

FIITJEE Medical Admission Test

(SAMPLE PAPER)

for students presently in Class X (Going to Class XI)

Paper-2

(SAMPLE PAPER)

Time: 3 Hours (14:00 pm – 17:00 pm)

CODE

Maximum Marks: 720

Instructions:

1. You are advised to devote 60 Minutes on Section-I, 60 Minutes on Section-II and 60 Minutes on Section-III.
2. This Question paper consists of 3 sections. Marking scheme is given in table below:

Section	Subject	Question no.	Marking Scheme for each question	
			correct answer	wrong answer
SECTION – I	BIOLOGY (PART-A)	1 to 90	+4	-1
SECTION – II	PHYSICS (PART-A)	1 to 45	+4	-1
SECTION – III	CHEMISTRY (PART-A)	1 to 45	+4	-1

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 Registration Number, Name and Test Centre in the space provided at the bottom of this sheet

Note: Please check this Question Paper contains all **3** sections and **180** questions. If not so, exchange for the correct Question Paper

Registration Number : _____
Name of the Candidate : _____
Test Centre : _____

Disclaimer: This sample paper is for students to understand the level of questions for Fiitjee Medical Admission Tests and may not match the real Test Paper.

Recommended Time: 60 Minutes for Section – I

Section – I

BIOLOGY – (PART – A)

*This part contains 90 **Multiple Choice Questions** number 1 to 90. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.*

1. Knee jerk is the phenomenon of
(A) Conditional reflex (B) Learned reflex
(C) Unconditional reflex (D) Learned Behavior
2. Pellagra is caused due to the deficiency of
(A) Tocopherol (B) Retinol
(C) Pantothenic acid (D) Niacin
3. The movement of food materials from the leaves to other tissues of the plant is called
(A) Transpiration (B) Translocation
(C) Guttation (D) Tropic movement
4. The exudation of xylem sap drops on the edges of leaves is called
(A) Condensation (B) Transpiration
(C) Guttation (D) None of these
5. A human hormone reducing blood flow to the digestive system and skin during stress is
(A) Thyroxine (B) Adrenaline
(C) Insulin (D) Growth hormone
6. Space which separates arachnoid mater and duramater is
(A) Epidural (B) Subarachnoid
(C) Mediastinum (D) Subdural
7. The spinal cord is continuous with which part of the brain?
(A) Pons (B) Mid brain
(C) Cerebellum (D) Medulla oblongata
8. Where does receptors for pain, temperature touch lies?
(A) Muscles (B) Joints
(C) Tendons (D) None of the above
9. Which column of grey mater receives the sensory input for the body?
(A) Anterior column (B) Posterior column
(C) Lateral column (D) Both (A) and (C)
10. Transport of food materials in higher plants occurs through
(A) Companion cells (B) Tracheids
(C) Sieve elements (D) Flowers
11. Does cranial nerves and spinal nerves always form a link between the brain and the rest of the body
(A) Yes (B) No
(C) Except cranial nerves (D) Except spinal nerves
12. Man is
(A) Ammonotelic (B) Ureotelic
(C) Uricotelic (D) None of the above
13. Vascular tissue in plants consists of:
(A) Xylem elements (B) Phloem elements
(C) Meristem (D) Both A and B

14. Hyper activity of which gland results in acne at the time of adolescence:
 (A) Pituitary gland (B) Sebaceous gland
 (C) Sweat gland (D) All the above
15. Which hormone would be secreted when an aggressive dog is running after you?
 (A) Testosterone (B) Adrenaline
 (C) Thyroxine (D) Thymosin
16. Unidirectional transmission of a nerve impulse through nerve fibre is due to the fact that:
 (A) Nerve fibre is insulated by a medullary sheath
 (B) Sodium pump starts operating only at the cyton and then continues into nerve fibre
 (C) Neurotransmitters are released by dendrite
 (D) Neurotransmitters are released by the axon endings and not by dendrites
17. Alcohol affects
 (A) Medulla oblongata (B) Cerebellum
 (C) Cerebral cortex (D) Thalamus
18. The instrument used to record the electrical activity of brain:
 (A) EEG (B) ECG
 (C) MEG (D) None
19. Which is mismatched?
 (A) Cerebrum- memory (B) Cerebellum- equilibrium
 (C) Medulla oblongata- temperature (D) Olfactory lobes- smell
20. The movements of hairs in *Drosera* is an example of:
 (A) Chemotropism (B) Thigmonasty
 (C) Thigmotropism (D) none
21. The response of different organisms to environmental rhythms of light and darkness is called:
 (A) Vernalization (B) Phototaxis
 (C) Phototropism (D) Photoperiodism
22. Phloem elements of gymnosperms lack
 (A) Phloem fibres (B) Companion cells
 (C) Phloem parenchyma (D) Sieve cells
23. Urea and uric acid are excreted by terrestrial animals. Instead, aquatic animals excrete:
 (A) Carbon dioxide (B) Ammonia
 (C) Water (D) Proteins
24. The posterior pituitary stores and secretes:
 (A) ADH and Oxytocin
 (B) Growth hormone and Gonadotropin releasing hormone
 (C) Aldosterone and Cortisone
 (D) Adrenalin and Insulin
25. Natural cytokinins are synthesized in tissues that are:
 (A) senescent (B) dividing rapidly
 (C) storing food material (D) differentiating
26. Coiling of garden pea tendrils around any support is an example of:
 (A) Thermotaxis (B) Thigmotaxis
 (C) Thigmonasty (D) Thigmotropism
27. Gaps in the myelin sheath are called _____.
 (A) Nodes of Ranvier (B) Synapse
 (C) Axonal interstices (D) Myelinoids
28. The long day plants have:
 (A) Short night requirement for flowering (B) No night requirement for flowering
 (C) Long night requirement for flowering (D) Short day requirement for flowering

