



MODULUS
ACADEMY
IIT | NEET | PRE-FOUNDATION

Dream Believe Achieve

Intelli-Mind Sample Paper

MAXIMUM TIME : 2 Hrs.

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MAXIMUM MARKS : 240

GENERAL INSTRUCTIONS for This Test

- The question paper consists of 3 sections (Section-A contains Science, Section-B contains Mathematics, Section-C contains Reasoning).
- This Question Paper contains a total of 60 questions.
- All questions are **single correct type questions**. Each of these questions has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.
- Indicate the correct answer for each question by filling appropriate bubble in your answer sheet.
- For each question, you will be awarded **4 marks** if you have darkened only the bubble corresponding to the correct answer and **zero mark** if no bubble are darkened. In all other cases, **minus one (-1) mark** will be awarded
- Also read **instructions** written on the **OMR sheet**.
- Please fill the OMR answer sheet accordingly and carefully.
- Blank spaces and blank pages are provided in this booklet for your rough work. No additional sheets will be provided for rough work.
- Use of Calculator, Log Table, Slide Rule and Mobile is not allowed.

प्रश्न-पत्र के लिए सामान्य निर्देश:

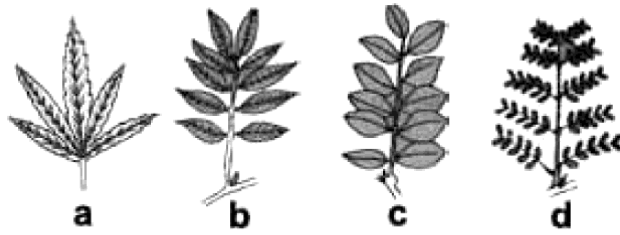
- प्रश्न पत्र के **तीन भाग (भाग-A : Science, भाग-B : Mathematics तथा भाग-C : Reasoning)** है। कृपया अपने उत्तर को उत्तर पुस्तिका (OMR) में क्रमानुसार व ध्यानपूर्वक भरें।
- सुनिश्चित करें कि प्रश्न पत्र में प्रत्येक खण्ड व पेज में सभी प्रश्न है। यदि आपको प्रश्न पत्र में कोई त्रुटि जैसे कोई प्रश्न या पेज नहीं मिलता है, तो निरीक्षक से सम्पर्क करें।
- प्रत्येक भाग में 20 प्रश्न है, अतः इस प्रश्न पत्र में कुल 60 प्रश्न है।
- सभी प्रश्न **एकल सही विकल्प प्रकार** के प्रश्न है। प्रत्येक प्रश्न के चार विकल्प (A), (B), (C) तथा (D) दिये गये है जिनमें से केवल एक सही है।
- प्रत्येक सही उत्तर के लिए आपको **4 अंक** मिलेगे अगर आपने सही उत्तर से संबंधित बुलबुले को काला किया है और **शून्य अंक** मिलेगा यदि कोई बुलबुला काला नहीं किया है। अन्यथा **ऋणात्मक एक (-1) अंक** मिलेगा।
- रफ कार्य के लिए इस पुस्तिका में रिक्त स्थान तथा रिक्त पेज उपलब्ध कराये गये हैं। अतः रफ कार्य के लिए अतिरिक्त पुस्तिका नहीं दी जायेगी।
- आपको प्रत्येक सही उत्तर के लिए उत्तर पुस्तिका में उसी प्रश्न संख्या के सामने उपयुक्त बुलबुले को काला करना है।
- कैलकुलेटर, लॉग तालिका, स्लाइड रूल, तथा मोबाईल के उपयोग की अनुमति नहीं है।

PART-I : SCIENCE

[SINGLE CORRECT CHOICE TYPE]

