input) of both the cranes are equal, your inference is that

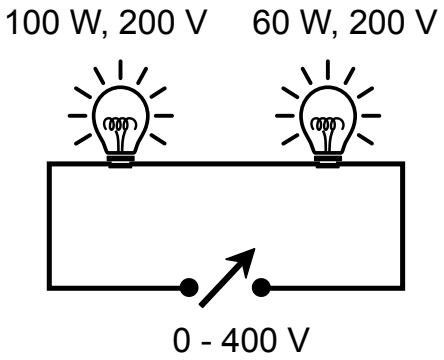
(A) the power supplied by crane B is 1000 kW

(B) the crane A and the crane B consume equal amount of fuel

(C) the power supplied by crane A is more than the power supplied by crane B

(D) the crane A consumes more fuel in lifting the car than the crane B

58. Two tungsten filament bulbs with rating 100 watt, 200 volt and 60 watt, 200 volt are connected in series with a variable supply of 0 – 400V range, as shown. The supply voltage is gradually increased from 0 to 400 V. Choose the correct statement(s).



(A) When supply voltage is 200 volt, 60 W bulb glows brighter

(B) When supply voltage is 200 volt, total power dissipated in both the bulbs is greater than 37.5 W

(C) When the supply voltage is 400 V, the 100 W bulb gets fused

(D) When supply voltage becomes 400 V, none of the bulbs glow

59. A solid sphere of radius R = 10 cm floats in water with 60% of its volume submerged. In an oil, this sphere floats with 80% of its volume submerged. If the density of water is 1000 kg/m^3. The correct statement(s) is/are that

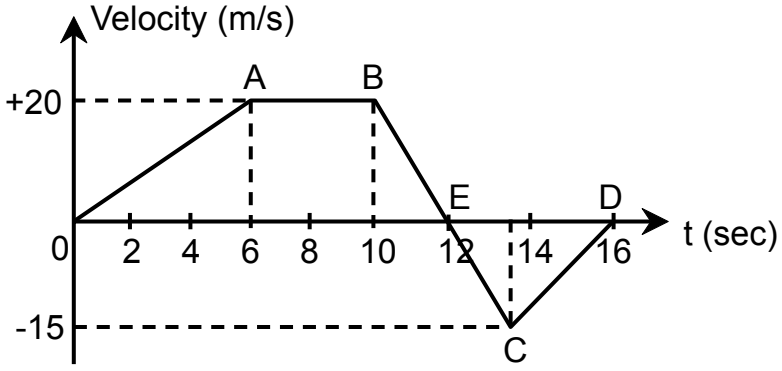
(A) the density of the material of sphere is 600 kg/m^3

(B) the density of the oil is 750 kg/m^3

(C) the weight of the sphere in air is close to 24.64 N

(D) the loss in weight of the sphere when floating in oil is close to 30.82 N

60. A particle starts moving from origin O along x axis. The velocity-time graph of motion of particle is given below. The positive values of v refer to direction of motion along +x axis, the negative values of v refer to direction of motion along – x direction. Choose the correct statement(s).



(A) Initial acceleration of the particle is 4 m/s^2

(B) The displacement of particle from origin is 130 m after 16 second

(C) Average speed of the moving particle during 0 –16 second is 11.88 m/s

(D) Somewhere during the motion for 0 – 16 second, the retardation of the particle is 10 m/s^2

ANSWER KEY

NSEJS 2023 · PAPER CODE 51

60
QUESTIONS · 216 MARKS

IAPT final answer key for paper code 51. ★ marks an answer given as per Zigyan.

1	(D)	2	(C)	3	(C)★	4	(D)	5	(B)
6	(D)	7	(B)	8	(B)	9	(B)	10	(C)
11	(B)	12	(B)	13	(C)	14	—★	15	(C)★
16	(B)	17	(B)	18	(C)	19	(A)	20	(B)
21	(D)	22	(D)	23	(B)	24	(B)★	25	(A)★
26	(C)	27	(B)	28	(B)	29	(D)	30	(B)★
31	(C)	32	(C)	33	(D)	34	(A)	35	(D)
36	(C)	37	(B)	38	(B)	39	(C)	40	(B)
41	(B)	42	(D)	43	(B)	44	(D)	45	(D)
46	(D)	47	(B)	48	(D)	49	(A), (B)★	50	(B), (D)
51	(A), (B), (C)★	52	(A), (B)	53	(A), (C), (D)	54	(A), (B), (C), (D)	55	(A), (B), (C)
56	(C)★	57	(B), (C)	58	(A), (B), (D)	59	(A), (B), (C)	60	(B), (C), (D)

★ Answers as per Zigyan

- **Q3** — As per Zigyan: (C); IAPT key (C).
- **Q14** — As per Zigyan: no option is correct; IAPT key (C).
- **Q15** — As per Zigyan: (C); IAPT key (C).
- **Q24** — As per Zigyan: (B); IAPT key (B).
- **Q25** — As per Zigyan: (A); IAPT key (A).
- **Q30** — As per Zigyan: (B); IAPT key (B).
- **Q49** — As per Zigyan: (A), (B); IAPT key (A), (B).
- **Q51** — As per Zigyan: (A), (B), (C); IAPT key (A), (B), (C).
- **Q56** — As per Zigyan: (C); IAPT key (A), (B), (C).

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OLYMPIADS · 2026

Olympiad results



TOP ACHIEVEMENT · CHEMISTRY

Qualified the Chemistry Olympiad twice, and selected for the HBCSE camp.