SAMPLE PAPER-AT-2024-C-X-(Paper-2)-BPC-4

29. How many pairs of cranial nerves are there in humans?
(A) 12. (B) 23. (C) 31. (D) 32.
30. The parasympathetic nervous system attempts to restore which of the following?
(A) Excitation (B) CSF (C) Homeostasis (D) All of these
31. What is the primary function of cerebellum?
(A) Centre of consciousness.
(B) Coordination of endocrine and nervous responses.
(C) Control of digestion, circulation and breathing movements.
(D) Coordination of complex muscular movements.
32. The adrenal glands are attached superiorly to which organ?
(A) Thyroid (B) Liver
(C) Kidneys (D) Hypothalamus
33. Which of the following helps in ascent of sap?
(A) Root pressure (B) Transpiration
(C) Capillarity (D) All of above
34. Deficiency of vasopressin causes a disease
(A) Graves disease (B) Diabetes insipidus
(C) Tetany (D) Diabetes mellitus
35. Which one of the following elements in plants is not remobilized?
(A) Calcium (B) Nitrogen
(C) Potassium (D) Phosphours
36. Which produces urea as the excretory substance in the human body?
(A) Liver (B) Kidneys (C) Urinary bladder (D) Nephron
37. Among the given nutrients milk is a poor source of
(A) Calcium (B) Carbohydrate (C) Vitamin – C (D) Protein
38. Absorptive heterotrophic nutrition is exhibited by
(A)Algae (B) Fungi (C) Bryophytes (D) Pteridophytes
39. Which of the following is not an artificial sweetener?
(A) Sucrose (B) Neotame (C) Saccharin (D) Aspartame
40. Slow respiring plants or plant tissues are
(A) Leaf primordia and young plant
(B) Promeristems
(C) Cambium
(D) Adult plants and matured tissues
41. The exudation of xylem sap drops on the edges of leaves is called
(A) Guttation (B) Transpiration (C) Condensation (D) None of these
42. Transport of food materials in higher plants occurs through “?”
(A) Companion cells (B) Tracheids (C) Vessels (D) Sieve elements
43. What is the yellow pigment formed after the red blood cells are processed in the liver “?” . It is primarily responsible for the yellow colour of urine
(A) Zeaxanthin (B) Carotenoids (C) Urochrome (D) None of these

44. Which one is responsible for the recovery of water and sodium chloride from the urine “?”
 (A) Loop of henle (B) Ureter
 (C) Bowman's capsule (D) None of these
45. Plants translocate their products of photosynthesis from the leaves where they are synthesised to other parts of the plant through:
 (A) Xylem vessels
 (B) Tracheids
 (C) Phloem sieve tubes
 (D) Xylem fibres
46. Waste products are stored as resins and gums in the:
 (A) Newly formed phloem cells
 (B) Old xylem cells
 (C) Newly formed xylem cells
 (D) Old phloem cells
47. Oxytocin is produced from
 (A) Anterior pituitary
 (B) Posterior pituitary
 (C) Pineal gland
 (D) Hypothalamus
48. How do plants get rid of excess water?
 (A) Evaporation
 (B) Root pressure
 (C) Transpirational pull
 (D) Transpiration
49. Roots absorb the water from the soil by means of
 (A) Diffusion
 (B) Endosmosis
 (C) Exosmosis
 (D) Facilitated diffusion
50. Single circuit circulation is noticed in:
 (A) Amphibians
 (B) Reptiles
 (C) Fishes
 (D) Birds
51. Largest blood vessel from the below
 (A) Systemic artery
 (B) Aorta
 (C) Post caval vein
 (D) Pre caval vein
52. In glycolysis, the number of pyruvates produced is:
 (A) 4
 (B) 3
 (C) 2
 (D) 1
53. Podocytes are located in the:
 (A) Inner lining of the Bowman's capsule
 (B) Outer lining of the Bowman's capsule
 (C) Inner lining of the glomerulus
 (D) Inner lining of the Henle's loop
54. In absence of oxygen, pyruvate is converted to:
 (A) Lactic acid
 (B) Ethanol
 (C) CO₂ and H₂O
 (D) Glycogen

