

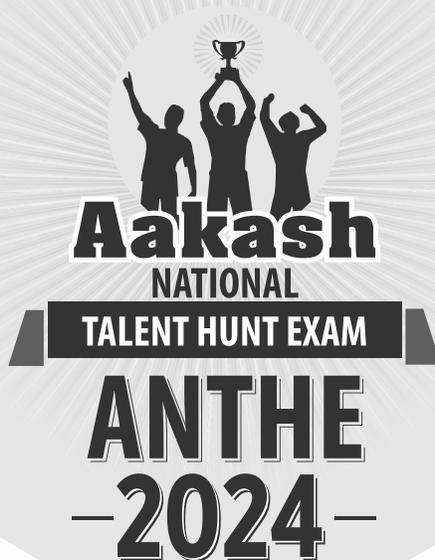
Sample Paper

MEDICAL



Aakash

Medical | IIT-JEE | Foundations



(Class X Studying Moving to Class XI)

Physics, Chemistry, Biology & Mental Ability

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 four parts *i.e.*, **Physics, Chemistry, Biology** and **Mental Ability**. 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 National Talent Hunt Exam 2024**SAMPLE PAPER****(Class X Studying Moving to Class XI)**

(The questions given in sample paper are indicative of the level and pattern of questions that will be asked in ANTHE-2024)

PHYSICS**Time : 1 Hour****MM : 90****SECTION-I****SINGLE CORRECT ANSWER TYPE**

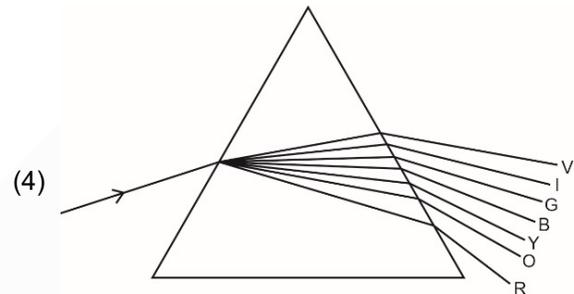
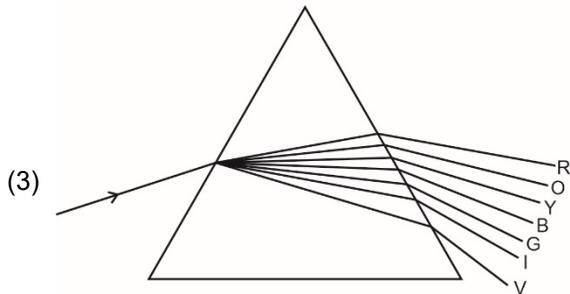
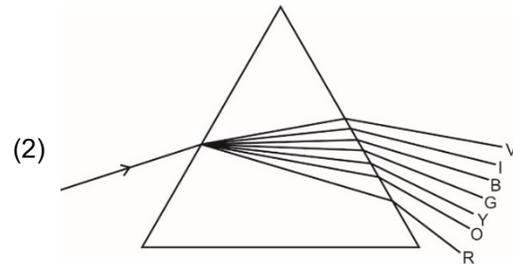
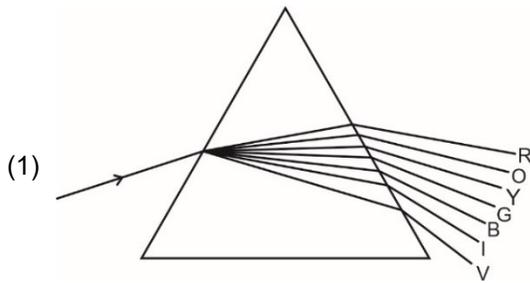
This section contains 9 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

