

## SAMPLE QUESTION PAPER

CLASS - VIII

I - Quest '24 is a talent search exam for Foundation and Non Foundation students of classes VI to IX among the Velammal Nexus Schools. It exposes the students for competitive exam based on $21^{\text {st }}$ century skills. This exam is scheduled in the month of February.
$>$ This sample question paper will give a clarity on topology of the exam.
> Students can solve sample paper during the pongal holidays.
> Solving the sample question paper will give hands on experience and increase the confidence of the students to face the final exam.
$>$ Students can seek parents help to solve the questions.
> Similar questions will reflect in the final paper.
> Answer key will be displayed in the class.
> Completed question paper to be submitted to the class teacher.
> Prepare well for I - Quest '24 exam and grab attractive prizes and cash awards.
> Cash Awards is for all classes in both categories : Foundation \& Non Foundation
First Prize - ₹ 5000/-
Second Prize - ₹ 3000/-
Third Prize - ₹ 2000/-
> Consolation Cash Prizes of ₹ 1000 , ₹ 750 and $₹ 500$ for all deserving students.

GENERAL INSTRUCTIONS FOR THE FINAL EXAM ( I - QUEST '24)

| Mode of I - QUEST question paper | Candidates will be given an OMR sheet to mark <br> the answers with a black or blue ballpoint pen |
| :--- | :--- |
| Duration of the exam | 2 hours |
| Question Type | Multiple choice questions |
| Total number of questions | The question paper consists of go questions <br> and it is divided into four sections A, B, C and <br> D. (Maths, Physics, Chemistry \& Reasoning) <br> Candidates will have to answerall go questions |
| Total marks | 360 Marks |
| Marking scheme | 4 marks will be awarded for each correct <br> answer <br> One mark will be deducted for each wrong <br> attempt <br> No marks for unanswered question |

## MATHEMATICS

1. The wingspans of different species of birds are given below. How much longer is the wingspan of a Golden Eagle than the wingspan of a Blue Jay?

2. In the five digit number 1 b 6 a 3 , a is the greatest single digit perfect cube and twice of it exceeds b by 7 . Then the sum of the number and its cube root is $\qquad$
a) 18700
b) 11862
c) 19710
d) 25320
3. The players on basketball team made some three point shots, some two point shots and some one point free throws. They scored as many points with 2 point shots as with three point shots. Their number of successful free throws was one more than their number of successful two point shots. The team's total score was 61 points. How many free throws did they make?
a) 13
b) 14
c) 15
d) 16
4. Read the statements carefully and state T for True and F for False.
i) The rational numbers $\frac{5}{-6}$ and $\frac{-3}{-2}$ lie on the opposite sides of zero on the number line.
ii) 0 is the smallest rational number.
iii) $\frac{11}{7}$ lies to the left of 0 on the number line.
iv) Every whole number is a rational number.

|  | (i) | (ii) | (iii) | (iv) |
| :---: | :---: | :---: | :---: | :---: |
| a) | F | F | T | T |
| b) | T | F | F | T |
| c) | T | F | T | F |
| d) | T | T | F | T |

6. What must be subtracted from $y^{4}-y^{3}+y^{2}-4 y+8$ to get $y^{3}+y^{2}+y-1$ ?
a) $y^{4}-2 y^{3}-5 y+9$
b) $y^{4}-y^{3}+y^{2}+4 y-8$
c) $y^{4}+y^{2}-4 y+8$
d) $y^{4}-y^{3}-y^{2}+4 y-8$
7. In the given figure (not drawn to scale), PQRS is a parallelogram OUT and RST are straight lines. Find the sum of $x$ and $y$.
a) $117^{\circ}$
b) $115^{\circ}$
c) $109^{\circ}$

d) $119^{\circ}$
8. Read the following statements carefully and select the correct option.

Statement - I : One number is 12 more than other number and 7 times the smaller number is equal 6 times the larger number, then the larger number is 36 .

