

**JENPAS (UG)-2025**  
**Paper-II (For BHA Only)**

(Booklet Number)

**Duration : 90 Minutes**

**No. of MCQs : 100**

**Full Marks : 115**

**INSTRUCTIONS**

1. All questions are of objective type having four answer options for each.
2. Category-1: Carry 1 mark each and only one option is correct. In case of incorrect answer or any combination of more than one answer,  $\frac{1}{4}$  mark will be deducted.
3. Category-2: Carry 2 marks each and one or more option(s) is/are correct. If all correct answers are not marked and no incorrect answer is marked, then score =  $2 \times$  number of correct answers marked  $\div$  actual number of correct answers. If any wrong option is marked or if any combination including a wrong option is marked, the answer will be considered wrong, but there is **no negative marking** for the same and zero mark will be awarded.
4. Questions must be answered on OMR sheet by darkening the appropriate bubble marked A, B, C or D.
5. Use only **Black/Blue ball point pen** to mark the answer by filling up of the respective bubbles completely.
6. Write question booklet number and your roll number carefully in the specified locations of the **OMR Sheet**. Also fill appropriate bubbles.
7. Write your name (in block letter), name of the examination center and put your signature (as it appears in the Admit Card) in appropriate boxes in the OMR Sheet.
8. The OMR Sheet is liable to become invalid if there is any mistake in filling the correct bubbles for question booklet number/roll number or if there is any discrepancy in the name/signature of the candidate, name of the examination center. The OMR Sheet may also become invalid due to folding or putting stray marks on it or any damage to it. The consequence of such invalidation due to incorrect marking or careless handling by the candidate will be the sole responsibility of the candidate.
9. Candidates are not allowed to carry any written or printed material, calculator, sliderule, pen, log-table, wristwatch, graph, any communication device like mobile phones, bluetooth etc. inside the examination hall. Any candidate found with such prohibited items will be **reported against** and his/her candidature will be summarily cancelled.
10. Rough work must be done on the question booklet itself. Additional blank pages are given in the question booklet for rough work.
11. Handover the OMR Sheet to the invigilator before leaving the Examination Hall.
12. This booklet contains questions in both English and Bengali. Necessary care and precaution were taken while framing the Bengali version. However, if any discrepancy(ies) is/are found between the two versions, the information provided in the English version will stand and will be treated as final.
13. Candidates are allowed to take the Question Booklet after the Examination is over.

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JENPAS(UG)-2025 ( 3 )

PHYSICAL SCIENCE

Category-1 (Q. 1 to 25)

(Carry 1 mark each. Only one option is correct. Negative marks: -1/4)

1. Which of the following is a fundamental unit?

- (A) Newton (B) Joule  
(C) Meter (D) Watt

নীচের কোনটি মৌলিক একক?

- (A) নিউটন (B) জুল  
(C) মিটার (D) ওয়াট

2. Ratio of weight of hydrogen and oxygen obtained by electrolysis of acidified water is

- (A) 1 : 8 (B) 2 : 1  
(C) 2 : 3 (D) 3 : 1

অ্যাসিডমিশ্রিত জলের তড়িৎ বিশ্লেষণের ফলে উৎপন্ন হাইড্রোজেন ও অক্সিজেনের ভরের অনুপাত হবে

- (A) 1 : 8 (B) 2 : 1  
(C) 2 : 3 (D) 3 : 1

3. The amount of electrical energy represented by 1 kWh is

- (A)  $3.6 \times 10^3$  J (B)  $3.6 \times 10^4$  J  
(C)  $3.6 \times 10^5$  J (D)  $3.6 \times 10^6$  J

1 kWh যত পরিমাণ তড়িৎ শক্তি বোঝায় তা হল

- (A)  $3.6 \times 10^3$  J (B)  $3.6 \times 10^4$  J  
(C)  $3.6 \times 10^5$  J (D)  $3.6 \times 10^6$  J

4. A solution with pH=3 is

- (A) strongly basic (B) acidic  
(C) neutral (D) weakly basic

একটি দ্রবণের pH=3 হলে এটি

- (A) প্রবল ক্ষারীয় (B) অম্লীয়  
(C) নিরপেক্ষ (D) দুর্বল ক্ষারীয়

## JENPAS(UG)-2025 ( 4 )

5. A ball is thrown vertically upwards. At the highest point its

- (A) velocity = 0, acceleration = 0
- (B) velocity = maximum, acceleration = 0
- (C) velocity = 0, acceleration = g (downwards)
- (D) velocity = maximum, acceleration = g (downwards)

একটি বলকে উল্লম্বভাবে উপরের দিকে নিক্ষেপ করা হল। সর্বোচ্চ বিন্দুতে এর

- (A) বেগ = 0, ত্বরণ = 0
- (B) বেগ = সর্বাধিক, ত্বরণ = 0
- (C) বেগ = 0, ত্বরণ = g (নিম্নমুখী)
- (D) বেগ = সর্বাধিক, ত্বরণ = g (নিম্নমুখী)

6. NaCl is an example of

- (A) covalent compound
- (B) ionic compound
- (C) metallic compound
- (D) molecular hydrogen

NaCl একটি

- (A) সমযোজী যৌগ
- (B) আয়নিক যৌগ
- (C) ধাতব যৌগ
- (D) আণবিক হাইড্রোজেন

7. In periodic table, across a period (left to right), atomic radius gradually

- (A) increases.
- (B) decreases.
- (C) remains same.
- (D) effective nuclear charge decreases.

পর্যায় সারণীতে, একটি পর্যায়ে বাম থেকে ডান পরমাণুর ব্যাসার্ধ ক্রমশ

- (A) বৃদ্ধি পায়।
- (B) হ্রাস পায়।
- (C) সমান থাকে।
- (D) নিউক্লিয়াসের কার্যকরী আধান হ্রাস পায়।

8. Oxidation involves

- (A) gain of electron.
- (B) loss of electron.
- (C) no change of electron.
- (D) gain of proton.