1. The electric symbol shown in given figure represents which electric component in an electric circuit diagram?



- (1) A wire joint
(2) Wires crossing without joining
(3) Variable resistance or rheostat
(4) Closed key
2. Two bulbs A and B are rated as (80 W, 200 V) and (88 W, 220 V) respectively. The ratio of their resistances is
(1) 5 : 6
(2) 6 : 7
(3) 10 : 11
(4) 11 : 13
3. The material used for making filaments of electric bulb is
(1) Tungsten
(2) Nickel
(3) Chromium
(4) Cobalt
4. The near and far points of a person suffering from a defect of vision is 100 cm and infinity respectively. The power of the lens required for correcting his vision is
(1) + 1.5 D
(2) – 1.5 D
(3) + 3 D
(4) – 3 D

5. Which of the following figures is correctly show the dispersion of white light by a glass prism?



6. Which of the following is caused due to scattering of light?

- (1) Formation of rainbow in the sky
- (2) The sky appears blue
- (3) Splitting of white light into its component colours
- (4) Both (1) and (3)

7. An object is placed at a distance of 60 cm from a concave lens of power 2.5 D. The magnification of the image formed is

- (1) 0.2
- (2) 0.4
- (3) 0.6
- (4) 0.8

8. Which of the following statements is correct?

- (1) The speed of light is slowest in vacuum
- (2) Convex mirrors are commonly used in torches
- (3) According to laws of refraction of light, angle of incidence is always equal to angle of refraction
- (4) For a real object placed at the infinity in front of a concave lens, the image formed is virtual and erect

9. A point object is placed in front of a concave lens of focal length f . If the image is formed at a distance of $\frac{f}{3}$ from the optical centre of the lens, then the object distance from the lens is

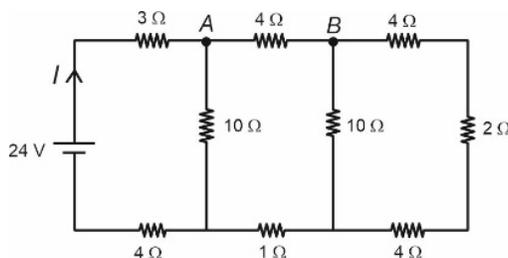
- (1) $\frac{3f}{2}$
- (2) $2f$
- (3) $\frac{f}{2}$
- (4) $\frac{2f}{3}$

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. An electric circuit of nine resistors connected with a 24 V battery is shown in the figure. Analyze the circuit diagram and choose the correct option(s).



- (1) Current I in the circuit is 8 A
- (2) Current I in the circuit is 2 A
- (3) The heat dissipated in the circuit in 2 min is 50 kJ
- (4) The heat dissipated in the circuit in 2 min is 5.76 kJ

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. Which of the following gases is usually flushed in the packets of chips to prevent them from getting oxidised?
 - (1) Oxygen
 - (2) Chlorine
 - (3) Nitrogen
 - (4) Hydrogen
12. Which of the following statements is incorrect?
 - (1) Precipitate may or may not be formed in double displacement reaction
 - (2) The decomposition of limestone takes place in the presence of sunlight only
 - (3) Zinc and lead are more reactive than copper
 - (4) When fats and oils are oxidised, their smell and taste change
13. Nikhil took about 2 g of barium hydroxide in a beaker and mixed 1 g of ammonium chloride into it. As the mixture is stirred, the solids begin to react with each other. Based upon this activity, identify the incorrect statement.
 - (1) Liquid water and gaseous ammonia are formed in the reaction
 - (2) The bottom of the beaker feels cold when touched with palm
 - (3) The given reaction is an example of endothermic reaction
 - (4) The thermal decomposition of barium hydroxide takes place when ammonium chloride is introduced in beaker

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. A salt 'X' is used as an antacid. On heating 'X', it gives another salt 'Y' and a gas 'Z'. Salt 'Y' is used in the manufacture of borax. Identify 'X', 'Y' and 'Z' and choose the correct option(s).
- (1) Salt 'X' is NaHCO_3 and it is used in bakery products
 - (2) Salt 'Y' is sodium carbonate and its crystals are used for removing permanent hardness of water
 - (3) Crystalline form of 'Y' contains 10 water molecules as water of crystallisation
 - (4) Gas 'Z' is also evolved when 'Y' reacts with hydrochloric acid and it turns lime water milky

