VELAMMAL NEXUS

I – QUEST '24

SAMPLE QUESTION PAPER

CLASS – VII

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 21st 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 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 90 questions and it is divided into four sections A, B, C and D. (Maths, Physics, Chemistry & Reasoning) Candidates will have to answer all 90 questions
Total marks	360 Marks
Marking scheme	4 marks will be awarded for each correct answer One mark will be deducted for each wrong attempt No marks for unanswered question

MATHEMATICS

1. Which of the following statement is INCORRECT?

   a) If 'a' and 'b' are consecutive rational numbers where a < b, then $\frac{a+b}{2} < b$.

   b) $\frac{x+y}{2}$ is a rational number which lies between two rational numbers x and y respectively.

   c) Rational numbers are associative under subtraction.

   d) The rational numbers $\frac{5}{3}$ and $\frac{-1}{3}$ are lying on the opposite sides of '0' on number line.

2. There were 5 parrots in the cage. Their average price is ₹ 6000. One day during the cleaning of the cage the most beautiful parrot flew away. The average price of the remaining four parrots was ₹ 5000.

   What was the price of the parrot, which flew away ?

   a) ₹ 11000 b) ₹ 9000

   c) ₹. 12000 d) ₹ 10000

3. Two cars start off at the same point on a straight highway facing opposite directions.

   Each car drives 6 miles take a left turn and drives 8 miles. How far apart are the two cars?

   a) 20 miles b) 11 miles

   c) 14 miles d) 16 miles

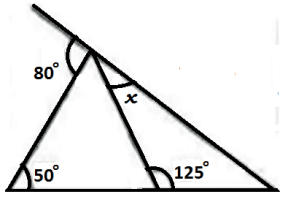
4. A farmer divides his herd of n cows among his four sons, so that the first son gets one-half of the herd, the second one–fourth, the third son gets $\frac{1}{5}$ and the fourth son got 7 cows. Then the value of n is

   a) 180 b) 140 c) 240 d) 100

5. If $x^{\sqrt{x}} = \left(\sqrt{x}\right)^{x}$, then x is

   a) 3 b) 2 c) 4 d) None

6. What is the value of x ?



   a) 55° b) 50°

   c) 20° d) 25°

7. Evaluate : $\frac{2\frac{5}{4} - 4\frac{7}{6} + 3\frac{1}{3}}{0.087 + 0.3717 \div 0.9}$

   a) 2.833 b) 0.28 c) 0.000028 d) 0.00028

8. There are 42 students in a class. Out of these $\frac{3}{4}$ of the boys and $\frac{2}{3}$ of the girls come to school by bus. The total number of boys and girls who come to school by bus is 30.

How many boys are there in the class?

a) 20 b) 24 c) 26 d) 16

9. A number is increased by 10% and then it is decreased by 10%. Find the net increase or decrease percent.

a) Decrease by 1% b) Decrease by 10%

c) Increase by 2% d) Increase by 11%

10. The size of a red blood cell is 0.000007 m and the size of a plant cell is 0.00001275 m. Find the ratio of the size of red blood cell to that of plant cell.

a) 13 : 56 b) 28 : 51 c) 31 : 39 d) 22 : 31

11. The cell of bacteria doubles itself after every 1 hour. How many cells will there be after 8 hours?

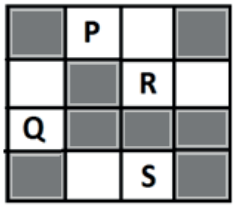
a) 200 times of the original b) 2^{10} times of the original

c) 2^8 of the original d) 2^6 of the original

12. Solve : $0.06x + 0.09(15 - x) = 0.07(15)$

a) 12 b) 0.10 c) 0.01 d) 10

13. Which square must be shaded so that the figure has a line of symmetry?



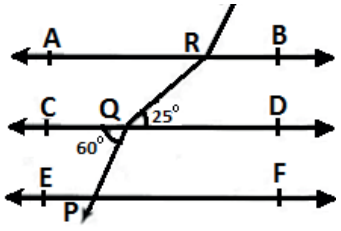
a) P b) Q

c) R d) S

14. In the given figure, if AB ∥ CD ∥EF, PQ ∥ RS, $\angle RQD = 25°$ and $\angle CQP = 60°$, then, $\angle QRS =$

a) 85° b) 135°

c) 145° d) 110°



15. A survey was carried out to find the favourite beverage preferred by a certain group of young people. The following pie chart shows the finding of this survey. If 45 people like tea, how many people were surveyed?