জারণ প্রক্রিয়াতে

- (A) ইলেক্ট্রন যুক্ত হয়।
- (B) ইলেক্ট্রন বিমুক্ত হয়।
- (C) ইলেক্ট্রনের কোনো পরিবর্তন হয় না।
- (D) প্রোটন যুক্ত হয়।

## JENPAS(UG)-2025 ( 5 )

9. In a simple pendulum kinetic energy
- (A) is maximum at the highest point.
  - (B) is maximum at the lowest point.
  - (C) is maximum at the mid point between highest and lowest point.
  - (D) is constant throughout.

সরল দোলকের গতিশক্তি

- (A) সর্বোচ্চ বিন্দুতে সর্বোচ্চ হয়
- (B) সর্বনিম্ন বিন্দুতে সর্বোচ্চ হয়
- (C) সর্বোচ্চ এবং সর্বনিম্ন বিন্দুর মাঝের বিন্দুতে সর্বোচ্চ হয়
- (D) সর্বত্র ধ্রুবক

10. To see the complete image of a person, the length of a plane mirror should be
- (A) equal to the length of the person.
  - (B) half of the length of the person.
  - (C) one third of the length of the person.
  - (D) double of the length of the person.

সমতল দর্পণে নিজের পূর্ণ প্রতিবিন্দু দেখার জন্য দর্পণের দৈর্ঘ্য কোনো মানুষের দৈর্ঘ্যের

- (A) সমান হতে হবে।
- (B) অর্ধেক হতে হবে।
- (C) এক তৃতীয়াংশ হতে হবে।
- (D) দ্বিগুণ হতে হবে।

11. A major greenhouse gas is

- (A) O<sub>2</sub>
- (B) N<sub>2</sub>
- (C) CO
- (D) CO<sub>2</sub>

একটি প্রধান গ্রিনহাউস গ্যাস হল

- (A) O<sub>2</sub>
- (B) N<sub>2</sub>
- (C) CO
- (D) CO<sub>2</sub>



## JENPAS(UG)-2025 ( 6 )

12. If the half life of a radioactive substance is 10 days, fraction remaining after 20 days is

- (A)  $\frac{1}{2}$  (B)  $\frac{1}{3}$   
(C)  $\frac{1}{4}$  (D)  $\frac{1}{8}$

কোনো তেজস্ক্রিয় পদার্থের অর্ধায়ু 10 দিন হলে, 20 দিন পর অবশিষ্ট ভগ্নাংশ হবে

- (A)  $\frac{1}{2}$  (B)  $\frac{1}{3}$   
(C)  $\frac{1}{4}$  (D)  $\frac{1}{8}$

13. Which process involves heat transfer without medium?

- (A) Conduction (B) Convection  
(C) Radiation (D) None of these

কোন পদ্ধতিতে তাপ পরিবহনে মাধ্যমের প্রয়োজন হয় না?

- (A) পরিবহন (B) পরিচলন  
(C) বিকিরণ (D) এগুলির কোনোটিই নয়

14. Which method is used to separate immiscible liquids?

- (A) Filtration (B) Distillation  
(C) Separatory funnel (D) Condensation

কোন পদ্ধতিতে অমিশ্রিত তরল আলাদা করা হয়?

- (A) পরিস্রাবণ (B) পাতন  
(C) পৃথকীকরণ ফানেল (D) ঘনীভবন

15. The rule to find direction of magnetic field around a straight conductor is

- (A) right hand palm rule. (B) Fleming's left hand rule.  
(C) Maxwell's right hand thumb rule. (D) Lenz's law.

সরল তড়িৎ পরিবাহীর চারপাশের চৌম্বকক্ষেত্রের দিক নির্ণয়ের জন্য ব্যবহার করা হয়

- (A) ডান হস্তের তালুর নিয়ম। (B) ফ্লেমিং-এর বাম হস্ত নিয়ম।  
(C) ম্যাক্সওয়েলের ডান হস্ত নিয়ম। (D) লেঞ্জের সূত্র।

## JENPAS(UG)-2025 ( 7 )

16. Acid rain mainly due to

- (A)  $\text{SO}_2$  and  $\text{NO}_x$  (B)  $\text{H}_2$  and  $\text{CO}$   
(C)  $\text{O}_3$  alone (D) Ar and Ne

অ্যাসিড বৃষ্টির মুখ্য কারণ

- (A)  $\text{SO}_2$  এবং  $\text{NO}_x$  (B)  $\text{H}_2$  এবং  $\text{CO}$   
(C) কেবলমাত্র  $\text{O}_3$  (D) Ar এবং Ne

17. Which oxide is amphoteric?

- (A)  $\text{Na}_2\text{O}$  (B)  $\text{CO}_2$   
(C)  $\text{Al}_2\text{O}_3$  (D)  $\text{SO}_2$

নিম্নলিখিত কোন অক্সাইডটি উভধর্মী?

- (A)  $\text{Na}_2\text{O}$  (B)  $\text{CO}_2$   
(C)  $\text{Al}_2\text{O}_3$  (D)  $\text{SO}_2$

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18. Equation of state for 8g of oxygen gas is

- (A)  $PV = 8RT$  (B)  $PV = \frac{RT}{4}$   
(C)  $PV = RT$  (D)  $PV = \frac{RT}{2}$

8g অক্সিজেন গ্যাসের অবস্থার সমীকরণ হল

- (A)  $PV = 8RT$  (B)  $PV = \frac{RT}{4}$   
(C)  $PV = RT$  (D)  $PV = \frac{RT}{2}$

JENPAS(UG)-2025 ( 8 )

