

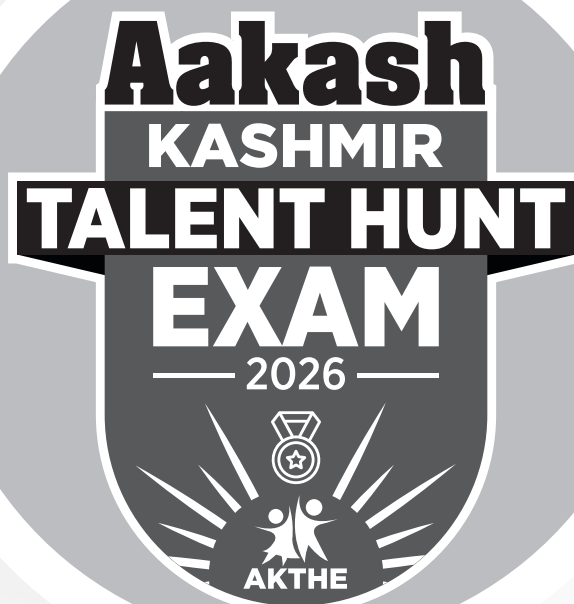
Sample Paper

MEDICAL



Aakash

Medical | IIT-JEE | Foundations



(Class XII Studying Moving to XII Passed)

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 XII Studying Moving to XII Passed)

(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

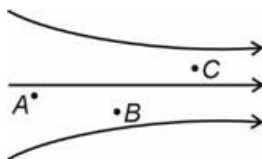
MM : 90

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.

- The magnetic flux increases from 4 Wb to 12 Wb through a coil of resistance $200\ \Omega$ in 0.2 second. The net charge passed through the coil is
 - 20 mC
 - 40 mC
 - 10 mC
 - 80 mC
- A $100\ \mu\text{F}$ capacitor is connected to an AC supply having angular frequency $\omega = 100\ \text{rad s}^{-1}$. The reactance of the capacitor is
 - $10\ \Omega$
 - $1\ \Omega$
 - $0.1\ \Omega$
 - $100\ \Omega$
- The electric force experienced by a point charge of $1\ \mu\text{C}$ is $5 \times 10^{-3}\ \text{N}$. The magnitude of the electric field at that point due to the source charge is
 - $5 \times 10^3\ \text{N/C}$
 - $25 \times 10^3\ \text{N/C}$
 - $5 \times 10^{-3}\ \text{N/C}$
 - $2.5 \times 10^3\ \text{N/C}$
- Three points A, B and C are located in a non-uniform electric field as shown in the figure. The intensity of electric field is



- Maximum at A
 - Maximum at C
 - Minimum at C
 - Maximum at B
- An electric network shown in the figure is part of an electric circuit, then current I is



- 1.5 A
- 2.5 A
- 2 A
- 1 A

6. A particle having charge 2 C is projected perpendicularly in a uniform magnetic field of 5 T with a speed of 10 cm/s. Force acting on the charged particle will be
 (1) 10 N (2) 1 N
 (3) 0.1 N (4) 100 N
7. Magnetic susceptibility is small and negative for
 (1) Diamagnetic substances (2) Paramagnetic substances
 (3) Ferromagnetic substances (4) All of these
8. A coil of area $\vec{A} = (2\hat{i} - 2\hat{j}) \text{ m}^2$ is placed in uniform magnetic field $\vec{B} = (\hat{i} - 2\hat{j} + 4\hat{k}) \text{ T}$. The flux passing through this coil is
 (1) 2 Wb (2) 10 Wb
 (3) 8 Wb (4) 6 Wb
9. A $\frac{20}{\pi}$ mH inductor is connected to a 200 V, 50 Hz ac source. The inductive reactance of the circuit will be
 (1) 1Ω (2) 2Ω
 (3) 3Ω (4) 4Ω

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. In case of motion of a charged particle under the effect of a uniform electric field, choose the correct option. (Symbols have their usual meaning)
 (1) Acceleration of charge is constant
 (2) If the particle is initially at rest, then velocity after time t is $\frac{qE}{m}t$
 (3) If the particle is projected perpendicular to the field with an initial velocity v_0 , then path of charge particle is parabola
 (4) If the particle is projected perpendicular to the field with an initial velocity v_0 , then path of charge particle is straight line

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. Osmotic pressure of 0.1 M $\text{Na}_3\text{PO}_4(\text{aq})$ solution at 27°C is (assume 90% ionization of Na_3PO_4)
 (1) 9.1 atm
 (2) 3.2 atm
 (3) 6.65 atm
 (4) 2.21 atm
12. Standard reduction potential for Zn^{2+}/Zn couple is -0.76 V and that for Mg^{2+}/Mg is -2.36 V . These two couples in their standard state are connected to make a cell. The cell potential will be
 (1) 3.12 V (2) -3.12 V
 (3) 1.6 V (4) -1.8 V

