

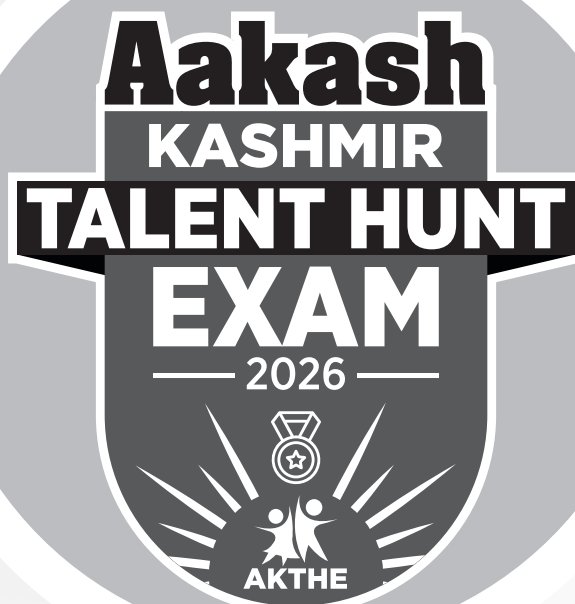
Sample Paper

MEDICAL



Aakash

Medical | IIT-JEE | Foundations



Class XI Studying Moving to Class XII

Physics, Chemistry & Biology

INSTRUCTIONS FOR CANDIDATE

1. Duration of Test is 1 hr.
2. The Test Booklet consists of **40** questions. The maximum marks are **90**. There is **no negative marking** for wrong answer.
3. Pattern of the questions are as under:
 - (i) The question paper consists of three parts *i.e.*, **Physics, Chemistry** and **Biology**. Each part has **two sections**.
 - (ii) **Section-I:** This section contains **35** multiple choice questions, which have **only one** correct answer. Each question carries **+2 marks** for correct answer.
 - (iii) **Section-II:** This section contains **5** multiple choice questions, in which **one or more than one** choice(s) is(are) correct. Each question carries **+4 marks** for correct answer.

Aakash Kashmir Talent Hunt Exam 2026

Sample Paper

(Class XI Studying Moving to Class XII)

(The questions given in sample paper are indicative of the level and pattern of questions that will be asked in AKTHE-2026)

Time : 1 Hour

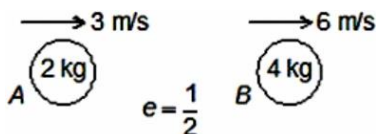
MM : 90

PHYSICS

SECTION-I : SINGLE CORRECT ANSWER TYPE

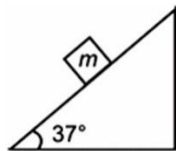
This section contains 9 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

- Two objects A and B are thrown with velocities $\vec{u}_A = 4\hat{i} + 5\hat{j}$ and $\vec{u}_B = \hat{i} + \hat{j}$ respectively from same point on horizontal ground. The magnitude of relative velocity of object B w.r.t. object A at any instant of time when both objects are in air, will be
 (1) 3 m s^{-1} (2) 4 m s^{-1}
 (3) 5 m s^{-1} (4) 6 m s^{-1}
- If a particle is moving on a curved path with constant speed, then
 (1) Velocity remains constant (2) Body is said to be under acceleration
 (3) Body remains unaccelerated (4) Body is moving with decreasing velocity
- The position of a particle is expressed as $\vec{r} = (2t^2\hat{i} + 6t\hat{j})\text{m}$, where t is time in second. Angle made by the direction of velocity with x-axis at time $t = 2$ second is
 (1) 45° (2) 30°
 (3) 53° (4) 37°
- A force $F = -4\hat{j}$ acts at the origin of a coordinate system. The torque of this force about the point $(2, -2)$ is
 (1) $8\hat{k}$ (2) $-8(\hat{j} + \hat{k})$
 (3) $8(\hat{j} + \hat{k})$ (4) $-8\hat{k}$
- Two rings have moment of inertia in the ratio of $2 : 1$ about the axis passing through the centre and perpendicular to the plane of ring. Their diameters are in the ratio of $2 : 1$. The ratio of their masses will be
 (1) $2 : 1$ (2) $1 : 2$
 (3) $1 : 4$ (4) $1 : 1$
- If coefficient of restitution between two balls is $\frac{1}{2}$ then which of the following statement is correct for given figure?