1. A simple pendulum takes 42 sec. to complete 20 oscillations. What is its time period?
(A) 2.1 s (B) 4.2 s (C) 21 s (D) 8.40 s
2. The distance-time graph for the motion of an object moving with a constant speed is
(A) a curved line leaving towards x-axis
(B) a curved line inclined towards y-axis
(C) a straight line inclined at some angle towards x-axis
(D) none of these
3. In which year did Orissa was hit by a cyclone?
(A) 1999 (B) 2000 (C) 2001 (D) 2004
4. What is the range of a clinical thermometer ?
(A) 0°C to 100°C (B) 35°C to 42°C (C) – 10°C to 11°C (D) None of these
5. Which effect of current is used in an electric bell?
(A) Heating effect (B) Magnetic effect (C) Chemical effect (D) None of these
6. The path of the light is
(A) always a straight line (B) a curved line
(C) a zig-zag line (D) depends on the medium
7. White light is composed of
(A) seven colours (B) three colours (C) five colour (D) eight colours
8. Which fibres are used to make clothes ?
(A) Natural (B) Synthetic (C) Both (D) None of these
9. Which of these is not a plant fibre ?
(A) Seed fibre (B) Fruit fibre (C) Avian fibre (D) None of these
10. Nature of aqueous solution of Ammonia is -
(A) acidic (B) basic (C) neutral (D) None of these
11. Neutralization reaction is an example of -
(A) Exothermic reaction (B) Endothermic reaction
(C) Oxidation (D) None of these
12. Period 2005–2015 is being celebrated as the international decade for action on
(A) Water for life (B) education for all (C) global warming (D) terrorism
13. In sewerage mainholes are located at every
(A) 20–25 m (B) 50–60 m (C) 90 – 100 m (D) 100 – 110 m
14. The mass composition of water is
(A) 1 : 2 ratio of hydrogen and oxygen respectively
(B) 1 : 8 ratio of hydrogen and oxygen respectively
(C) 1 : 1 ratio of hydrogen and oxygen
(D) 2 : 1 ratio of hydrogen and oxygen respectively

15. leaves may be simple or compound. Which of the given figures can be called as compound leaves?



- (A) (a) only (B) (b), (c) and (d) (C) (a) and (d) (D) All of these

16. Which of the following are good sources of roughage?

- (A) Milk, meat, soyabean, grains (B) Egg, curd, pulses, fruit juice
(C) Broccoli, fruits, carrot, spinach (D) Onion, yoghurt, cheese, pulses.

17. From which of the four chambers of ruminant stomach, semi-digested food is moved back to mouth?

- (A) Rumen (B) Abomasum (C) Omasum (D) All of these

18. Bactrian camels found in the Gobi desert of Mongolia have thick fur as compared to the camels found in the Thar desert of Rajasthan. Identify the reason for this from the following given options.

- (A) Bactrian camels drink more water than camels of Thar desert.
(B) Bactrian camels have developed thick fur to protect themselves from low temperature.
(C) Bactrian camels have developed thick fur to protect themselves from high temperature.
(D) Bactrian camels have thick fat in their hump.

19. Read the given statements and select the correct option.

Statement 1 : The bodies of birds are streamlined.

Statement 2 : Birds have hollow and light bones.

- (A) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
(B) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
(C) Statement 1 is true but statement 2 is false.
(D) Both statements 1 and 2 are false.

20. Which of the following statements are incorrect ?

- (i) Diurnal animals are active during the day.
(ii) Soil is the topmost layer of the Earth crust.
(iii) Humus is the top soil containing small rocks.
(iv) Alluvial and loamy soil are not suitable for growing crops.

- (A) (i) & (ii) (B) (ii) & (iii) (C) (iii) & (iv) (D) (i) & (iv)

PART-II : MATHEMATICS

[SINGLE CORRECT CHOICE TYPE]