55. Many plants, store their nitrogenous waste products in their:
(A) Glyoxysomes
(B) Peroxisomes
(C) Vacuoles
(D) Lysosomes
56. Energy released in the aerobic respiration is:
(A) Lesser than the energy of anaerobic respiration
(B) Same as the energy of anaerobic respiration
(C) Greater than the energy of anaerobic respiration
(D) Cannot be predicted
57. Nephrons type in humans are called
(A) Cortical nephrons
(B) Juxta cortical nephrons
(C) Juxta medullary nephrons
(D) Both A and C
58. In artificial kidney, the tubes are made of
(A) Polyvinyl
(B) Cellophane
(C) Polyethylene
(D) None of the above
59. Carbon dioxide combines with the respiratory pigment to form:
(A) Oxyhaemoglobin
(B) Carboxyhaemoglobin
(C) Carbamino haemoglobin
(D) Dicarboxyhaemoglobin
60. Transport of soluble products of photosynthesis is called :
(A) Transpiration
(B) Root pressure
(C) Translocation
(D) Conduction
61. Plants have low energy needs because
(A) They do not move
(B) Majority of the plant body is made of dead tissue
(C) They do not breathe
(D) Both A and B
62. Phloem elements of gymnosperms lack
(A) Phloem fibres
(B) Companion cells
(C) Phloem parenchyma
(D) Sieve cells
63. By removing which of the cells, earthworm fails to excrete
(A) Solenocytes
(B) Flame cells
(C) Nephridia
(D) Malpighian tubules
64. The major driving force in the movement of water in the xylem is:
(A) Root pressure
(B) Transpirational pull
(C) Capillary force
(D) Adhesive forces
65. Excretion of nitrogenous wastes mainly as uric acid by birds is helpful for:
(A) Conservation of body water
(B) Eliminating excess body water
(C) Eliminating excess body heat
(D) Conserving body heat

66. In plants, waste products are stored as resins and gums in the:
 (A) Phloem
 (B) New xylem
 (C) Old xylem
 (D) Cambium
67. Movement of the following ion into the guard cells make the water to move into guard cells and finally makes the stomata to open for gaseous exchange
 (A) Magnesium
 (B) Manganese
 (C) Potassium
 (D) Iron
68. Plants get rid of their excess water by
 (A) Transportation
 (B) Guttation
 (C) Transpiration
 (D) Both B and C
69. Woody stems breath by means of:
 (A) Stomata
 (B) Lenticels
 (C) Plants do not breath at all
 (D) None of the above
70. Plants translocate their products of photosynthesis from the leaves where they are synthesised to other parts of the plant through:
 (A) Xylem vessels
 (B) Tracheids
 (C) Phloem sieve tubes
 (D) Xylem fibres
71. Conversion of excess amino acids into urea occur in
 (A) Lungs
 (B) Large intestine
 (C) Liver
 (D) Kidney
72. End product of glycolysis is:
 (A) Glucose
 (B) Fructose
 (C) Pyruvic acid
 (D) Water
73. The process of the escape of liquid from the tip of uninjured leaf or through Hydathodes is called:
 (A) Guttation
 (B) Transpiration
 (C) Evaporation
 (D) None of the above
74. Man is
 (A) Ammonotelic
 (B) Ureotelic
 (C) Uricotelic
 (D) None of the above
75. Many plants, store their nitrogenous waste products in their:
 (A) Glyoxysomes (B) Peroxisomes (C) Vacuoles (D) Lysosomes
76. In gymnosperms, water conduction occur through:
 (A) Xylem vessels
 (B) Tracheids
 (C) Phloem sieve tubes
 (D) Xylem fibres

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77. Transport of soluble products of photosynthesis is called :
(A) Transpiration (B) Root pressure (C) Translocation (D) Conduction
78. The main function of guard cell to help with
(A) Guttation (B) Transpiration
(C) Translocation (D) Transportation
79. Nitrogenous wastes excreted through urine in humans is
(A) Ammonia (B) Uric acid
(C) Urea (D) Trimethyl amine oxide
80. Which of the following organ produces urea as the excretory substance in human body
(A) Kidneys (B) Urinary bladder
(C) Pancreas (D) Liver
81. The first product of C_4 pathway is
(A) PGA (B) Oxaloacetate
(C) OHAP (D) Phosphoenol Pyruvate
82. If the atmospheric pressure is low, then the rate of transpiration will
(A) Decrease (B) Increase
(C) Stay unchanged (D) Can't be determined
83. Transport of food materials in higher plants occurs through
(A) Flowers (B) Tracheids
(C) Companion cells (D) Sieve elements
84. The movement of materials from the leaves to other tissues of the plant is called
(A) Transpiration (B) Guttation
(C) Translocation (D) Tropic movement
85. The exudation of xylum sap drops on the edges of leaves is called
(A) Guttation (B) Condensation
(C) Transpiration (D) Translocation
86. Term "vitamin was given by
(A) James Lind (B) Sterling (C) Funk (D) J.C. Drummond
87. The form of sugar transported through phloem is:
(A) Glucose (B) Fructose
(C) Sucrose (D) Ribose
88. The lower surface of leaf will have more number of stomata in a:
(A) Dorsiventral leaf (B) Isobilateral leaf
(C) Both (A) and (B) (D) None of the above
89. Animal which excrete urea produced during metabolism of amino acid is
(A) Ureotelism (B) Uricotelism
(C) Ammonotelism (D) Aminotelism
90. Mitochondria are called powerhouses of the cell. Which of the following observations support this statement?
(A) Mitochondria synthesize ATP
(B) Mitochondria have a double membrane
(C) The enzymes of the Krebs' cycle and the cytochromes are found in mitochondria
(D) Mitochondria are found in almost all plant and animal cells