Statement - I : Arjun is 24 years older than Pooja. In 6 years, he will be thrice as old as Pooja. Then, the sum of their present ages is 42 years
a) Both Statement - I and Statement - II are true
b) Both Statement - I and Statement - II are false
c) Statement - I is true but Statement - II is false
d) Statement - I is false but Statement - II is true
9. Find the cube root of $\mathrm{P}\left(P^{2}+3 P+3\right)+1$, if $\mathrm{P}=999$.
a) 1000
b) 999
c) 1002
d) 998
10. In the given figure (not drawn to scale), PQRS is a parallelogram and TQUV is a rectangle. Find the value of $a$ and $b$ respectively.
a) $30^{\circ}, 20^{\circ}$
b) $30^{\circ}, 26^{\circ}$
c) $23^{\circ}, 26^{\circ}$
d) $20^{\circ}, 36^{\circ}$
11. Simplify : $\frac{x+1}{x^{2}+5 x} \times \frac{x^{2}-25}{x^{2}-x-20} \div \frac{x^{2}-x-2}{x^{2}+2 x-8}$

a) $x$
b) $\frac{1}{x}$
c) 0
d) 1
12. Fill in the blanks and select the correct option.
i) $\qquad$ is the smallest number by which 180 should be multiplied to make it a perfect square.
ii) The square of an odd number is always an $\qquad$ number.
iii) The smallest square number which is divisible by each of the numbers 6,9 and 15 is $\qquad$ .
iv) The number of digits in the square root of 216225 is $\qquad$ _.

|  | (i) | (ii) | (iii) | (iv) |
| :---: | :---: | :---: | :---: | :---: |
| a) | 4 | Even | 90 | 4 |
| b) | 5 | Odd | 450 | 3 |
| c) | 5 | Odd | 900 | 3 |
| d) | 4 | Even | 500 | 4 |

13. The smallest fraction which should be subtracted from the sum of $2 \frac{1}{4}, 3 \frac{1}{2}, 5 \frac{3}{4}$ and $3 \frac{2}{3}$ to make the result greatest one digit number, is
a) $\frac{3}{4}$
b) $\frac{1}{6}$
c) $\frac{1}{12}$
d) $6 \frac{1}{6}$
14. The figure shows the dimensions of a wall having a window and a door of a room. Write an algebraic expression for the area of the wall to be painted.
a) $10 x(2 x+1)$ sq.units
b) $10 x$ sq.units
c) $x(2 x+1)$ sq.units
d) $2 x+1$ sq units

15. The following pie chart shows the number of certain players of a particular country playing different games. What percent of sportman play tennis?
a) $33 \%$
b) $25 \%$
c) $12.5 \%$
d) $50 \%$


## PHYSICS

16. A bomb explodes on the moon. How long will it take for the sound to reach the earth?
a) 10 seconds
b) 1000 seconds
c) 1 day
d) Sound will not be heard
17. In a stethoscope, how does the sound of heart beat travel through its tube?
a) By bending along the tube
b) In a straight line
c) By undergoing multiple reflections
d) As ultrasonic frequency
18. When a tuning fork was struck and brought near a bucket of water, a wave as shown in the figure, was formed on its surface.

If the fork is struck harder and brought near the surface, what will increase?

a) Frequency
b) Wavelength
c) Velocity
d) Amplitude
19. A musical note is characterised by $\qquad$
a) Loudness
b) Pitch
c) Timbre
d) All of the above
20. What is the number of vibrations made by a body in one second called?
a) Frequency
b) Wavelength
c) Loudness
d) Pitch
21. Ram pushes the box by applying a force of 500 N in horizontal direction so that the box starts sliding-along the floor as shown in figure. Find the point where the frictional force acting on the box is maximum.
a) $P$
b) $Q$
c) $R$
d) P, Q and R
22. Direction of frictional force between wheel of the car $\&$ the road is