13. The molar conductance at infinite dilution of AlCl_3 , BOH and BCl are 200, 100 and 50 $\text{S cm}^2 \text{mol}^{-1}$ respectively then the molar conductance of $\text{A}(\text{OH})_2$ at infinite dilution will be
- (1) 250 $\text{S cm}^2 \text{mol}^{-1}$
(2) 350 $\text{S cm}^2 \text{mol}^{-1}$
(3) 300 $\text{S cm}^2 \text{mol}^{-1}$
(4) 150 $\text{S cm}^2 \text{mol}^{-1}$
14. In zero order reaction for every 10°C rise in temperature the rate of the reaction is doubled. If the temperature is increased from 40°C to 90°C then the rate of the reaction will become
- (1) 32 times (2) 16 times
(3) 8 times (4) 64 times
15. The slope of Arrhenius plot $\left(\ln k \text{ vs } \frac{1}{T}\right)$ of first order reaction is $-2 \times 10^3 \text{ K}$. The value of E_a of the reaction is
- (1) -83 kJ mol^{-1} (2) 16.6 kJ mol^{-1}
(3) 83.0 kJ mol^{-1} (4) 166 kJ mol^{-1}
16. Which among the given ions has spin only magnetic moment value of 2.83 BM?
- (1) Ti^{2+} (2) Cr^{3+}
(3) Zn^{2+} (4) Co^{2+}
17. Most common oxidation states of Nickel and Vanadium respectively are
- (1) +3 and +5 (2) +4 and +3
(3) +2 and +5 (4) +4 and +4
18. The number of geometrical isomers exhibited by coordination compound $[\text{Co}(\text{en})_2\text{Cl}_2]$ is
- (1) 2
(2) 3
(3) 4
(4) 6
19. Wilkinson's catalyst is a complex of
- (1) Rh (2) Ir
(3) Pd (4) Cr

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. Correct statement(s) among the following is/are
- (1) A mixture of chloroform and acetone forms solution which shows negative deviation from Raoult's law.
(2) The solutions that show a large positive deviation from Raoult's law form maximum boiling azeotrope at a specific composition.
(3) Two solutions having same osmotic pressure at a given temperature are called isotonic solution.
(4) The values of K_b (molal elevation constant) depend upon the nature of the solvent.

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. Mobile genetic elements, that provide complementary RNA and replicate *via* an RNA intermediate to perform silencing of mRNA, are generally used in
- (1) PCR (2) ELISA
(3) RNAi (4) Gene therapy
22. By using which of the following restriction endonucleases, one can perform insertional inactivation of '*rop*' gene in pBR322?
- (1) *Bam* HI
(2) *Eco* RI
(3) *Pvu* I
(4) *Pvu* II
23. For bacterial cells to take up DNA, they must first be made competent, thus they are treated with
- (1) Armed pathogen vectors
(2) Low velocity microparticles of gold
(3) DNA of *Agrobacterium tumefaciens*
(4) Specific concentration of divalent cations
24. Choose the **incorrect** option w.r.t. the techniques that serve the purpose of early diagnosis of diseases.
- (1) Enzyme linked immuno-sorbent assay
(2) Polymerase chain reaction
(3) Urine analysis
(4) Recombinant DNA technology
25. The failure of body to differentiate between 'self' and 'non-self' cells leads to
- (1) Genetic disorders
(2) Occupational disorders
(3) Allergic disorders
(4) Auto-immune disorders
26. Cells which act as the HIV factory in an infected person
- (1) Constitute 60 - 65% of the total WBCs
(2) Are the least abundant granulocytes
(3) Produce immunoglobulins
(4) Are phagocytic cells found in tissues
27. In which of the following ARTs, blastocyst with 32-celled stage is transferred into the uterus of the female who cannot conceive naturally?
- (1) GIFT (2) ZIFT
(3) IUT (4) IUI