21. Which one of the following is the rational number lying between $\frac{6}{7}$ and $\frac{7}{8}$?
- (A) $\frac{3}{4}$ (B) $\frac{99}{122}$ (C) $\frac{95}{112}$ (D) $\frac{97}{112}$
22. Three natural numbers are said to be tri-prime if they are pair-wise co-prime. Then one triplet which is not tri-prime is
- (A) (2, 3, 7) (B) (2, 9, 11) (C) (3, 5, 7) (D) (3, 4, 9)
23. What is the unit's digit of the product of all prime numbers between 1 and 100
- (A) 0 (B) 1 (C) 2 (D) 4
24. Arrange the following fractions in ascending order $\frac{3}{7}, \frac{4}{5}, \frac{7}{9}, \frac{1}{2}$.
- (A) $\frac{4}{5}, \frac{7}{9}, \frac{3}{7}, \frac{1}{2}$ (B) $\frac{3}{7}, \frac{1}{2}, \frac{7}{9}, \frac{4}{5}$ (C) $\frac{4}{5}, \frac{7}{9}, \frac{1}{2}, \frac{3}{7}$ (D) $\frac{1}{2}, \frac{3}{7}, \frac{7}{9}, \frac{4}{5}$
25. Find the value. $4\frac{5}{6} - 2\frac{3}{8} + 3\frac{7}{12}$
- (A) $\frac{145}{24}$ (B) $\frac{145}{12}$ (C) $\frac{92}{21}$ (D) $\frac{145}{4}$
26. Convert 0.45 & 0.0075 decimal numbers into the form p/q. They are respectively :
- (A) $\frac{9}{20}, \frac{3}{400}$ (B) $\frac{3}{400}, \frac{3}{20}$ (C) $\frac{3}{20}, \frac{9}{20}$ (D) $\frac{9}{400}, \frac{3}{20}$
27. If $8 \times 2^{n+2} = 32$, find the value of 'n'.
- (A) 0 (B) -1 (C) 1 (D) 2
28. If $\frac{p}{q} = \left(\frac{2}{3}\right)^2 \div \left(\frac{6}{7}\right)^0$. Find the value of $\left(\frac{q}{p}\right)^2$.
- (A) $\frac{4}{9}$ (B) $\frac{16}{81}$ (C) $\frac{9}{16}$ (D) $\frac{81}{16}$
29. The value of $(2^5)^{10}$ is :
- (A) 2^{50} (B) 2^{15} (C) 2^{10} (D) None of these
30. The sum of one half, one third and one fourth of a number exceed the number itself by 12. The number is :
- (A) 72 (B) 144 (C) 180 (D) 244
31. If $\frac{2x-3/4}{9x+4/7} = \frac{1}{4}$ then x = ?
- (A) $\frac{25}{7}$ (B) $-\frac{25}{7}$ (C) $\frac{23}{7}$ (D) $-\frac{23}{7}$
32. If twice a certain number is diminished by five, the result is equal to twelve added to the number. Find the number :
- (A) 18 (B) 16 (C) 15 (D) 17

33. Find the value of $4xy(x - y) - 6x^2(y - y^2) - 3y^2(2x^2 - x) + 2xy(x - y)$ for $x = 5$ and $y = 13$.

- (A) -1955 (B) 2535 (C) -2535 (D) 1955

34. If $x + y = 6$ and $x^3 + y^3 = 72$, then the value of xy is

- (A) 12 (B) 8 (C) 6 (D) 9

35. Value of $x^2 - xy + y^2$ when $x = 0$ & $y = 1$ is :

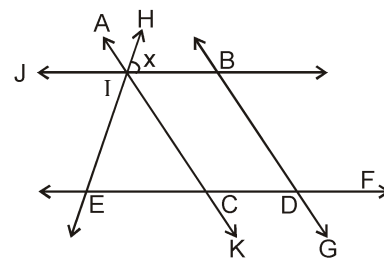
- (A) -1 (B) 0 (C) 1 (D) 4

36. The value of $47^2 + 43^2 - 2(47)(43)$ is :

- (A) 4 (B) 8 (C) 16 (D) 32

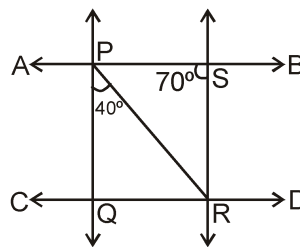
37. In the given Figure, $IB \parallel CD$ and $AC \parallel BD$. If $\angle EIC = 40^\circ$, $\angle FDG = 55^\circ$, $\angle HIB = x^\circ$, then the value of x is :