a) Upward
b) forward
c) backward
d) downward


Statement 2: Friction always opposes motion.
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 and statement 2 is false.
d) Both statements 1 and 2 are false.
24. When a bicycle is in motion, the force of friction exerted by the ground on the two wheels is such that it acts
(a) In the backward direction on the front wheel and in the forward direction on the rear wheel
(b) In the forward direction on the front wheel and in the backward direction on the rear wheel
(c) In the forward direction on both front and the rear wheels
(d) None of these
25. If $\mu_{\mathrm{s}}$ is coefficient of static friction $\& \mu_{\mathrm{k}}$ is coefficient of kinetic friction, then
a) There is no relation between $\mu_{s} \& \mu_{\mathrm{k}}$
b) generally $\mu_{s}>\mu_{k}$
c) generally $\mu_{\mathrm{s}}=\mu_{\mathrm{k}}$
d) gener`ally $\mu_{\mathrm{s}}<\mu_{\mathrm{k}}$
26. One newton is equivalent to
a) $10^{7}$ dyne
b) $10^{-7}$ dyne
c) $10^{5}$ dyne
d) $10^{-5}$ dyne
27. The diagram shows a simple mercury barometer. The mercury level is at a height h when the atmospheric pressure is 100000 Pa . What is the pressure at P ?
a) 40000 Pa
b) 60000 Pa
c) 100000 Pa
d) 140000 Pa
28. The value of atmospheric pressure exerted on our bodies is equal to
a) 100 kPa
b) 101.3 kPa
c) 200 kPa
d) 201.3 kPa

29. In the given diagram, when a weight of 100 g is hung from the spring, its length is 9 cm . When a weight of 150 g is hung from it, its length is 11 cm . What is the length of the spring when there is no weight hanging from it?
a) 2 cm
b) 4 cm
c) 5 cm
d) 7 cm

## I - QUEST '24

30. Three identical vessels A, B and C contain same quantity of liquid. In each vessel, blocks with different densities but same masses are placed as shown in figure.

If $F_{A}, F_{B}$ and $F_{C}$ are the total forces acting on the base of vessels $\mathrm{A}, \mathrm{B}$ and C respectively, then

a) $\mathrm{FA}=\mathrm{FB}=\mathrm{FC}$
b) $\mathrm{FA}<\mathrm{FB}<\mathrm{FC}$
c) $\mathrm{FA}=\mathrm{FB}<\mathrm{FC}$
d) $\mathrm{FA}>\mathrm{FB}>\mathrm{FC}$

## CHEMISTRY

31. Match column I with column II and select the correct option from the codes given below.

## Column I

P. Rusting
Q. Burning of Paper
R. Sodium
S. Atom bomb
a) P-(ii), Q-(iii), R-(i), S-(iv)
c) P-(iii), Q-(ii), R-(i), S-(ii)
b) P-(i), Q-(iii), R-(ii), S-(iv)
d) P-(iv), Q-(iii), R-(ii), S-(i)

Column II
(i) Explosion
(ii) Spontaneous combustion
(iii) Rapid combustion
(iv) Slow combustion
32. A spoon is kept in contact with ice cubes for some time. Later, the same spoon was held over the flame of a small candle. The observation is shown in the figure.
What do you infer from the given figure?
a) Spoon is an inflammable substance.
b) Burning of candle is a spontaneous process.
c) Carbon dioxide is a product of combustion.
d) Water vapour is a product of combustion.