28. All of the following are various complications due to STIs, **except**
- (1) Conception
 - (2) Still births
 - (3) Ectopic pregnancies
 - (4) Infertility
29. During cleavage in embryonic development, there is increase in all of the following, **except**
- (1) Number of blastomeres
 - (2) Size of blastomeres
 - (3) Nuclear cytoplasmic ratio
 - (4) DNA content
30. All of the following are advantages of seed to angiosperms, **except**
- (1) Generation of new genetic combinations
 - (2) Helps in dispersal to new habitats
 - (3) Helps in nourishment of young seedlings
 - (4) It forms the basis of agriculture
31. The proximal end of the filament of stamen is attached to the
- (a) Thalamus
 - (b) Sepal
 - (c) Petal
 - (d) Anther
- The **correct** one(s) is/are
- (1) (d) only
 - (2) (a) and (c) only
 - (3) (b) only
 - (4) (b) and (c) only
32. The pitch of the DNA helix is
- (1) 2.2 nm
 - (2) 3.4 nm
 - (3) 5.2 nm
 - (4) 6.1 nm
33. The number of nucleotides found in $\phi \times 174$ bacteriophage is
- (1) 48502
 - (2) 4.6×10^6
 - (3) 5386
 - (4) 3.3×10^9
34. 'In any cross, if recombination frequency is 5%', it means
- (1) The distance between the observed genes is 5 cM
 - (2) Number of recombinants is 5 in 10 progenies
 - (3) Their crossover value is 1/5
 - (4) Out of total progeny produced, 5 are parental types
35. Sex of the chicks is determined by
- (1) Their female parent
 - (2) Both of their male and female parents
 - (3) The temperature at which the egg is incubated
 - (4) Their male parent
36. By converting milk into curd, lactic acid bacteria helps in all, **except**
- (1) Improving nutritional quality by increasing vitamin B₁₂
 - (2) Producing acids that partially digest milk protein
 - (3) Checking disease causing microbes in our stomach
 - (4) Fermenting milk by utilization of oxygen
37. The technique where crops are raised using biofertilizers is known as
- (1) Genetic engineering
 - (2) Organic farming
 - (3) Integrated Pest Management
 - (4) Tissue culture

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. An inborn error of metabolism that exhibit autosomal recessive inheritance pattern,
- (1) Involves conversion of amino acid phenylalanine into tyrosine
 - (2) Can also exhibit change in multiple phenotypic expressions
 - (3) Is caused by mutation in the gene that codes for the enzyme, phenyl alanine hydroxylase
 - (4) Is controlled by a gene which is pleiotropic
39. Select the **mismatched** pair(s).
- (1) Har Gobind Khorana – Developed the chemical method that is instrumental in synthesising RNA molecules with defined combinations of bases
 - (2) Marshall Nirenberg – Discovered an enzyme, polynucleotide phosphorylase that was helpful in polymerising RNA with defined sequence in template independent manner
 - (3) Severo Ochoa – Devised is a cell-free system for protein synthesis that helped the genetic code to be deciphered
 - (4) George Gamow – Suggested that in order to code for all the 20 amino acids, the code should be made up of three nucleotides
40. Which of the following pairs of hormones are produced in a healthy adult non-pregnant woman?
- | | |
|----------------------------|--------------|
| (1) Estrogen, progesterone | (2) hCG, hPL |
| (3) Estrogen, cortisol | (4) FSH, LH |

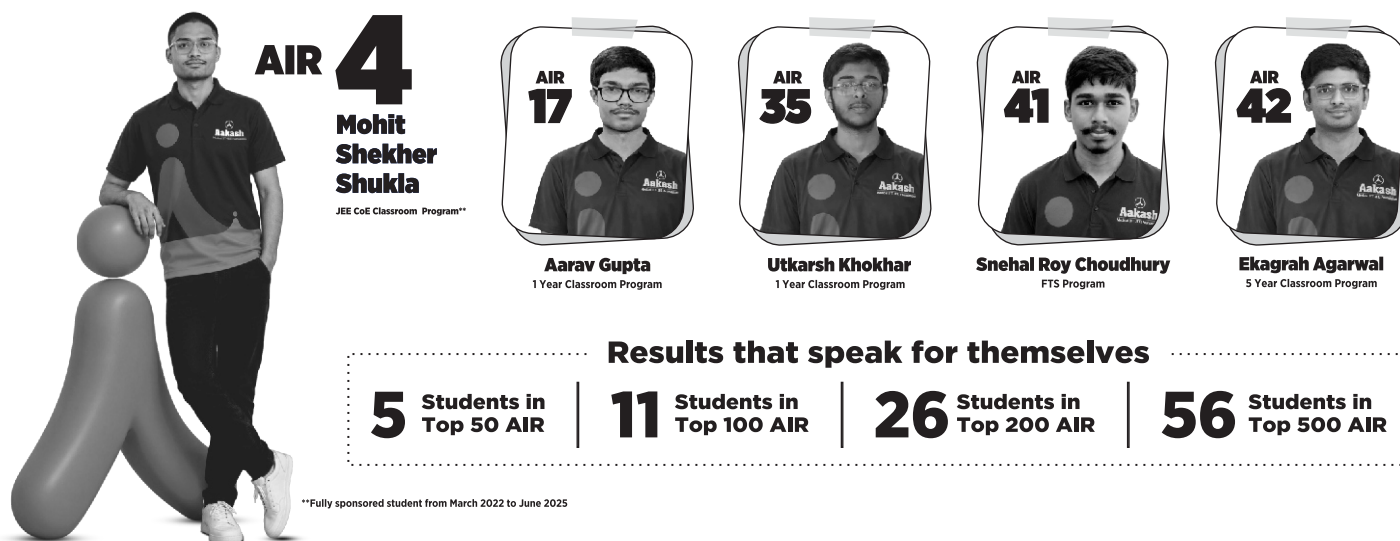
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Results that speak for themselves

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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