Recommended Time: 60 Minutes for Section – II

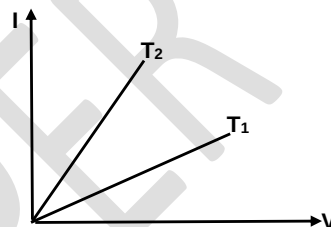
Section – II

PHYSICS – (PART – A)

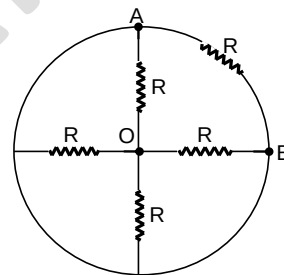
This part contains 45 **Multiple Choice Questions** number 1 to 45. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

1. The current I and voltage V graphs for a given metallic wire at two different temperatures T_1 and T_2 are shown in the figure. It is concluded that

(A) $T_1 > T_2$ (B) $T_1 < T_2$
(C) $T_1 = T_2$ (D) $T_1 = 2T_2$



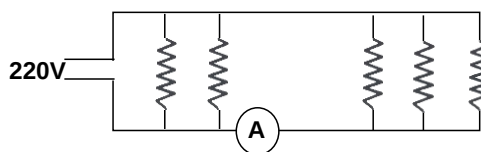
2. Find the equivalent resistance of the circuit across A and B



(A) $\frac{5R}{4}$ (B) $4R$
(C) 0 (D) $\frac{3R}{4}$

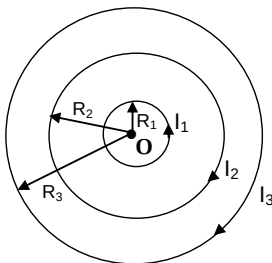
3. Five identical lamps, each of resistance 1100 ohm are connected to 220 V as shown in the following figure. The reading of an ideal ammeter A is

(A) $\frac{220}{1100} \times 5$ amp (B) $\frac{220}{1100} \times 3$ amp
(C) $\frac{220}{1100} \times 1$ amp (D) $\frac{220}{1100} \times 2$ amp

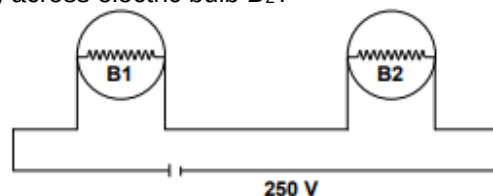


4. A soft iron bar is inserted inside a current-carrying solenoid. The magnetic field inside the solenoid:
(A) Will decrease (B) Will increase
(C) Will become zero (D) Will remain the same
5. Two free parallel wires carrying currents in the opposite directions, then they
(A) attract each other (B) repel each other
(C) do not affect each other (D) get rotated to be perpendicular to each other
6. A current carrying conductor is held in exactly vertical direction. In order to produce a clockwise magnetic field around the conductor, the current should be passed in the conductor:
(A) From top to bottom (B) From left to right
(C) From bottom to top (D) From right to left

7. The force exerted on a current carrying wire placed in a magnetic field is zero when the angle between wire and the direction of magnetic field is:
 (A) 45° (B) 60° (C) 90° (D) 180°
8. A current of 10 A is flowing in a wire of length 1.5 m. A force of 15 Newton acts on it when it is placed in a uniform magnetic field of 2 tesla. The angle between the magnetic field and the direction of current is
 (A) 30° (B) 60° (C) 90° (D) 45°
9. The direction of induced current is given by
 (A) Fleming's right hand rule (B) Fleming's left hand rule.
 (C) Right hand thumb rule. (D) Left hand thumb rule.
10. A long straight wire is in horizontal plane carries a current of 25A going from North to South direction. Magnetic field at a point 2.5 m in the West of the wire
 (A) 2×10^{-6} T westward (B) 2×10^{-6} T vertically upward
 (C) 2×10^{-6} T vertically downward (D) 2×10^{-6} T eastward
11. An electric motor is a device which transforms
 (A) Mechanical energy into electrical energy (B) Electrical energy into mechanical energy
 (C) Kinetic energy into potential energy (D) Electrical energy into Potential energy
12. Three concentric circular rings of given radii are carrying currents and arranged as shown. The magnetic field at the centre 'O' is. (Take $R_1 = 1\text{m}$; $R_2 = 2\text{m}$; $R_3 = 3\text{m}$ and $I_1 = I_2 = I_3 = 1\text{A}$)