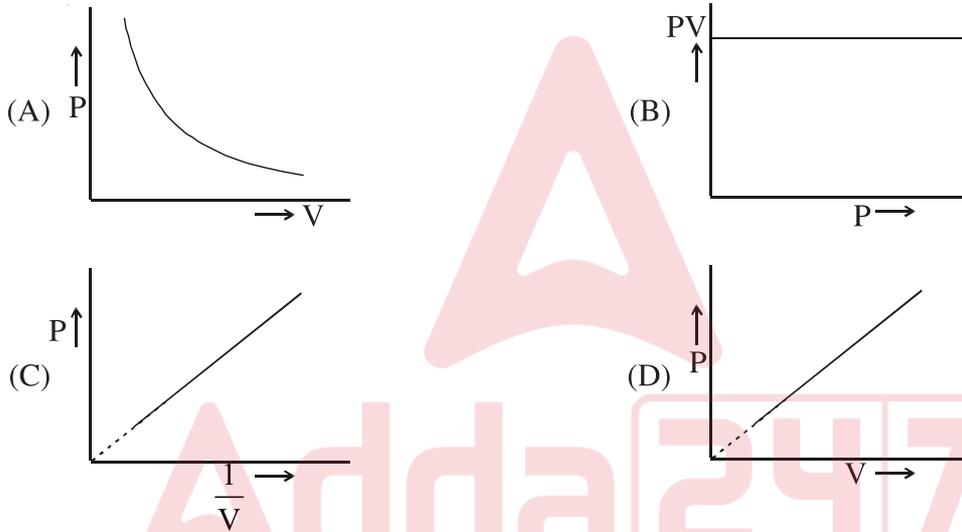
19. Radio waves reflects from which layer of atmosphere?

- (A) Ozonosphere (B) Ionosphere  
(C) Mesosphere (D) Magnetosphere

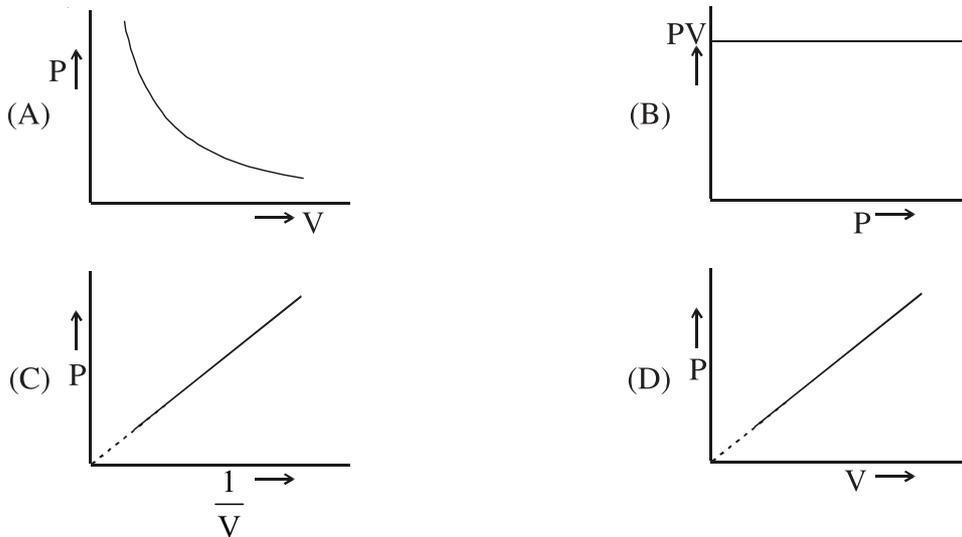
বেতার তরঙ্গ প্রতিফলিত হয় বায়ুমণ্ডলের কোন স্তরটি থেকে?

- (A) ওজোনোস্ফিয়ার (B) আয়নোস্ফিয়ার  
(C) মেসোস্ফিয়ার (D) ম্যাগনেটোস্ফিয়ার

20. Which is not the graphical representation of Boyle's law?



নীচের কোনটি বয়েলের সূত্রের সার্বিক লেখচিত্র নয়?



## JENPAS(UG)-2025 ( 9 )

21. Mass of  $6.023 \times 10^{22}$  number of water molecule is

- (A) 18 gm (B) 1.8 gm  
(C) 180 gm (D) 0.18 gm

$6.023 \times 10^{22}$  সংখ্যক জলের অণুর ভর

- (A) 18 gm (B) 1.8 gm  
(C) 180 gm (D) 0.18 gm

22. The coefficient of superficial expansion of a solid is  $x$ . Then its coefficient of volume expansion will be

- (A)  $2x$  (B)  $\frac{x}{2}$   
(C)  $1.5x$  (D)  $3x$

একটি কঠিন পদার্থের ক্ষেত্রফল প্রসারণ গুণক  $x$  হলে, পদার্থটির আয়তন প্রসারণ গুণক হবে

- (A)  $2x$  (B)  $\frac{x}{2}$   
(C)  $1.5x$  (D)  $3x$

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23. If the thickness of a conductor is  $d$ , area of cross section is  $A$  and coefficient of thermal conductivity is  $K$  then thermal resistance is

- (A)  $\frac{d}{KA}$  (B)  $\frac{dA}{K}$   
(C)  $\frac{1}{K}$  (D)  $\frac{A}{Kd}$

কোনো পরিবাহীর বেধ  $d$ , প্রস্থচ্ছেদের ক্ষেত্রফল  $A$  ও তাপপরিবাহিতা  $K$  হলে, তাপীয় রোধ

- (A)  $\frac{d}{KA}$  (B)  $\frac{dA}{K}$   
(C)  $\frac{1}{K}$  (D)  $\frac{A}{Kd}$

## JENPAS(UG)-2025 ( 10 )

24. A point light source is placed at the center of curvature of a concave mirror. The angle of deviation between the incident ray from the source to mirror and the reflected ray from the mirror is

- (A)  $0^\circ$
- (B)  $180^\circ$
- (C)  $90^\circ$
- (D)  $360^\circ$

একটি বিন্দু আলোক উৎস একটি অবতল দর্পণের বক্রতা কেন্দ্রে স্থাপিত হল। এই উৎস থেকে দর্পণে আপতিত ও দর্পণ থেকে প্রতিফলিত রশ্মির মধ্যে চ্যুতিকোণ হল