a) 300 b) 500

c) 600 d) 450

PHYSICS

16. Choose the correct statement.

a) Every oscillatory motion is periodic in nature

b) Every periodic motion is oscillatory in nature

c) The motion of a pendulum bob is periodic in nature within its small amplitude

d) Both a and c

17. **Statement - I :** Radiation is the fastest mode of transmission of heat

Statement - II: Conduction and convection require a medium for transmission of heat whereas heat radiations can travel through vacuum

a) Statement 1 is correct but 2 is wrong

b) Statement 1 is wrong but 2 is correct

c) Both the statements are correct

d) Both the statements are wrong

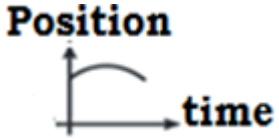
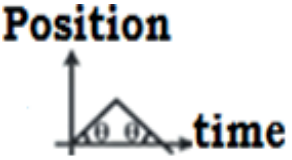
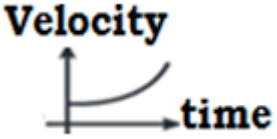
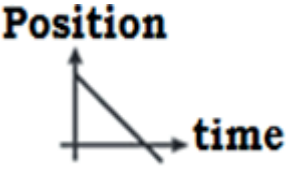
18. $T = 2\pi\sqrt{l/g}$ is the time period of a simple pendulum, then the unit of $4\pi^2 l/T^2$ in SI system is _____

a) ms^{-1} b) s^{-2} c) ms^{-2} d) s^{-1}

19. A boy dropped a ball from the top of a tower of height 125 m, then the average velocity of the ball at the end of 5 seconds, if it takes 5 seconds to reach the ground is _____m/s^{-1}.

a) 25 b) 125 c) 50 d) 250

20. Match the situations given in Column-I with the possible curves in Column – II and select the correct option, from codes given

Column – I	Column – II
a) Particle moving with constant speed	p) 
b) Particle moving with increasing acceleration	q) 
c) Particle moving with constant negative acceleration	r) 
d) Particle moving with zero acceleration	s) 

a) a – q, b – s, c – p, d – r b) a – s, r ; b – q, c – s, d – p

c) a – q, s; b – r, c – p, d – s d) a – s, b – q, p; c – s, d - r

21. A car covers a distance of 2 km in 2.5 minutes. If it covers half of the distance with speed 40 km/hr, the rest distance it shall cover with a speed of

a) 56 km/hr b) 60 km/hr c) 48 km/hr d) 50 km/hr

22. Snow is more heat-insulating than ice, because

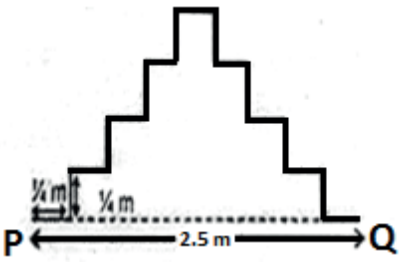
a) Air is filled in porous of snow b) Ice is more bad conductor than snow

c) Air is filled in porous of Ice d) Density of ice is more

23. An ant moves along the identical steps from P to Q as shown in the figure in a duration of 8.5 seconds, then the speed and velocity of the ant respectively are_____ ms^{-1} and _____ ms^{-1}

a) 0.5, 5/17 b) 0.5, 0.5

c) 5/17, 5/17 d) Cannot be determined



24. The lowest attainable Fahrenheit temperature is

a) –100°F b) –459.4°F c) –300°F d) –373.2°F

25. A faulty thermometer has fixed points marked as 5° C and 95° C. Temperature of a body measured by the faulty thermometer is 59°C. Find the correct temperature of the body on Celsius scale.

a) 60°C b) 50°C c) 70°C d) 80°C

26. Given below are some common units of mass. The correct order of these units arranged in ascending order is mg, kg, dag, cg, hg

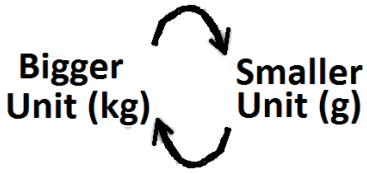
a) mg < hg < dag < cg < kg b) mg < cg < dag < hg < kg

c) mg > cg > dag > hg > kg d) mg > hg > dag >cg > kg

27. To convert a smaller unit into a bigger one, we _____ the smaller unit by a conversion factor.

a) Divide b) Multiply

c) add d) Subtract



28. Newton-second is the unit of

a) Velocity b) Angular momentum

c) Momentum d) Energy

29. Sriram has a jar filled with juice. After he poured 350 ml of juice in each 8 glasses, he was still left with 200 ml juice in the jar. What was the capacity of jars in litres?

a) 4 b) 3 c) 2 d) 1

30. Riyan has 63 m of ribbon. If he cuts 56 m 21 cm ribbon from it, what length of the ribbon will be left?

a) 6 m 18 cm b) 6 m 81 cm c) 6 m 97 cm d) 6 m 79 cm

CHEMISTRY

31. Compound 'A' is used in fire extinguisher and also as an antacid. It's also used in small amounts to make the food soft. Identify A

a) Baking powder
b) tartaric acid
c) sodium bicarbonate
d) sodium carbonate

32. When a small amount of acid is added to water the phenomena which occur are

A. Dilution B. ionization C. neutralization D. Both ionization and dilution

a) A b) B c) C d) D

33. Which of the following acid is a mineral acid?

a) Tartaric acid b) Amino acid c) Carbonic acid d) Acetic acid

34. The basicity of an acid is the number of replaceable hydrogen atoms present in an acid. The basicity of acetic acid is

a) 4 b) 1 c) 2 d) 3

35. Neutralization is a reaction in which an acid is neutralized by a base. In everyday application we come across many neutralization reactions. Find out the correct option.