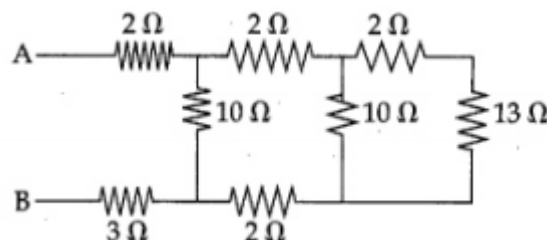


- (A) $\frac{\pi}{3} \times 10^{-7} \text{ T } \odot$ (B) $\frac{\pi}{3} \times 10^{-7} \text{ T } \otimes$
 (C) $\frac{2\pi}{3} \times 10^{-7} \text{ T } \odot$ (D) $\frac{2\pi}{3} \times 10^{-7} \text{ T } \otimes$
13. The shape of the magnetic field lines produced by a current carrying straight conductor are:
 (A) Straight lines (B) Concentric circles
 (C) Concentric ellipse (D) Concentric parabolas
14. A fuse should always be placed in the
 (A) Live wire of the main circuit (B) Neutral wire of the main circuit
 (C) Earth wire of the main circuit (D) Both live and neutral wire of the main circuit.
15. A circular coil of radius 20 mm consists of 250 turns of wire in which the current is 20 mA. The magnetic field at the centre of the coil is
 (A) $5\pi \times 10^{-10} \text{ T}$ (B) $5\pi \times 10^{-5} \text{ T}$
 (C) $3\pi \times 10^{-7} \text{ T}$ (D) $3\pi \times 10^{-10} \text{ T}$
16. Electric bulb B_1 (100W –250V) and electric bulb B_2 (100 W –200V) are connected across source of 250 V as shown in figure what is the potential drop (approx.) across electric bulb B_2 ?

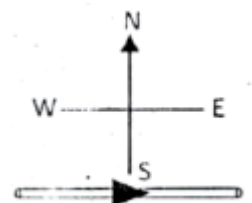


- (A) 200V (B) 250V (C) 98V (D) 48V

17. In the given circuit, what is the equivalent resistance between A and B?



- (A) $10\ \Omega$ (B) $2\ \Omega$
(C) $5\ \Omega$ (D) $3\ \Omega$
18. The S.I. unit of magnetic field intensity is:
(A) weber (B) tesla
(C) henry (D) gauss
19. Magnetic field due to current through a is similar to magnetic field produced by a bar magnet.
(A) circular loop of conducting wire (B) rectangular loop of conducting wire
(C) solenoid (D) thick copper wire
20. Which of the following is true?
I. A moving charge produces magnetic field but no electric field.
II. A moving charge experiences force in magnetic field but not in electric field.
III. Magnetic field inside a solenoid is uniform.
IV. Magnetic field lines are always closed.
(A) I and IV (B) III and IV
(C) I and III (D) II and IV
21. Dynamo works on the principle of:
(A) Heating effect of current
(B) Electromagnetic induction
(C) Chemical effect of current
(D) Seebeck effect
22. The electrical properties of copper and rubber are different because
(A) The positive charges are free to move in copper but stationary in rubber.
(B) Many electrons are free to move in copper, but all electrons are bound to molecules in rubber.
(C) Positive charges are free to move in rubber but stationary in copper.
(D) Many electrons are free to move in rubber but stationary in copper.
23. A constant current I flows in a horizontal wire in the plane of the paper from West to East as shown in the figure. The direction of magnetic field at a point will be South to North

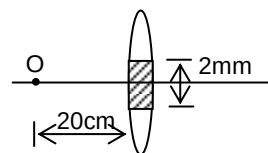
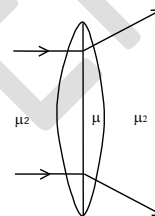


- (A) directly above the wire
(B) directly below the wire
(C) at a point located in the plane of the paper, on the north side of the wire.
(D) at a point located in the plane of the paper, on the south side of the wire.
24. 15 cells each of emf 2 volt are connected in series but 2 of them are connected wrongly. Calculate the emf of the combination
(A) 30-volt (B) 26-volt (C) 22-volt (D) 28 volt
25. An electric Kettle consumes 1 kW of electric power when operated at 220 V. A fuse wire of what rating must be used for it.
(A) 1 A (B) 2 A (C) 5 A (D) 4 A