- (A)  $0^\circ$
- (B)  $180^\circ$
- (C)  $90^\circ$
- (D)  $360^\circ$

25. The relation among potential (V), workdone (W) and charge (Q) is

- (A)  $Q = WV$
- (B)  $Q = \frac{W}{V}$
- (C)  $Q = \frac{V}{W}$
- (D)  $Q = \frac{V}{W^2}$

তড়িৎ বিভব (V), কার্য (W) ও আধান (Q)-এর মধ্যে সম্পর্কটি হল

- (A)  $Q = WV$
- (B)  $Q = \frac{W}{V}$
- (C)  $Q = \frac{V}{W}$
- (D)  $Q = \frac{V}{W^2}$

JENPAS(UG)-2025 ( 11 )

PHYSICAL SCIENCE  
Category-2 (Q. 26 to 30)

(Carry 2 marks each. One or more options are correct. No negative mark.)

26. Choose the correct statement(s) about sound.

- (A) It needs a medium to propagate.
- (B) Pitch does not depends upon frequency.
- (C) Loudness depends upon amplitude.
- (D) Speed does not change with temperature.

শব্দ সম্পর্কে সঠিক বিবৃতি কোনটি / কোনগুলি ?

- (A) চলাচলের জন্য মাধ্যমের প্রয়োজন হয়।
- (B) তীক্ষ্ণতা কম্পাঙ্কের উপর নির্ভর করে না।
- (C) প্রাবল্য বিস্তারের উপর নির্ভর করে।
- (D) বেগ তাপমাত্রার সাথে পরিবর্তিত হয় না।

27. For two resistors  $R_1$  and  $R_2$ :

- (A) Equivalent resistance in parallel is less than each individual.
- (B) Same current flows through each in series combination.
- (C) Same voltage appears across each in series combination.
- (D) Same current flows through each in parallel combination.

দুটি রোধ  $R_1$  এবং  $R_2$  সম্পর্কে বলা যায় :

- (A) সমান্তরাল সমবায়ে তুল্য রোধ প্রত্যেকটির চেয়ে কম।
- (B) শ্রেণি সমবায়ে প্রত্যেক রোধের মধ্য দিয়ে প্রবাহমাত্রা সমান।
- (C) শ্রেণি সমবায়ে প্রত্যেক রোধের দুই প্রান্তের বিভব পার্থক্য সমান।
- (D) সমান্তরাল সমবায়ে প্রত্যেক রোধের মধ্য দিয়ে প্রবাহমাত্রা সমান।

## JENPAS(UG)-2025 ( 12 )

28. In electrolysis of water using dilute  $H_2SO_4$ , which statement(s) is/are correct?

- (A) Hydrogen gas is liberated at the cathode.
- (B) Oxygen gas is liberated at the cathode.
- (C) The process follows Faraday's laws of electrolysis.
- (D) If inert electrodes are used, no reaction occurs at electrodes.

লঘু  $H_2SO_4$  দিয়ে জলের তড়িৎ বিশ্লেষণ প্রক্রিয়াতে কোন বক্তব্যটি / বক্তব্যগুলি সঠিক?

- (A) ক্যাথোডে হাইড্রোজেন গ্যাস মুক্ত হয়।
- (B) ক্যাথোডে অক্সিজেন গ্যাস মুক্ত হয়।
- (C) প্রক্রিয়াটি ফ্যারাডের তড়িৎ বিশ্লেষণের সূত্র মেনে চলে।
- (D) যদি নিষ্ক্রিয় তড়িৎদ্বার ব্যবহার করা হয়, তবে কোনো বিক্রিয়া ঘটে না।

29. Valency of copper is (are)

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

তামার যোজ্যতা হয়

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

30. For total internal reflection of light:

- (A) Light ray must travel through denser medium to rarer medium.
- (B) Light ray must travel through rarer medium to denser medium.
- (C) The angle of incidence must be greater than the critical angle for the pair of medium.
- (D) The angle of incidence must be less than the critical angle for the pair of medium.

আলোর অভ্যন্তরীণ পূর্ণ প্রতিফলনের ক্ষেত্রে :

- (A) আলোকরশ্মিকে অবশ্যই ঘনমাধ্যম থেকে লঘুমাধ্যমে যেতে হবে।
- (B) আলোকরশ্মিকে অবশ্যই লঘুমাধ্যম থেকে ঘনমাধ্যমে যেতে হবে।
- (C) আপতন কোণকে অবশ্যই দুই মাধ্যমের সঙ্কট কোণের থেকে বেশি কোণে আপতিত হতে হবে।
- (D) আপতন কোণকে অবশ্যই দুই মাধ্যমের সঙ্কট কোণের থেকে কম কোণে আপতিত হতে হবে।

JENPAS(UG)-2025 ( 13 )

MATHEMATICS

Category-1 (Q. 31 to 40)

(Carry 1 mark each. Only one option is correct. Negative marks: -¼)

31. The minimum value of  $2025 \tan^2 \theta + \frac{1}{2025} \cot^2 \theta$  is

- (A) 2025 (B) 1  
(C)  $\sqrt{2025}$  (D) 2

$2025 \tan^2 \theta + \frac{1}{2025} \cot^2 \theta$ -এর অবম মান হল

- (A) 2025 (B) 1  
(C)  $\sqrt{2025}$  (D) 2

32. If the diagonal of a rectangular field is 15 m and length of it is 3 m more than its breadth, then its length is

- (A) 9 m (B) 12 m  
(C) 6 m (D) 18 m

যদি একটি আয়তাকার ক্ষেত্রের কর্ণ 15 m হয় এবং এর দৈর্ঘ্য প্রস্থের থেকে 3 m বেশি হয়, তবে এর দৈর্ঘ্য হবে