- (1) Velocity of A after collision is 4 m/s leftward
- (2) Collision will not take place
- (3) Velocity of A after collision is 4 m/s rightward
- (4) Velocity of B after collision is $\frac{11}{2} \text{ m/s}$ rightward

7. The force exerted by the floor of an elevator on the foot of a person, standing there is more than the weight of the person, if the elevator is
 (1) Going up and slowing down (2) Going down and slowing down
 (3) Going up and speeding up (4) Both (2) and (3)
8. A block of mass m is sliding down on a fixed smooth inclined plane as shown in figure. The acceleration of the block is (Take $g = 10 \text{ m/s}^2$)



- (1) 6 m/s^2 (2) 10 m/s^2
 (3) 8 m/s^2 (4) 5 m/s^2
9. A bomb at rest explodes into 3 parts of masses in the ratio 1 : 1 : 2. The velocity of the two parts of equal masses, immediately after explosion are $-2v\hat{i}$ and $v\hat{j}$ respectively. Then velocity of the third part is
 (1) $2v\hat{i} - v\hat{j}$ (2) $-2v\hat{i} - v\hat{j}$
 (3) $-v\hat{i} + \frac{v}{2}\hat{j}$ (4) $v\hat{i} - \frac{v}{2}\hat{j}$

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

10. The dimensional formula of work is same as that of
 (1) Energy (2) Power
 (3) Torque (4) Impulse

CHEMISTRY

SECTION-I : SINGLE CORRECT ANSWER TYPE

This section contains 9 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

11. If the mole fraction of acetone in ethyl alcohol is 0.3, then the molality of acetone in the solution is
 (1) 4.5 m (2) 6.2 m
 (3) 8.3 m (4) 9.3 m
12. Volume of CO_2 liberated at STP on the complete combustion of 80 g of methane gas in presence of excess of O_2 gas is
 (1) 224 L (2) 56 L
 (3) 112 L (4) 22.4 L
13. If uncertainty in momentum is double of uncertainty in position then uncertainty in position will be
 (1) $\sqrt{\frac{h}{2\pi}}$ (2) $\frac{1}{2}\sqrt{\frac{h}{2\pi}}$
 (3) $\sqrt{\frac{h}{\pi}}$ (4) $\frac{h}{2\sqrt{2\pi}}$
14. The inert gas which has highest value of electron gain enthalpy is
 (1) Xe (2) Rn
 (3) Ar (4) Ne

15. The correct order of ionic radii for the following species is
 (1) $H^+ > H > H^-$ (2) $N^{3-} > O^{2-} > F^-$
 (3) $Na^+ > F^- > O^{2-}$ (4) $Mg^{2+} > Al^{3+} > N^{3-}$
16. Which among the following is an example of odd-electron molecule?
 (1) CO (2) NO
 (3) CH₄ (4) H₂
17. Which of the following option represents the correct bond order?
 (1) $O_2 < N_2^+ < C_2^{2-}$ (2) $C_2^{2-} < O_2 < N_2^+$
 (3) $N_2^+ < O_2 < C_2^{2-}$ (4) $N_2^+ < C_2^{2-} < O_2$
18. The standard free energy change (ΔG°) is related to K (equilibrium constant) as
 (1) $\Delta G^\circ = -2.303 RT \log K$ (2) $\Delta G^\circ = 2.303 RT \log K$
 (3) $\Delta G^\circ = RT \log K$ (4) $\Delta G^\circ = -RT \log K$
19. The difference between ΔH and ΔU for the following reaction at 25°C is
 $2H_2(g) + O_2(g) \rightarrow 2H_2O(l)$
 (1) $-298R$ (2) $-894R$
 (3) $+894R$ (4) $+298R$