- (A) 95°
(B) 85°
(C) 165°
(D) 50°



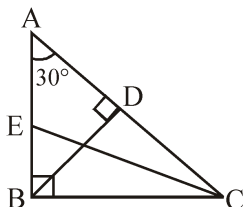
38. In the given Figure, $AB \parallel CD$ and $PQ \parallel SR$. Then, $\angle SPR$ is :

- (A) 55°
(B) 60°
(C) 70°
(D) 40°



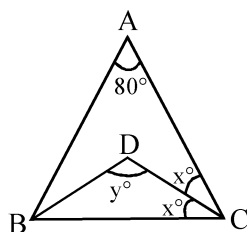
39. $AB \perp BC$, $BD \perp AC$ and CE bisects $\angle C$. If $\angle A = 30^\circ$. Then what is $\angle CEB$.

- (A) 30° (B) 60° (C) 45° (D) 65°



40. In the given figure $\angle A = 80^\circ$, $\angle B = 60^\circ$, $\angle C = 2x^\circ$ and $\angle BDC = y^\circ$, BD and CD bisect angles B and C respectively. The values of x and y respectively are

- (A) $15^\circ, 70^\circ$ (B) $10^\circ, 160^\circ$ (C) $20^\circ, 130^\circ$ (D) $20^\circ, 125^\circ$



PART-III : REASONING

[SINGLE CORRECT CHOICE TYPE]

SERIES COMPLETION

Find the missing numbers.

Q.41 1, 4, 9, 16, 25, ?

- (A) 35 (B) 49 (C) 36 (D) 64

Q.42 4, 16, 36, ?, 100, 144

- (A) 72 (B) 68 (C) 81 (D) 64

Find the missing term

Q.43 V, T, R, ?, N, ?

- (A) P, M (B) O, L (C) P, L (D) O, M

Find the wrong term(s).

Q.44 ECA, JHF, OMK, TQP, YWU

- (A) ECA (B) JHF (C) TQP (D) YWU

ANALOGY

Q.45 'Smoke' is related to 'pollution' in the same way as 'War' is related to _____.

- (A) Victory (B) Death (C) Enemy (D) Army

Q.46 'Height' is related to 'Length' in the same way as 'Weight' is related to _____.

- (A) Length (B) Height (C) Mass (D) Breadth

Q.47 'Island' is related to 'Ocean' in the same way as 'Star' is related to _____.

- (A) Sky (B) Earth (C) Sun (D) Twinkle

Q.48 In the following question, choose the pair/group of words that show the same relationship as given at the top of every pair/group.

Road : Bus : Driver.

- (A) Track : Train : Passenger (B) Watch : Ship : Diver
(C) Sky : Aeroplane : Pilot (D) Paper : Letters : Reader

CODING-DECODING

Q.49 If in a certain code MANISH is written as NZMRHS, then how will IRANJITA be written in the same code?

- (A) IZMQRGZ (B) IZMPRGZ (C) IZMQRHZ (D) IZMQRIZ

Q.50 If TEACHER and HIGHLY are written as XWPBRWM and QSNRDZ respectively, how will you code the word CHARITY ?

- (A) BPRNSBZ (B) BRPMSZB (C) BRPMSDZ (D) BRPMSXZ

Q.51 In a certain code, INACTIVE is written as VITCANIE. How is COMPUTER written in the same code ?

- (A) UTEPMOCR (B) MOCPETUR (C) ETUPMOCR (D) PMOCRETU

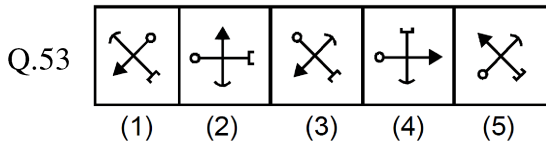
Q.52 HIGH = 5645 and DEEM = 12210 how will you code FEEL ?