SAMPLE PAPER-AT-2024-C-X-(Paper-2)-BPC-12

26. The radius of the path of a charged particle in a uniform magnetic field is directly proportional to:
(A) Charge of the particle (B) Momentum of the particle
(C) Energy of the particle (D) Intensity of field
27. The unit of electrical potential is _____
(A) ampere (B) coulomb (C) volt (D) watt
28. If a bar magnet is cut lengthwise into three parts, the total number of Poles will be:
(A) 3 (B) 2 (C) 6 (D) 0
29. The maximum attraction in a magnet is:
(A) In the centre (B) On the sides
(C) On the poles (D) On the surface
30. Two long parallel wires are at a distance of 1m. If both of them carry 1 A of current, then the force of attraction per unit length between the two wires is
(A) $2 \times 10^{-7} \text{ N m}^{-1}$ (B) $4 \times 10^{-6} \text{ N m}^{-1}$ (C) $2.4 \times 10^{-8} \text{ N m}^{-1}$ (D) $5 \times 10^{-7} \text{ N m}^{-1}$
31. A 4Ω resistor is connected to an 8 V cell. How many electrons come out of the negative terminal of the cell in 4 minutes?
(A) 3×10^{21} (B) 6×10^{21}
(C) 3×10^{20} (D) 3×10^{22}
32. Two plane mirrors are inclined to each other such that a ray of light incident on the first mirror and parallel to the second is reflected from the second mirror parallel to the first mirror. The angle between the two mirrors is
(A) 30° (B) 45°
(C) 60° (D) 75°
33. A man is 1.7 m tall and his eyes are 10 cm below the top of his head. In order to see his entire image, he uses a plane mirror kept at a distance of 1m from him. The minimum height of the mirror required is
(A) 180 cm (B) 90 cm
(C) 85 cm (D) 170 cm
34. An object is placed symmetrically between the two plane mirrors inclined at an angle of 30° , then the total number of images formed is
(A) 12 (B) 2
(C) 11 (D) infinite
35. The refractive index of diamond is 2.40 and that of glass is 1.50. How much faster does light travel in glass than in diamond?
(A) $\frac{3}{2}$ times (B) 1.6 times
(C) $2\frac{2}{3}$ times (D) 2.4 times
36. If the refractive indices of alcohol and benzene with respect to air are 1.36 and 1.50 respectively then refractive index of benzene with respect to alcohol is
(A) 1.123 (B) 1.103
(C) 0.907 (D) 1.110
37. Light with wavelength 4500 Å in water is travelling in water of refractive index $\frac{4}{3}$. What is the frequency of the light? (given that speed of light in vacuum = $3 \times 10^8 \text{ m/s}$)
(A) $4 \times 10^{14} \text{ Hz}$ (B) $5 \times 10^{14} \text{ Hz}$
(C) $1.33 \times 10^{14} \text{ Hz}$ (D) $4.5 \times 10^{14} \text{ Hz}$

38. If m stands for magnification produced by a lens, u stands for object distance, v stands for image distance and f stands for focal length of the lens, then which of the following is/are correct.
- (A) $m = \frac{f}{f+u}$ (B) $m = \frac{f-v}{f}$
- (C) both (A) and (B) (B) $m = \frac{f}{f-u}$
39. Where should an object be placed before a convex lens of focal length 10 cm be placed to get a virtual image at a distance of 30 cm from the lens?
- (A) at 15 cm from the lens (B) at 7.5 cm from the lens.
- (C) at 22.5 from the lens (D) at 30 cm from the lens.
40. When a wave is refracted,
- (A) its path must change (B) its amplitude must change
- (C) its velocity must change (D) its frequency must change
41. If the behaviour of light rays through a convex lens is as shown in the adjoining figure, then;
- (A) $\mu = \mu_2$ (B) $\mu < \mu_2$
- (C) $\mu > \mu_2$ (D) $\mu \leq \mu_2$
42. A ray of light is incident on a transparent glass slab of refractive index $\sqrt{3}$. If the refracted and reflected rays are mutually perpendicular, the angel of incidence is.
- (A) 30° (B) 60°
- (C) 37° (D) 53°
43. In which case the image formed by a convex lens is virtual.
- (A) $0 < u < f$ (B) $f < u < 2f$
- (C) $2f < u < \infty$ (D) none of the above
44. What will be the critical angle for a material of refractive index $\sqrt{2}$, placed in air?
- (A) 45° (B) 30°
- (C) 60° (D) 38.5°
45. A convex lens of focal length 10 cm is painted black at the middle portion as shown in figure. An object is placed at a distance of 20 cm from the lens. Then
- (A) only one image will be formed by the lens
- (B) two images are formed and distance between them is 6 mm
- (C) two images are formed and distance between them is 4 mm
- (D) two images are formed and distance between them is 2 mm



Recommended Time: 60 Minutes for Section – III

Section – III

CHEMISTRY – (PART – A)

This part contains **45 Multiple Choice Questions** number **1 to 45**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

- 2mL each of concentrated HCl, HNO₃ and a mixture of concentrated HCl and concentrated HNO₃ in the ratio of 3:1 were taken in test tubes labelled as A, B and C. A small piece of metal was put in each test tube. No change occurred in test tube A and B but the metal got dissolved in test tube C. The metal could be
(A) Al (B) Au
(C) Cu (D) Pt
- An element A is soft and can be cut with a Knife. This is very reactive to air and cannot be kept in open air. It reacts vigorously with water. Identify the element from the following.
(A) Mg (B) Na
(C) P (D) Ca
- Reaction between X and Y, forms compound Z. X loses electron and Y gains electron. Which of the following properties is shown by Z?
(A) High melting point (B) Conducts electricity in solid state
(C) Low melting point (D) Occurs as liquid
- A metal acts as a good reducing agent. It reduces Fe₂O₃ and MnO₂. The reaction with Fe₂O₃ is used for welding broken railway tracks. Identify the metal.
(A) Na (B) Fe
(C) Zn (D) Al
- Royal water is prepared by mixing two acids A and B. Royal water is called as aqua regia. It can dissolve Gold and platinum. It is highly corrosive and fuming liquid. What is the ratio in which A and B are mixed.
(A) 3:1 (B) 1:1
(C) 1:2 (D) 1:4
- A yellow coloured powder 'X' is soluble in carbon disulfide. It burns with a blue flame forming suffocating smelling gas which turns moist blue litmus red. Identify X.
(A) Cl (B) S (C) Na (D) I
- Generally, non-metals are not lustrous. Which of the following non-metal is lustrous?
(A) Sulphur (B) Oxygen
(C) Nitrogen (D) Iodine
- Which of the following statement is true?
(A) All ores are minerals (B) All minerals are ores
(C) A mineral can't be an ore (D) A ore can't be a mineral
- The reaction that differs from the rest of the reactions given is
(A) Formation of CaO from CaCO₃ (B) Formation of Al from Al₂O₃
(C) Formation of Na₂CO₃ from NaHCO₃ (D) Formation of mercury from HgO
- For the redox reaction: $\text{MnO}_4^- + \text{C}_2\text{O}_4^{2-} + \text{H}^+ \rightarrow \text{Mn}^{2+} + \text{CO}_2 + \text{H}_2\text{O}$. The correct coefficients of the reactants for the balanced reaction are