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 1 multiple choice question, which has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

20. Identify the orbital(s) with same number of radial nodes as that of orbital 4d.
 (1) 3p (2) 4f
 (3) 2s (4) 5f

BIOLOGY

SECTION-I : SINGLE CORRECT ANSWER TYPE

This section contains 17 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

21. Which structure is absolutely necessary for biological activity of protein molecule and is also involved in forming active site of an enzyme?
 (1) Alpha-helix (2) Beta pleated sheet
 (3) Tertiary structure (4) Primary structure
22. How much CO₂ is delivered by 5 L of deoxygenated blood to alveoli in an adult human, under normal physiological conditions?
 (1) 250 mL (2) 200 mL
 (3) 750 mL (4) 400 mL
23. Select the **correct** set of structures that are not supported by incomplete cartilaginous rings.
 (1) Initial bronchioles, trachea (2) Primary bronchi, secondary bronchi
 (3) Terminal bronchioles, alveoli (4) Initial bronchioles, alveoli

24. Pulmonary artery that carries deoxygenated blood to the lung arises from
(1) Right atrium (2) Left ventricle
(3) Right ventricle (4) Left atrium
25. Hepatic portal vein carries blood from _____ to the _____ before it is delivered to the systemic circulation. Choose the **correct** option to fill the blanks respectively.
(1) Liver, Intestine (2) Intestine, Liver
(3) Kidney, Liver (4) Liver, Kidney
26. Number of nephrons present in both kidneys of a human is nearly
(1) 1 million (2) 2 million
(3) 3 million (4) 4 million
27. Which of the following parts of nephron are situated in the cortical region of the kidney?
(1) Malpighian corpuscles, PCT and DCT (2) PCT and Loop of Henle
(3) DCT and Loop of Henle (4) Loop of Henle only
28. The flat bone of axial skeleton lying on the ventral midline of thorax is
(1) Ribs (2) Sternum
(3) Clavicle (4) Hyoid
29. In the middle of the anisotropic band, the thick filaments are held together by a thin fibrous membrane called
(1) 'I' band (2) 'M' line
(3) 'H' zone (4) 'Z' line
30. Algal cell wall does **not** have
(1) Chitin (2) Cellulose
(3) Galactans (4) Calcium carbonate
31. The **correct** sequence of different phases of cell cycle is
(1) G₁, M, G₂, S (2) G₁, S, G₂, M
(3) G₂, S, G₁, M (4) M, S, G₁, G₂
32. Lichens are symbiotic association between
(1) Algae and Fungi (2) Viruses and Fungi
(3) Algae and Viruses (4) Bacteria and Algae
33. Bilateral symmetry is found in the flowers of
(1) Mustard (2) *Datura*
(3) Gulmohur (4) Chilli
34. Arrangement of veins and veinlets in leaf lamina is called
(1) Venation (2) Phyllotaxy
(3) Aestivation (4) Placentation
35. Bacterial flagellum
(1) Is made up of tubulin protein
(2) Helps the bacterium to attach to the rocks in streams
(3) Is thin filamentous extension from the cell wall of bacterium
(4) Is different from eukaryotic flagellum as it does not help in motility
36. Synaptonemal complex
(1) Dissolves during diakinesis stage
(2) Stabilises the two homologous chromosomes
(3) Is formed by a pair of synapsed chromosomes called bivalent which first appears during pachytene stage
(4) Formation involves activity of recombinase enzyme

37. Human beings belong to
- | | |
|------------------------------|-------------------------|
| (1) Species – <i>sapiens</i> | (2) Order – <i>Homo</i> |
| (3) Class – Chordata | (4) Family – Primata |

SECTION-II : ONE OR MORE THAN ONE CORRECT ANSWER TYPE

This section contains 3 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONE OR MORE THAN ONE** choice(s) is(are) correct.