- (A) 9 m (B) 12 m  
(C) 6 m (D) 18 m

33.  $ABCD$  is a rectangle. Point of intersection of  $\overline{AC}$  and  $\overline{BD}$  is  $O$ . If  $\angle AOB = 110^\circ$ , then  $\angle OCB$  is

- (A)  $45^\circ$  (B)  $55^\circ$   
(C)  $70^\circ$  (D)  $65^\circ$

$ABCD$  একটি আয়তক্ষেত্র।  $\overline{AC}$  এবং  $\overline{BD}$  পরস্পরকে  $O$  বিন্দুতে ছেদ করে। যদি  $\angle AOB = 110^\circ$  হয়, তাহলে  $\angle OCB$ -এর মান হবে

- (A)  $45^\circ$  (B)  $55^\circ$   
(C)  $70^\circ$  (D)  $65^\circ$

## JENPAS(UG)-2025 ( 14 )

34. What will be the rate of interest if the interest of Rs. 800 for 4 years is equal to the interest of Rs. 600 in 8 years at the rate of 4% simple interest?

- (A) 5% (B) 6%  
(C) 7.5% (D) 8%

সরল সুদের হার কত হলে 800 টাকার 4 বছরের সুদ, 4% হারে 600 টাকার 8 বছরের সুদের সমান হবে?

- (A) 5% (B) 6%  
(C) 7.5% (D) 8%

35. If  $V \propto r^3$  and  $r = 3$  then  $V = 18\pi$ . Then which of the following relations between  $V$  and  $r$  is correct?

- (A)  $V = \pi r^3$  (B)  $V = \frac{1}{3} \pi r^3$   
(C)  $V = \frac{2}{3} \pi r^3$  (D)  $V = \frac{4}{3} \pi r^3$

যখন  $V \propto r^3$  এবং  $r = 3$  তখন  $V = 18\pi$  হয়। তাহলে নীচের  $V$  এবং  $r$ -এর কোন সম্পর্কটি সঠিক?

- (A)  $V = \pi r^3$  (B)  $V = \frac{1}{3} \pi r^3$   
(C)  $V = \frac{2}{3} \pi r^3$  (D)  $V = \frac{4}{3} \pi r^3$

36. In how many years a sum of money amounts to three times of the principal at  $6\frac{1}{4}\%$  simple interest per annum?

- (A) 16 years (B) 32 years  
(C) 20 years (D) 40 years

বার্ষিক  $6\frac{1}{4}\%$  সরল সুদে, কোনো টাকা কত বছরে সুদে-আসলে, আসলের তিন গুণ হবে?

- (A) 16 বছরে (B) 32 বছরে  
(C) 20 বছরে (D) 40 বছরে

## JENPAS(UG)-2025 ( 15 )

37.  $ABC$  is a triangle, the straight line  $PQ$  cuts  $AB$  and  $AC$  at  $P$  and  $Q$  respectively. If  $PQ \parallel BC$  and  $AB : AP = 7 : 3$ , then  $AQ : QC$  is

- (A) 10 : 7 (B) 10 : 3  
(C) 3 : 4 (D) 4 : 3

$ABC$  একটি ত্রিভুজ।  $PQ$  সরলরেখা  $AB$  ও  $AC$  সরলরেখাদ্বয়কে যথাক্রমে  $P$  ও  $Q$  বিন্দুতে ছেদ করে। যদি  $PQ \parallel BC$  এবং  $AB : AP = 7 : 3$  হয়, তাহলে  $AQ : QC$  হবে

- (A) 10 : 7 (B) 10 : 3  
(C) 3 : 4 (D) 4 : 3

38. If  $x + \frac{1}{x} = \sqrt{3}$ , then the value of  $x^{30} + x^{24} + x^{18} + x^{12} + x^6 + 1$  is

- (A) 0 (B) 1  
(C) 2 (D) 3

যদি  $x + \frac{1}{x} = \sqrt{3}$  হয়, তাহলে  $x^{30} + x^{24} + x^{18} + x^{12} + x^6 + 1$ -এর মান হয়

- (A) 0 (B) 1  
(C) 2 (D) 3

39. If  $\sec\theta + \tan\theta = \frac{3}{2}$ , then the value of  $\sin\theta$  is

- (A)  $\frac{3}{5}$  (B)  $\frac{4}{5}$   
(C)  $\frac{5}{13}$  (D)  $\frac{12}{13}$

যদি  $\sec\theta + \tan\theta = \frac{3}{2}$  হয়, তাহলে  $\sin\theta$ -এর মান হল

- (A)  $\frac{3}{5}$  (B)  $\frac{4}{5}$   
(C)  $\frac{5}{13}$  (D)  $\frac{12}{13}$

40. In a partnership business,  $A$ ,  $B$  and  $C$  profited Rs. 2,300. If the ratio of capitals of  $A$  and  $B$  is 2 : 3 and the ratio of capitals of  $A$  and  $C$  is 3 : 4, then the profit of  $C$  is

- (A) Rs. 800 (B) Rs. 600  
(C) Rs. 900 (D) Rs. 1,000

একটি অংশীদারি কারবারে  $A$ ,  $B$  ও  $C$ -এর মোট লাভ হয়েছে 2,300 টাকা। যদি  $A$  ও  $B$ -এর মূলধনের অনুপাত 2 : 3 হয় এবং  $A$  ও  $C$ -এর মূলধনের অনুপাত 3 : 4 হয়, তবে  $C$ -এর লভ্যাংশ হল

- (A) 800 টাকা (B) 600 টাকা  
(C) 900 টাকা (D) 1,000 টাকা

JENPAS(UG)-2025 ( 16 )

MATHEMATICS  
Category-2 (Q. 41 to 45)

(Carry 2 marks each. One or more options are correct. No negative mark.)