	MnO ₄ ⁻	C ₂ O ₄ ²⁻	H ⁺
(A)	2	5	16
(B)	16	5	2
(C)	5	16	2
(D)	2	16	5

11. Indium reacts with bromine to form InBr_3 . In the balanced equation for this reaction, the coefficient of the indium (III) bromide is
 (A) 1 (B) 2
 (C) 3 (D) 4
12. When the following equation is balanced, what is the sum of the coefficients?
 $\text{Al}_2(\text{CO}_3)_3 + \text{Mg}(\text{OH})_2 \rightarrow \text{Al}(\text{OH})_3 + \text{MgCO}_3$
 (A) 3 (B) 11 (C) 8 (D) 9
13. $\text{C}_2\text{O}_4^{2-} + \text{MnO}_4^- + \text{H}^+ \rightarrow \text{Mn}^{+2} + \text{CO}_2 + \text{H}_2\text{O}$, the reductant is
 (A) $\text{C}_2\text{O}_4^{2-}$ (B) MnO_4^-
 (C) Mn^{+2} (D) H^+
14. In the balanced chemical reaction $\text{IO}_3^- + \text{aI}^- + \text{bH}^+ \rightarrow \text{cH}_2\text{O} + \text{dI}_2$, a, b, c and d respectively correspond to
 (A) 5,6,3,3 (B) 5,3,6,3 (C) 3,5,3,6 (D) 5,6,5,5
15. The pH of the solution formed when 0.02 mol of HCl is added to enough water to make the final volume 2.0 L is
 (A) 1.67 (B) 2.0 (C) 12.0 (D) 10.0
16. Which of the following solutions contain the lowest concentration of hydrogen ion?
 (A) 0.01 M NaOH (B) 0.1 M HCl
 (C) 0.05 M H_2SO_4 (D) 0.01 M HCl
17. NaH_2PO_4 is a
 (A) Acid salt (B) Basic salt
 (C) Normal salt (D) Double salt
18. The hydroxyl ion concentration in a solution having pH = 4 will be
 (A) 10^{11} (B) 10^{-10}
 (C) 10^{12} (D) 10^{-4}
19. pH of the salt solution made by mixing CH_3COONa and water will be
 (A) < 7 (B) > 7
 (C) many be < 7 or > 7 (D) cannot find out
20. 0.005 M H_2SO_4 solution will be having
 (A) pH = 2 (B) $[\text{H}^+] = 10^{-2}$
 (C) $[\text{H}^+]$ ion in solution (D) all the above
21. Which of the following is/are Lewis acid
 (A) S^{2-} (B) NH_3
 (C) OH^- (D) AlCl_3
22. Identify the acidic salt
 (A) NH_4Cl (B) KCl
 (C) CaCl_2 (D) Na_2CO_3
23. Which of the following are not conjugate (acid-base) pair
 (A) HS^- , S^{2-} (B) NH_4^+ , NH_3
 (C) H_2O , O^{2-} (D) NH_3 , NH_2^-
24. According to Lewis acid-base concept, which is a correct statement?
 (A) Species in which central atom has completed octet cannot act as acid
 (B) All negatively charged ions are acids
 (C) Molecule in which the central atom has vacant 'd' orbitals acts as acid
 (D) All positively charged ions are bases