Saksham Bishnoi reached the national stage of the Chemistry Olympiad in two consecutive years and was selected for the Orientation-cum-Selection Camp at HBCSE, Mumbai. 4 Years Classroom - the same student who took AIR 168 in JEE Advanced 2026.

Qualified twice | HBCSE selection camp | Only student from Faridabad

Above MAS means above the **Minimum Admissible Score**: clearing it puts a student in the national band for their subject. It is a real threshold, not a participation marker.

CHEMISTRY · ABOVE MAS



Sulokya Bibhuty
Class XII
3 Years Classroom
Above MAS



Anay Gupta
Class XI
3 Years Classroom
Above MAS



Akshat Khator
Class XI
3 Years Classroom
Above MAS



Harshit Goyal
Class XII
4 Years Classroom
Above MAS



Hardik Sharma
Class XI
3 Years Classroom
Above MAS



Aarush Kumar
Class XII
1 Year Classroom
Above MAS

PHYSICS · ASTRONOMY · MATHEMATICS

PHYSICS



Sulokya Bibhuty
Class XII
3 Years Classroom
Above MAS

PHYSICS



Saksham Bishnoi
Class XII
4 Years Classroom
Above MAS

ASTRONOMY



Sulokya Bibhuty
Class XI
3 Years Classroom
Above MAS

MATHEMATICS · IOQM



Priyanshi
Class XI
4 Years Classroom
IOQM Qualifier

OLYMPIADS WE PREPARE STUDENTS FOR

NSEP	NSEC	NSEB	NSEA	IOQM	NSEJS
Physics	Chemistry	Biology	Astronomy	Mathematics	Class X and below

The olympiad pathway starts in Class 8.

NSEJS is open to Class 10 and below - the habit of staying with one hard problem is the one JEE Advanced rewards.

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RESULTS · 2021 – 2026

Our toppers, year by year

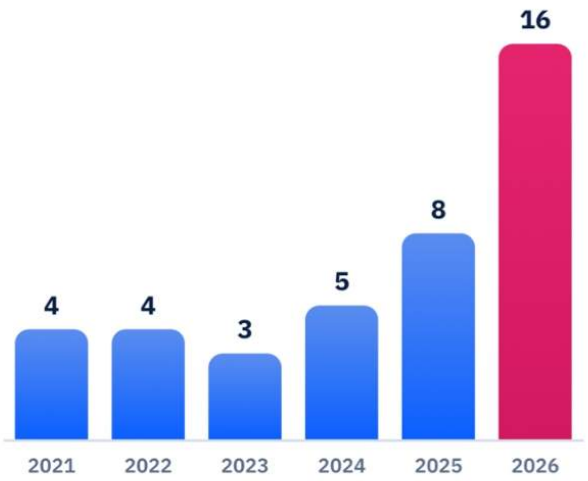
40
JEE Advanced selections in 6 years

AIR 168
best rank — Saksham Bishnoi, 2026

16 of 35
students selected, JEE Advanced 2026

14 of 35
above 98 percentile, JEE Main 2026

JEE ADVANCED SELECTIONS PER YEAR



BEST RANK EACH YEAR

YEAR	JEE ADVANCED	JEE MAIN
2026	**Saksham Bishnoi** AIR 168 · 4 Years Classroom	**Saksham Bishnoi** AIR 811 · 99.95 %ile
2025	**Chakshu** AIR 4,233 · 2 Years Classroom	**Chakshu** AIR 8,538 · 99.44 %ile
2024	**Harshit** AIR 777 · 2 Years Classroom	**Harshit** AIR 1,473 · 99.91 %ile
2023	**Aditya Jain** AIR 2,373 · 2 Years Classroom	**Aditya Jain** AIR 2,503 · 99.79 %ile
2022	**Rachit Sharma** AIR 698 · 1 Year Classroom	**Rachit Sharma** AIR 1,016 · 99.90 %ile
2021	**Sparsh Mittal** AIR 2,237 · 1 Year Classroom	**Sparsh Mittal** AIR 1,562

JEE ADVANCED 2026 — THIRTEEN NAMED SELECTIONS



Saksham Bishnoi
AIR 168
4 Years Classroom



Sulokya Bibhuty
AIR 1,315
3 Years Classroom



Aarush
AIR 2,699
1 Year Classroom



Manishka
AIR 2,869
4 Years Classroom



Oojit Kumar
AIR 5,765
4 Years Classroom



Harshit Goyal
AIR 6,407
4 Years Classroom



Pranab Sharma
AIR 6,750
3 Years Classroom



Aditya Dhar
AIR 15,183
3 Years Classroom



Arpit Anshuman
AIR 19,308
4 Years Classroom



Lokesh
AIR 22,857
3 Years Classroom



Arjun
AIR 24,674
3 Years Classroom



Sanyam Gulyani
AIR 25,123
1 Year Classroom



Saket
AIR 27,628
3 Years Classroom

Sixteen students of the 2026 batch were selected in JEE Advanced; the thirteen above are named with their All India Rank.

JEE MAIN 2026 — TOP SIX, WITH PERCENTILE



Saksham Bishnoi
AIR 811
99.95 %ile
4 Years Classroom



Sulokya Bibhuty
AIR 1,095
99.94 %ile
3 Years Classroom



Harshit Goyal
AIR 2,662
99.83 %ile
4 Years Classroom



Manishka
AIR 4,817
99.70 %ile
4 Years Classroom



Oojit Kumar
AIR 5,040
99.69 %ile
4 Years Classroom



Aarush
AIR 5,276
99.67 %ile
1 Year Classroom

14 of the 35 students in the 2026 batch scored above the 98th percentile in JEE Main.

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