41. The roots of the equation  $2x^2 + 5x + 3 = 0$  are

(A) -1

(B)  $-\frac{3}{2}$ 

(C) 1

(D)  $\frac{3}{2}$  $2x^2 + 5x + 3 = 0$  সমীকরণের বীজগুলি হল

(A) -1

(B)  $-\frac{3}{2}$ 

(C) 1

(D)  $\frac{3}{2}$ 42. If the maximum value and the minimum value of  $p^2 + q^2 \sin\theta$  are 17 and 15 respectively, then the values of  $p$  and  $q$  areযদি  $p^2 + q^2 \sin\theta$ -এর চরম মান এবং অবম মান যথাক্রমে 17 এবং 15 হয়, তবে  $p$  এবং  $q$ -এর মান হবে(A)  $p = 4, q = 1$ (B)  $p = -4, q = -1$ (C)  $p = 4, q = 2$ (D)  $p = 3, q = 3$ 43. The value of  $25^3 - 60^3 + 35^3 + 3 \times 25 \times 60 \times 35$  is

(A) 75

(B) 105

(C) 180

(D) 0

 $25^3 - 60^3 + 35^3 + 3 \times 25 \times 60 \times 35$ -এর মান হল

(A) 75

(B) 105

(C) 180

(D) 0

## JENPAS(UG)-2025 ( 17 )

44. If  $a^2 = b + c$ ,  $b^2 = c + a$ ,  $c^2 = a + b$  hold for three real values of  $a, b, c$ , then which of the following is true?

(A)  $\frac{1}{a+1} + \frac{1}{b+1} + \frac{1}{c+1} = 1$

(B)  $\frac{a}{a+1} + \frac{b}{b+1} + \frac{c}{c+1} = 2$

(C)  $abc = a + b + c + 2$

(D)  $abc = a + b + c + 1$

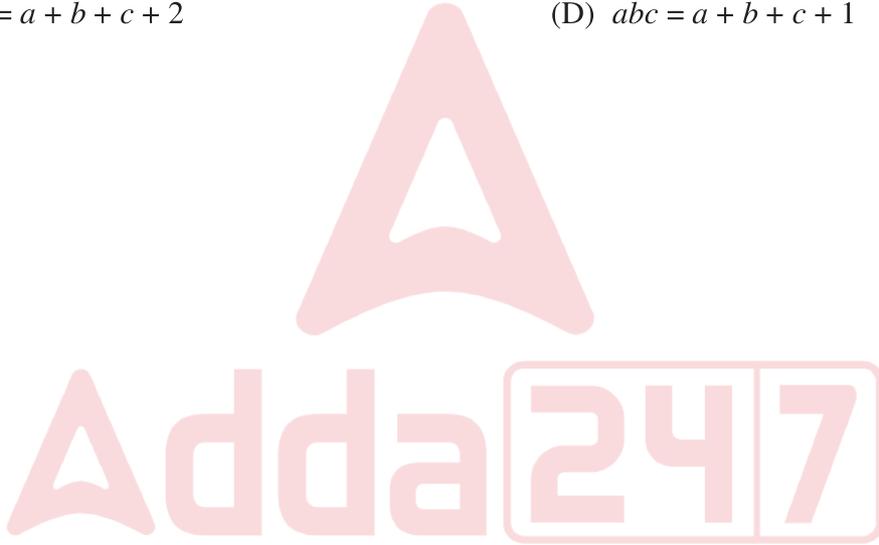
$a, b, c$  তিনটি বাস্তব সংখ্যার জন্য  $a^2 = b + c$ ,  $b^2 = c + a$ ,  $c^2 = a + b$  হলে, নীচের কোনটি সত্য?

(A)  $\frac{1}{a+1} + \frac{1}{b+1} + \frac{1}{c+1} = 1$

(B)  $\frac{a}{a+1} + \frac{b}{b+1} + \frac{c}{c+1} = 2$

(C)  $abc = a + b + c + 2$

(D)  $abc = a + b + c + 1$



45. In an equilateral triangle  $ABC$  if  $D$  is the foot of the perpendicular drawn from  $A$  on  $BC$ , then—

(A)  $3(AB^2 + AC^2) = 8AD^2$

(B)  $AB^2 + BC^2 = AD^2$

(C)  $AB^2 + BC^2 + CA^2 = 4AD^2$

(D)  $AB^2 + AC^2 = 2AD^2$

$ABC$  একটি সমবাহু ত্রিভুজ। যদি  $A$  বিন্দু থেকে  $BC$  বাহুর উপর অঙ্কিত লম্বের পাদবিন্দু  $D$  হয়, তবে—

(A)  $3(AB^2 + AC^2) = 8AD^2$

(B)  $AB^2 + BC^2 = AD^2$

(C)  $AB^2 + BC^2 + CA^2 = 4AD^2$

(D)  $AB^2 + AC^2 = 2AD^2$

JENPAS(UG)-2025 ( 18 )

**GENERAL KNOWLEDGE**

**Category-1 (Q. 46 to 55)**

**(Carry 1 mark each. Only one option is correct. Negative marks: -¼)**

46. Which Indian state has the highest percentage of forest cover relative to its total area?

- (A) Arunachal Pradesh (B) Mizoram  
(C) Chhatisgarh (D) Uttarakhand

47. Which of the following is not a direct tax?

- (A) Income Tax (B) Wealth Tax  
(C) Goods and Services Tax (D) Corporate Tax

48. The classical dance 'Sattriya' originated in which Indian state?

- (A) Assam (B) Manipur  
(C) Odisha (D) Karnataka

49. The Nobel Prize is not awarded in which of the following fields?

- (A) Medicine (B) Peace  
(C) Literature (D) Mathematics

50. Which planet has the fastest rotation speed in the solar system?

- (A) Earth (B) Jupiter  
(C) Saturn (D) Mars

## JENPAS(UG)-2025 ( 19 )

51. The first Indian to win an individual Olympic Gold Medal was
- (A) Abhinav Bindra (B) Leander Paes  
(C) P. T. Usha (D) Rajyavardhan Singh Rathore
52. Rabindranath Tagore renounced his Knighthood in protest for
- (A) Partition of Bengal (B) Jallianwala Bagh Massacre  
(C) Execution of Bhagat Singh (D) Rowlatt Act
53. Who is known as the 'Father of Indian Cinema'?
- (A) Prithvi Raj Kapoor (B) Dadasaheb Phalke  
(C) Satyajit Ray (D) Mrinal Sen
54. Which country won the 'Mens' Asian Hockey Champions' Trophy 2024'?
- (A) India (B) China  
(C) Pakistan (D) Bangladesh
55. Which of the following hill stations is referred to as the 'Queen of Chhotonagpur'?
- (A) Patratu (B) Netarhat  
(C) Palampur (D) Chirimiri