BIOLOGY

SECTION-I

SINGLE CORRECT ANSWER TYPE

This section contains 10 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

21. Which of the following are the reproductive parts of a flower?
- | | |
|----------------------|-----------------------|
| (1) Pistil and petal | (2) Sepal and petal |
| (3) Stamen and sepal | (4) Pistil and stamen |
22. After fertilisation in flowers, the ovary grows rapidly and ripens to form a
- | | |
|-------------|-------------|
| (1) Fruit | (2) Seed |
| (3) Radicle | (4) Plumule |
23. The part which stores food in a germinating seed is
- | | |
|---------------|-------------|
| (1) Stigma | (2) Radicle |
| (3) Cotyledon | (4) Plumule |
24. The flower of a watermelon plant contains
- (a) Both pistil and stamen.
(b) Either pistil or stamen.
- Select the correct option.
- | | |
|-------------------------------|--------------------------------|
| (1) Both (a) and (b) are true | (2) Only (a) is true |
| (3) Only (b) is true | (4) Both (a) and (b) are false |
25. **Statement-I:** Abscisic acid inhibits growth of the plant.
Statement-II: Cytokinin promotes wilting of leaves.
After interchanging the underlined words,
- | | |
|---|---|
| (1) Only statement-I will become correct | (2) Only statement-II will become correct |
| (3) Both the statements will become correct | (4) Both the statements will become incorrect |
26. Which of the following plant hormones promotes bending of plant towards the source of light?
- | | |
|---------------|-------------------|
| (1) Cytokinin | (2) Gibberellin |
| (3) Auxin | (4) Abscisic acid |

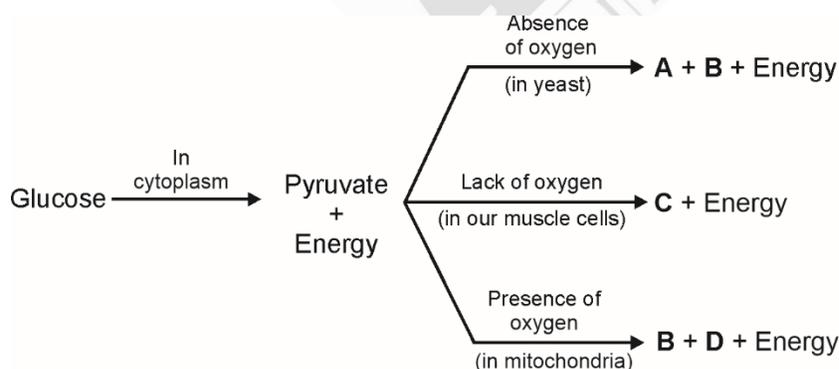
27. • It is secreted by pancreas.
• It regulates blood sugar level in the body.
Identify the hormone on the basis of given information and choose the correct option.
- (1) Insulin (2) Thyroxin
(3) Testosterone (4) Oestrogen
28. Roots of a plant are
(1) Positively phototropic (2) Positively geotropic
(3) Negatively hydrotropic (4) Negatively geotropic
29. In plants, transpiration helps in
(a) Absorption of water and minerals.
(b) Temperature regulation.
(c) Downward movement of nutrients.
Select the correct option.
(1) Only (a) is true (2) Both (b) and (c) are true
(3) Only (c) is true (4) Both (a) and (b) are true
30. The balloon-like structure in human respiratory system which provides a surface for the exchange of gases is called
(1) Alveolus (2) Trachea
(3) Diaphragm (4) Bronchiole

SECTION-II

ONE OR MORE THAN ONE CORRECT ANSWER TYPE

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

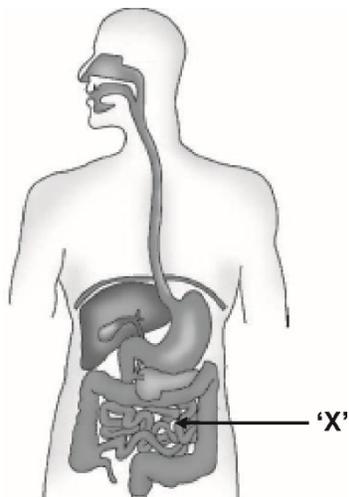
31. Consider the given representation of breakdown of glucose by various pathways.