33. In an experiment, 4.5 kg of a fuel was completely burnt. The heat produced was $180,000 \mathrm{KJ}$. The calorific value of the fuel is
a) $180,000 \mathrm{KJ}$
b) $40,000 \mathrm{KJ}$
c) $40,000 \mathrm{KJ} / \mathrm{kg}$
d) $180,000 \mathrm{KJ} / \mathrm{kg}$
34. What is the major cause of global warming?
a) Gaseous nitrogen oxides released by petrol engines.
b) Oxides of sulphur and nitrogen dissolved in rain water.
c) Emission of sulphur oxide on combustion of coal.
d) Release of carbon dioxide on combustion of fuels.
35. Which of the following petroleum components is used as a solvent for dry cleaning?
a) Petrol
b) kerosene
c) paraffin wax
d) lubricating oil
36. Different zones of a candle flame are marked by the letters $\mathrm{P}, \mathrm{Q}, \mathrm{R}$ and S . Which of the following statements are correct?
(i) P is the luminous zone and is the hottest part of candle flame.
(ii) In zone Q , there is inadequate supply of oxygen.
(iii) In Zone R contains unburnt wax vapours produced by melting of wax.
(iv) In $S$ zone, carbon monoxide burns with a blue flame.

a) (i) and (ii) only
b) (ii), (iii) and (iv) only
c) (ii) and (iv) only
d) (i), (ii) and (iii) only
37. Natural resources are classified as: P. Exhaustible Q. Inexhaustible

Some natural resources are :
(i) Petrol, diesel
(ii) Coal, petroleum
(iii) Air, water
(iv) sunlight
(v) Forests, minerals

Which of the following represents the correct match?
a) P-(iii), (iv); Q-(i), (ii), (v)
b) P-(i), (ii), (v); Q-(iii), (iv)
c) P-(ii), (v), Q-(i), (iii), (iv)
d) None of these
38. A substance X is obtained from an exhaustible natural resource. It is black and thick liquid with an unpleasant smell. It is a mixture of 200 substances some of the products such as synthetic dyes, plastic paints, explosive, perfumes etc. are obtained using this resource. The substance X is
a) Coke
b) coal Tar
c) bitumen
d) lubricating oil
39. Observe the figure of destructive distillation of coal. What are the three fractions $\mathrm{X}, \mathrm{Y}$ and Z ?

|  | X | Y | Z |
| :--- | :--- | :--- | :--- |
| a) | Coal Gas | Coal tar | Coke |
| b) | Coal Gas | Coke | Coal |
| c) | Coal Gas | Coal tar | Impure Coal |
| d) | Carbon diaoxide | Coal tar | Coal |

40. The given table lists some of the fuels along with their calorific values and ignition temperatures.

| Fuel | Calorific value $(\mathrm{Kj} / \mathrm{g})$ | Ignition temperature (K) |
| :---: | :---: | :---: |
| P | 100 | 5 |
| Q | 80 | 50 |
| R | 30 | 60 |
| S | 20 | 70 |



Which of the following fuel is an ideal fuel ?
a) P
b) Q
c) $R$
d) $S$
41. At $50^{\circ} \mathrm{C}$, which of the given fuels is likely to undergo combustion?

| Fuel Ignition | Temperature |
| :---: | :---: |
| W | $38^{\circ} \mathrm{C}$ |
| X | $42^{\circ} \mathrm{C}$ |
| Y | $53^{\circ} \mathrm{C}$ |
| Z | $54^{\circ} \mathrm{C}$ |

a) $Y \& Z$
b) $\mathrm{X} \& \mathrm{Y}$
c) W \& X
d) Z \& W
42. The given figure shows the petroleum deposit inside the earth's crust. Which of the following is correct with respect to substance X ?
I. X is chiefly made up of methane.
II. X is stored under low pressure.
III. X is a clean, non-polluting fuel.

a) I and III
b) II and III
c) I and II
d) None of these
43. Study the given flowchart carefully.