JENPAS(UG)-2025 ( 20 )

**GENERAL KNOWLEDGE**

**Category-2 (Q 56. to 60)**

**(Carry 2 marks each. One or more options are correct. No negative mark.)**

56. Which of the following have headquarters in Geneva?
- (A) WHO (B) WTO  
(C) UN General Assembly (D) IMF
57. The UNESCO Intangible Cultural Heritage List includes which of the following from India?
- (A) Yoga (B) Kumbh Mela  
(C) Chhau Dance (D) Bharatnatyam
58. Rabindranath Tagore composed the National Anthems of which countries?
- (A) India (B) Bangladesh  
(C) Nepal (D) Sri Lanka
59. Choose among the following films, not directed by Satyajit Ray.
- (A) Meghe Dhaka Tara (B) Charulata  
(C) Ajantrik (D) Pather Panchali
60. Who are the recipients of 'Padma Vibhushan 2025'?
- (A) Sharda Sinha (B) M. T. Vasudevan  
(C) Shri Kalyan Singh (D) Ms. Prabha Atre

JENPAS(UG)-2025 ( 21 )

ENGLISH (Basic English)

Category-1 (Q. 61 to 80)

(Carry 1 mark each. Only one option is correct. Negative marks: -¼)

61. Pick out the nearest synonym of the word in bold italics.

Her voice is so *melodious* that the audience was enchanted.

- (A) harsh (B) pleasant  
(C) loud (D) strong

62. Pick out the word which is opposite in meaning to the word given in bold italics.

The manager found his report extremely *relevant* to the discussion.

- (A) unrelated (B) significant  
(C) logical (D) important

63. (i) The new policy will *effect* a major change in the company's culture.  
(ii) The harsh criticism did not *affect* her confidence.

Consider the two words in bold italics in the above two sentences and select the correct option from below.

- (A) Only sentence (i) is correct.  
(B) Only sentence (ii) is correct.  
(C) Both sentences (i) and (ii) are correct.  
(D) Neither sentence (i) nor sentence (ii) is correct.

64. Select the word which can replace both the words in bold italics in the given two sentences.

- (i) The dog will often *yell* loudly at the mail carrier.  
(ii) The *outer cover* of the cinnamon tree is used as spice.

- (A) skin (B) bark  
(C) shout (D) coat

65. Choose the most appropriate option to fill in the blanks in order to complete the sentence meaningfully.

If the matter \_\_\_\_\_ better, we \_\_\_\_\_ the match.

- (A) was, wouldn't have cancelled (B) had been, wouldn't have cancelled  
(C) were, won't cancel (D) is, wouldn't cancel

## JENPAS(UG)-2025 ( 22 )

66. Select the most appropriate pair of words to fill in the blanks in the same order to make the sentence meaningfully complete.

The \_\_\_\_\_ landscape was \_\_\_\_\_ by the sudden eruption of the volcano.

- (A) serene, shattered (B) chaotic, improved  
(C) barren, enriched (D) artificial, beautified

67. Choose the most appropriate preposition to fill in the blank in order to complete the sentence.

Please turn \_\_\_\_\_ the volume of the stereo; I cannot study.

- (A) through (B) down  
(C) up (D) low

68. Choose the most appropriate option to fill in the blank to complete the sentence most meaningfully.

Some modern artists deliberately \_\_\_\_\_ conventions to create something unique.

- (A) follow (B) flout  
(C) praise (D) establish

69. Choose the most appropriate option to complete the sentence correctly and meaningfully.

To achieve his ambitious goal of winning the gold medal, the athlete

- (A) decided to avoid practice. (B) hired a team of coaches.  
(C) ignored his diet. (D) avoided practice.

70. Choose the option which can best replace the given phrase in bold italics.

***One who is unable to pay his debts***

- (A) Miser (B) Bankrupt  
(C) Spendthrift (D) Philanthropist

## JENPAS(UG)-2025 ( 23 )

71. Select the word which needs to be removed from the given sentence to make it grammatically correct.

Despite of the heavy rain, the children continued to play outside.

- (A) despite (B) of  
(C) heavy (D) to

72. A sentence is given in active voice. Select the alternative which best expresses the sentence in passive voice.

The mechanic repaired my car yesterday.

- (A) My car was repaired by the mechanic yesterday.  
(B) My car is repaired by the mechanic yesterday.  
(C) My car has been repaired by the mechanic.  
(D) Yesterday, my car is repaired by the mechanic.

73. Select the option with the correct spelling.

- (A) Morved (B) Morvid  
(C) Morrbid (D) Morbid

74. A sentence is given in direct speech. Out of the four alternatives given, select the one which best expresses it in indirect speech.

They said, "We have visited the Taj Mahal".

- (A) They told about visiting the Taj Mahal.  
(B) They narrated about visiting the Taj Mahal.  
(C) They said that they had visited the Taj Mahal.  
(D) That they had visited the Taj Mahal was told to us.

75. Identify the erroneous part of the sentence.

- (A) One of the students (B) in the class  
(C) have submitted (D) their assignment.