Select the correct option(s) w.r.t. the products (A-D) formed during the above depicted respiratory pathways.

- (1) A – Lactic acid
(2) D – Water
(3) B – Carbon dioxide
(4) C – Ethanol

32.



Select the **incorrect** statement(s) regarding the part labelled as 'X' in the above given figure of human alimentary canal.

- (1) It receives food from the liver
- (2) It is the site of the complete digestion of carbohydrates, proteins and fats
- (3) Its walls contain glands which secrete digestive juices
- (4) It is shorter in herbivores because of their food habits

MENTAL ABILITY

SECTION-I

SINGLE CORRECT ANSWER TYPE

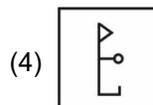
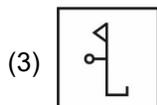
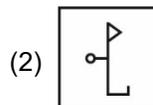
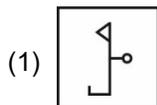
This section contains 7 multiple choice questions. Each question has 4 choices (1), (2), (3) and (4) out of which **ONLY ONE** choice is correct.

33. Which two signs and numbers on left hand side needs to be interchanged to make the equation correct?

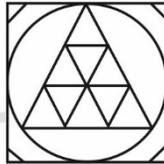
$$50 \div 3 + 16 - 34 \times 2 = 158$$

- (1) \div and \times , 4 and 2
- (2) \div and \times , 2 and 1
- (3) $+$ and $-$, 5 and 6
- (4) $-$ and $+$, 1 and 6

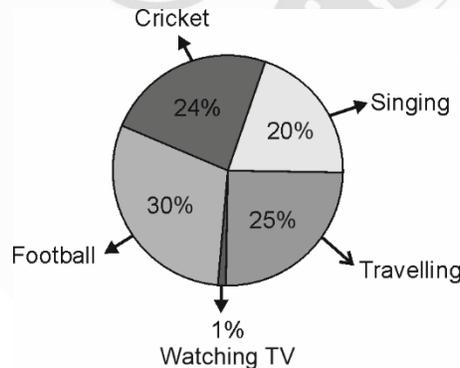
34. The figures on either side of ':' follows a certain relationship. Bearing the same relationship, choose the correct option which can replace the question mark.



35. Jitendra starts to move towards east and walks 100 m. Now, he moves 120 m towards south. After that, he moves 60 m in east. Further, he moves 50 m north, 49 m east and 50 m south respectively and stops. The minimum distance between initial and final point is
- (1) 225 m (2) 250 m
(3) 241 m (4) 210 m
36. If in a certain code language, 'PLEASANT' is coded as '128' and 'ROTTEN' is coded as '70', then how will 'CALCULATOR' be coded in the same code language?
- (1) 160 (2) 164
(3) 172 (4) 176
37. Read the given information carefully and answer the following question.
P, Q, R, S and T are travelling in a car to reach at different places like Agra, Mathura, Noida, Ghaziabad and Kanpur but not necessarily in the same order. P wants to go to Agra whereas S goes to Kanpur. Q doesn't go to Mathura and Noida. T doesn't go to Noida. Where does R go?
- (1) Noida (2) Mathura
(3) Ghaziabad (4) Kanpur
38. The total number of triangles in the following figure is



- (1) 17 (2) 15
(3) 16 (4) 14
39. A pie chart is given as follows:



Distribution of activities performed by a person in percentage

The central angle formed by the activities (singing, travelling and watching TV) altogether is

- (1) 160° (2) 165.6°
(3) 170° (4) 180°

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.

40. Which of the following pair(s) follow(s) the same pattern?
 $472 : 351 :: 987 : 570 :: 879 : 432$
- (1) $643 : 79$ (2) $829 : 97$
(3) $347 : 118$ (4) $889 : 601$



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