38. Choose the **correct** option(s) w.r.t. the cell organelle which plays a major role in heredity and also controls the activities of other organelles in eukaryotic cells.
- (1) Membraneless spherical structures are present in its matrix, which are the site for active rRNA synthesis.
 - (2) Duplication of centriole and chromosome occurs in it
 - (3) There is presence of highly extended and elaborate nucleoprotein fibres, which can be stained by the basic dyes.
 - (4) These are absent in mature mammalian erythrocytes and sieve tube cells of vascular plants.
39. The class of fungi in which only the asexual or vegetative phases are known, exhibits all of the following features, **except**
- (1) Large number of them are decomposers of litter and help in mineral cycling.
 - (2) *Alternaria* and *Colletotrichum* belong to this group and they show septate and branched mycelium.
 - (3) Morels and truffles are the edible delicacies of this group.
 - (4) Asexual reproduction takes place by motile spores, that are produced in sporangium.
40. Select the **correct** set of match(es).
- (1) Thymidylic acid – phosphate group = Thymidine
 - (2) Adenosine + phosphate group = Arachidonic acid
 - (3) Cytosine + phosphoric acid + ribose sugar = Cytidylic acid
 - (4) Guanosine – phosphate group = Guanine

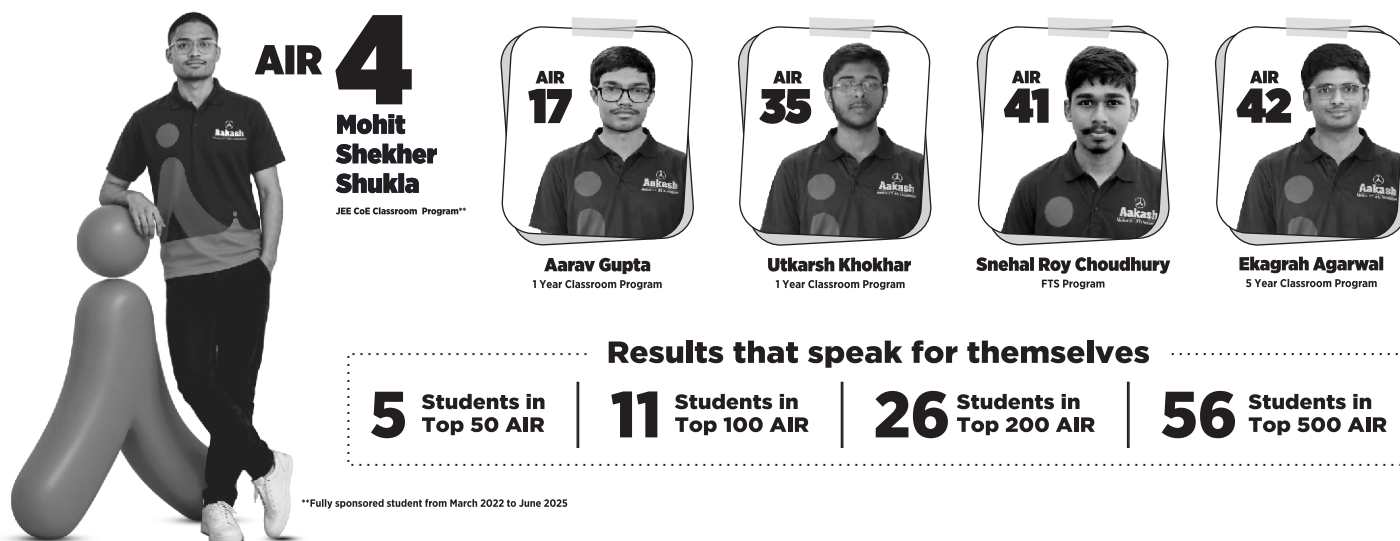


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Olympiads Results

777 Classroom Students
Aakashians Qualified
in IOQM
2025

134 Classroom Students
Aakashians Qualified
in RMO
2025-26

378 Classroom Students
Aakashians Qualified
in NSEs
2025-26

26 Classroom Students
Aakashians Qualified
for OCSCs/IMOTC
/APMO 2025-26

2072 Classroom Students
Aakashians Qualified
in NSO & IMO (Level-1)
2025-26