Which of the following statements is correct ?
a) $X$ can be condensed back to coal.
b) Y and Z are useless products.
c) Z starts burning when exposed to air.
d) None of these

44. Fill in the blanks left in the classification of the fossil fuels


|  | p | q | u | v | w | x |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| a) | Petroleum | Coal | Petroleum Gas | Bitumen | Coal Gas | Coke |
| b) | Coal | Petroleum | Coal Gas | Coke | Petroleum Gas | Bitumen |
| c) | Coal | Petroleum Gas | Coal | Char Coal | Gasoline | Coal Tar |
| d) | Petroleum | Coal | Gasoline | Bitumen | Natural Gas | Coke |

45. Coal tar can be used as a starting material for manufacturing
(i) Drugs
(ii) Photographic materials
(iii) Cookwares (iv) Explosives
a) Only (i)
b) (ii) and (iv)
c) (i), (ii) and (iv)
d) (ii), (iii) and (iv)

## REASONING

46. From his house, Lokesh went 15 km to the North. Then he turned west and covered 10 km . Then he turned south and covered 5 km . Finally turning to the east, he covered 10 km . In which direction is he from his house?
a) East
b) West
c) North
d) South
47. Yard is to Inch as Quart is to
a) Gallon
b) Ounce
c) Milk
d) Liquid
48. Choose the figure which is different from the rest.
a) d
b) c
c) b
d) a

49. In the given figure below what does the shaded portion depict?

a) A group of male film stars who are foot ball players
b) A group of film stars who both football players and cricketers
c) A group of male film stars who neither play cricket nor play foot ball
d) A group of male film stars who are cricketers but not football players
50. Look at this series: U32, V29, $\qquad$ , X23, Y20,. Which option should fill the blank?
a) W26
b) W17
c) Z 17
d) Z26

## OUR STELLAR PERFORMERS IN NEET 2023



CHAMPIONS WHO HAVE SECURED 638 \& ABOVE IN NEET 2023


676


665


645


675


662


643


675


661


642


675


661


641


672


660


641


670


657


640


665


656


639


665


655


638


## NIT / IIIT ADMISSIONS - 2023



## EXCEPTIONAL PERFORMANCE IN



IIT ADMISSIONS - 2023


IKHARAGPI IITT KANPUR


70\%
SUCCESS RATE IN IIT/NIT/DEEMED

## IIT / NEET FOUNDATION ACHIEVEMENTS

## INDIAN OLYMPIAD QUALIFIER IN MATHEMATICS (IOQM)-2023



## YOUNG RAMANUJAN COMPETITION



## INTERNATIONAL SOCIETY FOR OLYMPIAD IN MATHEMATICS (ISFO)




VELAMMAL NEXUS


| CHEMISTRY |  |  |
| :---: | :---: | :---: |
| 31 | (a) (b) (c) (d) |  |
| 32 | (a) (b) (c) (d) |  |
| 33 | (a) (b) (c) (d) |  |
| 34 | (a) (b) (c) (d) | $\square$ |
| 35 | (a) (b) (c) (d) |  |
| 36 | (a) (b) (c) (d) |  |
| 37 | (a) (b) (c) (d) |  |
| 38 | (a) (b) (c) (d) |  |
| 39 | (a) (b) (c) (d) |  |
| 40 | (a) (b) (c) (d) |  |
| 41 | (a) (b) (c) (d) |  |
| 42 | (a) (b) (c) (d) |  |
| 43 | (a) (b) (c) (d) |  |
| 44 | (a) (b) (c) (d) |  |
| 45 | (a) (b) (c) (d) | $\square$ |

## REASONING

| 46 | (a) (b) (c) (d) | $\square$ |
| :--- | :--- | :--- |
| 47 | (a) (b) (c) (d) | $\square$ |
| 48 | (a) (b) (c) (d) | $\square$ |
| 49 | (a) (b) (c) (d) | $\square$ |
| 50 | (a) (b) (c) (d) | $\square$ |

INSTRUCTIONS FOR MARKING
OMR SHEET

1. Use only blue or black ball point pen
2. Circle should be
darkened completely and properly
3. Cutting and erasing on the sheet are not allowed
4. Sheet should not be folded or crushed.
5. Don't use marker or white fluid to hide the marking.
CORRECT METHOD ○○○○
WRONG METHODS ®○®D