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25. When 1 mole of a weak acid CH_3COOH is dissolved in one litre water, resulting solution will contain H^+ ions
(A) 1 mole (B) more than 1 mole
(C) less than 1 mole (D) can't say
26. Arrange the following in the increasing order of oxidation state of Mn
(i) Mn^{+2} (ii) MnO_2 (iii) KMnO_4 (iv) K_2MnO_4
(A) (i) > (ii) > (iii) > (iv) (B) (i) < (ii) < (iv) < (iii)
(C) (ii) < (iii) < (i) < (iv) (D) (iii) < (i) < (iv) < (ii)
27. Calculate the pH of HCl solution containing 3.65 g in 1000 mL solution.
(A) 1 (B) 2
(C) 3 (D) 4
28. Methods of preventing rancidity is/are
(A) adding anti-oxidants (B) refrigeration of the food-stuff
(C) Electroplating (D) Galvanisation
29. Which of the following is the most electro negative element in the periodic table?
(A) Pb (B) F
(C) Si (D) C
30. In the following set of elements one element does not belong to the group. Select the element.
(A) $^{27}_{13}\text{Al}$ (B) $^{22}_{10}\text{Ne}$
(C) $^{23}_{11}\text{Na}$ (D) $^{27}_{12}\text{Mg}$
31. The total number of elements present in 6th period of modern periodic table is
(A) 8 (B) 18
(C) 32 (D) 24
32. The conjugate base of NH_3 is?
(A) NH_4^+ (B) NH_4^-
(C) NH_4OH (D) NH_2^-
33. An element 'X' belongs to third period and 13 group of the modern periodic table. The number of valence electrons of element 'X' is
(A) 2 (B) 3
(C) 1 (D) 4
34. Formula of plaster of paris is
(A) CaSO_4 (B) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$
(C) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$ (D) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
35. The conjugate base of water is :
(A) OH_4^+ (B) OH_2^-
(C) H_3O^+ (D) OH^-
36. Which of the following is not a balanced equation
(A) $\text{Mg} + \text{CuSO}_4 \longrightarrow \text{MgSO}_4 + \text{Cu}$ (B) $\text{Fe} + \text{Cl}_2 \longrightarrow \text{FeCl}_2$
(C) $\text{Zn} + \text{S} \longrightarrow \text{ZnS}$ (D) $\text{Ba}(\text{OH})_2 + \text{HCl} \longrightarrow \text{BaCl}_2 + \text{H}_2\text{O}$
37. The nonmetal which exhibits yellow colour is
(A) Silicon (B) Phosphorous (C) Sulphur (D) Carbon
38. $\text{Mg}_3\text{N}_2 + 6\text{H}_2\text{O} \longrightarrow x \text{Mg}(\text{OH})_2 + y \text{NH}_3$
In above equation, the values of x and y are
(A) 0, 1 (B) 2, 8 (C) 3, 2 (D) 2, 2
39. The mass of NaCl produced when 200 mL of 2.00 M HCl solution is neutralized with NaOH is
(A) 2.34 g (B) 23.4 g
(C) 234 g (D) None of the above

40. Number of lone pair present in each molecules of H_2O , NH_3 and C_2H_4 respectively
(A) 1, 2, 1 (B) 2, 1, 0
(C) 1, 1, 1 (D) 2, 1, 2
41. Identify the least stable ion amongst the following
(A) Li^+ (B) Be^-
(C) B^- (D) C^-
42. What is the effect of heating on Sodium carbonate?
(A) Na_2O and CO_2 are produced (B) Na_2O_2 and CO are produced
(C) Na_2O and CO are produced (D) None of the above
43. Alcohols cannot be oxidized to carboxylic acids by
(A) alkaline KMnO_4 (B) acidified $\text{K}_2\text{Cr}_2\text{O}_7$
(C) PCl_5 (D) All of these
44. The first ionization potential of Na, Mg, Al and Si are in the order of
(A) $\text{Na} < \text{Mg} > \text{Al} < \text{Si}$ (B) $\text{Na} > \text{Mg} > \text{Al} > \text{Si}$
(C) $\text{Na} < \text{Mg} < \text{Al} > \text{Si}$ (D) $\text{Na} > \text{Mg} > \text{Al} < \text{Si}$
45. Arrange the following oxides in the increasing order of their basic nature
(A) $\text{Na}_2\text{O} < \text{MgO} < \text{Al}_2\text{O}_3$ (B) $\text{Al}_2\text{O}_3 < \text{MgO} < \text{Na}_2\text{O}$
(C) $\text{Na}_2\text{O} = \text{MgO} = \text{Al}_2\text{O}_3$ (D) $\text{MgO} < \text{Al}_2\text{O}_3 < \text{Na}_2\text{O}$

FIITJEE Medical Admission Test

for students presently in **Class X (Going to Class XI)**
(Paper-2)

SECTION-I Biology PART - A

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

Section – II PHYSICS – (PART – A)

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. A | 2. C | 3. B | 4. B | 5. B | 6. A | 7. D | 8. A | 9. A | 10. C |
| 11. B | 12. A | 13. B | 14. A | 15. B | 16. C | 17. A | 18. B | 19. C | 20. B |
| 21. B | 22. B | 23. B | 24. C | 25. C | 26. B | 27. C | 28. C | 29. C | 30. A |
| 31. A | 32. C | 33. C | 34. C | 35. B | 36. B | 37. B | 38. C | 39. B | 40. C |
| 41. B | 42. B | 43. A | 44. A | 45. A | | | | | |

Section – III CHEMISTRY – (PART – A)

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. B | 2. B | 3. A | 4. D | 5. A | 6. B | 7. D | 8. A | 9. C | 10. A |
| 11. B | 12. D | 13. A | 14. A | 15. B | 16. A | 17. A | 18. B | 19. B | 20. D |
| 21. D | 22. A | 23. C | 24. C | 25. C | 26. B | 27. A | 28. A | 29. B | 30. B |
| 31. C | 32. D | 3. B | 34. B | 35. D | 36. D | 37. C | 38. C | 39. B | 40. B |
| 41. B | 42. D | 43. C | 44. A | 45. B | | | | | |