## JENPAS(UG)-2025 ( 24 )

76. A sentence is given in active voice. Select the alternative which best expresses the sentence in passive voice.

The news of his victory surprised everyone.

- (A) Everyone was surprised by the news of his victory.
- (B) Everyone surprised the news of his victory.
- (C) The news of his victory was surprised by everyone.
- (D) Everyone had been surprised by the news of his victory.

77. Select the sentence which is grammatically wrong.

- (A) She is senior to me in this office.
- (B) The quality of these apples are good.
- (C) He behaved as if he were the boss.
- (D) Neither of the two answers is correct.

78. A sentence is broken in six parts. The parts P, Q, R, S are shuffled. Select the correct option below to arrange these parts so as to form a complete and meaningful sentence.

- (1) The Government has launched
- (P) to provide free
- (Q) a new scheme
- (R) education
- (S) to children from poor families
- (6) in rural areas.

- (A) QPRS
- (B) PRQS
- (C) RSPQ
- (D) SRPQ

79. Choose the word which has nearly the same meaning as VORACIOUS.

- (A) Tiny
- (B) Ravenous
- (C) Selective
- (D) Slow

80. Select the word which can replace both the words in bold italics in the two given sentences.

- (I) Please **reserve** two tickets for the concert tonight.
  - (II) She wrote her name in the **volume** she received as a prize.
- (A) book
  - (B) novel
  - (C) hold
  - (D) text

JENPAS(UG)-2025 ( 25 )

## LOGICAL REASONING

Category-1 (Q. 81 to 100)

(Carry 1 mark each. Only one option is correct. Negative marks: -¼)

81. Identify the wrong number in the series:

69, 55, 26, 13, 5

- (A) 5 (B) 13  
(C) 26 (D) 55

82. If the COMPUTER is coded as 36473259, then how will the word LAPTOP be coded?

- (A) 312677 (B) 317267  
(C) 312767 (D) 317276

83. BLOOD : HAEMATOLOGY :: SKULL : ?

- (A) NEUROLOGY (B) CARDIOLOGY  
(C) CRANIOLOGY (D) OSTEOLOGY

84. In a certain code language, '526' means 'rose is red', '24' means 'red colour', and '436' means 'colour is fun'. Which digit in that language means 'fun'?

- (A) 2 (B) 4  
(C) 6 (D) 3

85. Among five friends – Arjun, Rohan, Priya, Sanya and Vikram – Sanya is taller than Vikram. Rohan is shorter than Arjun. Priya is taller than Sanya. Arjun is taller than only one person. Who is the second tallest?

- (A) Arjun (B) Rohan  
(C) Priya (D) Sanya

86. 'P + Q' means 'P is the mother of Q', 'P – Q' means 'P is the wife of Q', 'P ÷ Q' means 'P is the husband of Q'. If 'A ÷ B + C – D + F', then how A is related to D?

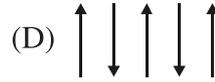
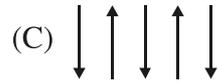
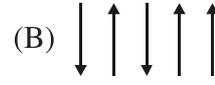
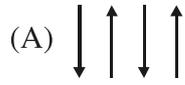
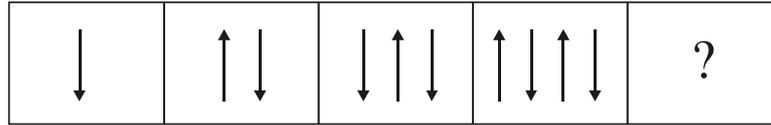
- (A) Father-in-law (B) Son-in-law  
(C) Brother (D) Father

87. In a code language, 'BRAKE' is written as 'DPCIG'. How will 'BLAST' be written in that language?

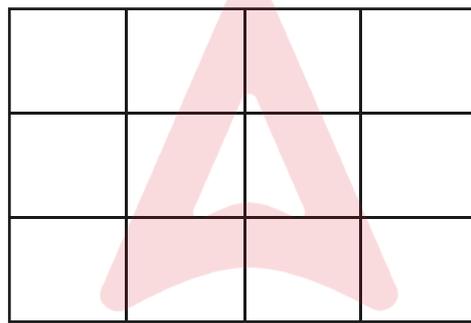
- (A) DICQV (B) DJCQV  
(C) DICQU (D) DJCQU

JENPAS(UG)-2025 ( 26 )

88. Select the option figure that can replace the question mark (?) in the following series:



89. Find the number of squares in the following figure:



(A) 12

(B) 16

(C) 18

(D) 20

90. Choose the word which is least like the other words in the group.

(A) Africa

(B) South Africa

(C) South America

(D) North America

91. NK : 196121 :: PM : ?

(A) 255196

(B) 256169

(C) 256196

(D) 255169



## JENPAS(UG)-2025 ( 28 )

96. If '@' means '×', '&' means '÷', '#' means '+' and '\*' means '-', then find the value of the expression  $102 \& 17 @ 12 * 25 \# 19$

- (A) 64 (B) 66  
(C) 68 (D) 72

97. Ranjan walks 10m towards east. From there he walks 6m towards west. Then he walks 3m towards north. How far and in which direction is he with reference to his starting point?

- (A) 5m north-east (B) 7m east  
(C) 7m north-west (D) 5m west

98. CRICKET : PITCH :: TENNIS : ?

- (A) COURT (B) RING  
(C) FIELD (D) ARENA

99. Which should come next in the given series?

2, 1,  $\frac{1}{2}$ ,  $\frac{1}{4}$ , \_\_\_\_\_?

- (A)  $\frac{1}{3}$  (B)  $\frac{1}{8}$   
(C)  $\frac{2}{8}$  (D)  $\frac{1}{16}$

100. Choose the correct alternative:

Eye — Myopia

Teeth — ?

- (A) Cataract (B) Eczema  
(C) Trachoma (D) Pyorrhea

\_\_\_\_\_