- (A) 2338 (B) 3449 (C) 3229 (D) 4337

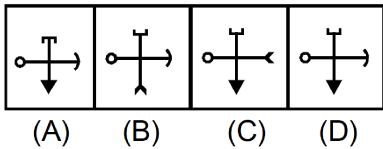
NON-VERBALSERIES

Directions (Q.1. to Q.14) : Each of the following questions consists of five figure marked 1, 2, 3, 4 & 5. These figures from a series. Find out the one from the answer figures that will continue the series.

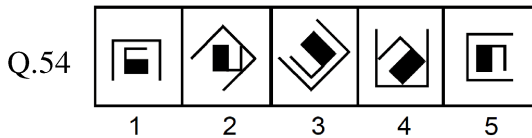
Problem Figure



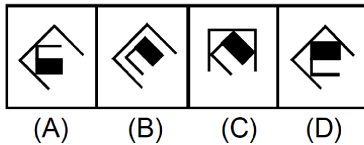
Answer Figure



Problem Figure

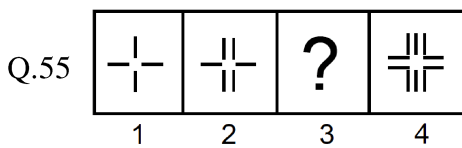


Answer Figure

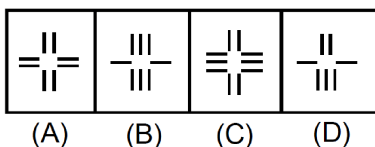


Directions (Q.15 to Q.16) : In each of the following question there is a set of four figure labelled 1, 2, 3 & 4 called the problem set which contains a question mark. Select the figure from the answer sheet which will substitute this question mark so that a series is formed by the figures 1, 2, 3 and 4 taken in order.

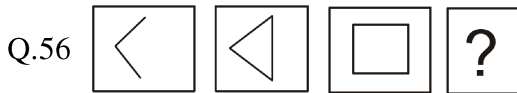
Problem Figure



Answer Figure



Problem Figure



Answer Figure

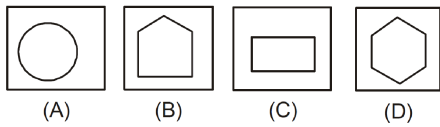
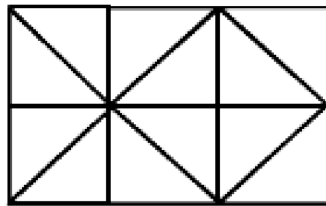


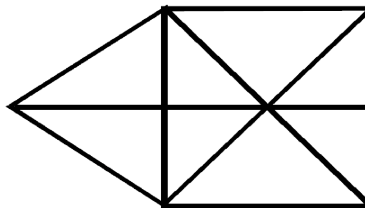
FIGURE PARTITION AND COUNTING

Q.57 How many squares does the figure have ?



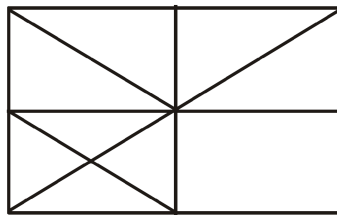
- (A) 6 (B) 7 (C) 9 (D) 10

Q.58 How many triangles does the figure have ?



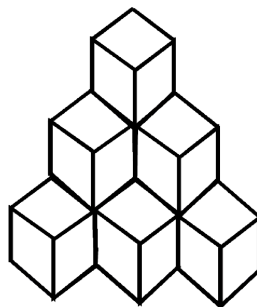
- (A) 15 (B) 16 (C) 17 (D) 18

Q.59 In the following figure, the number of triangles are



- (A) 8 (B) 12 (C) 15 (D) 16

Q.60 How many cubes are there in the following figure?



- (A) 6 (B) 10 (C) 12 (D) 8