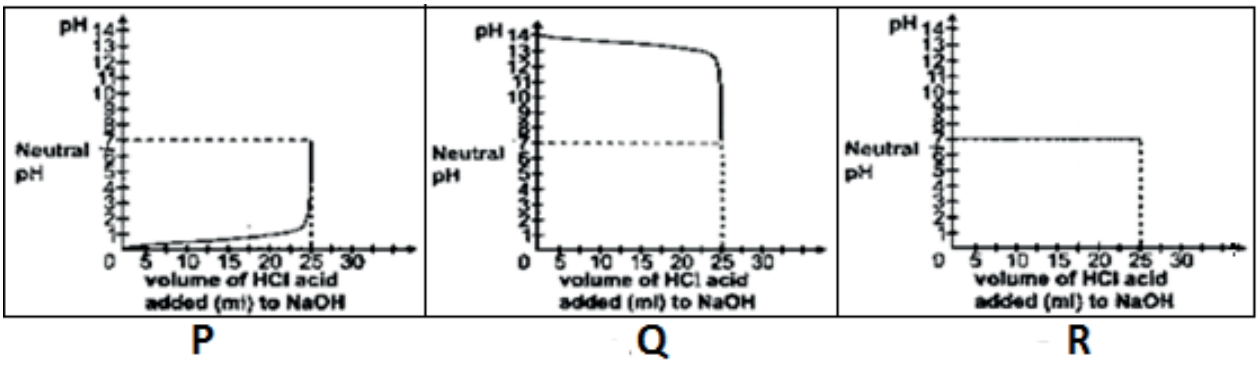
A) Reaction between an antacid & acid
B) Brushing own teeth with the help of tooth paste
C) Adding Caustic soda to soil
D) Treating bee sting with sodium hydrogen carbonate

a) AB b) CD c) DAB c) ABCD

36. Radha is a visually challenged student. She has to perform a lab test to detect the presence of acid in a given solution. The acid- base indicator preferred by her will be

a) Blue litmus b) Red cabbage extract c) Hibiscus extract d) Clove oil

37. Aditi adds drop wise 25 ml of Con. HCl to 25 ml of Con. NaOH and continuously monitors the pH in the mixture. She finds that the pH of the mixture at the end of the experiment is 7. Which of the following graph correctly demonstrates the change in pH in the moisture during the experiment?



a) Only P

b) only Q

c) Either P or Q

d) All of them – P. Q & R

38. Anita added a drop each of diluted acetic acid and diluted hydrochloric acid on pH paper and compared the colours. Which of the following is the correct conclusion?

a) Acetic acid dissociates completely in aqueous solution

b) pH of acetic acid is less than that of hydrochloric acid

c) Acetic acid is a strong acid

d) pH of acetic acid is more than that of hydrochloric acid.

39. Anand took four colourless solutions A, B, C and D and performed the following tests. What is the definite conclusion that Anand can reach?

Reaction with	Solution A	Solution B	Solution C	Solution D
With methyl/orange	No change in colour	Turned Red	No change in colour	No change in colour
With phenolphthalein	No change in colour	No change in colour	No change in colour	Turned pink
With red litmus	No change in colour	No change in colour	No change in colour	Turned litmus blue
With blue litmus	No change in colour	Turned litmus blue	No change in colour	No change in colour

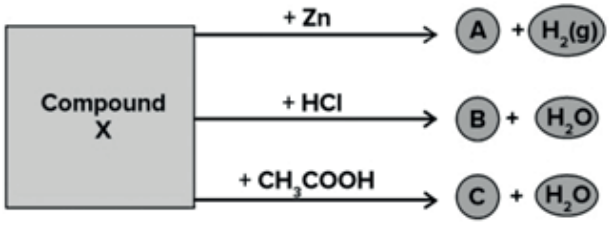
a) Both A and D are salt solution

b) Both B and D are basic solution

c) Both B and C are salt solution

d) Both A and C are neutral solution

40. Identify the compound 'X' on the basics of the following reaction given below.



a) $Ca(OH)_2$

b) $Al(OH)_3$

c) NaOH

d) NH_4OH

41. The pH value of five solution A, B, C, D and E are given below.

Which solution is weakly alkaline ?

A	B	C	D	E
1	5	7	11	13

a) D b) C

c) A d) D and E

42. Which of the following is salt ?

a) HNO_3 b) HCl c) NaCl d) H_2SO_4

43. Read the paragraph, given below and then find which combination of terms is correct for P, Q, R, S and T.

Raman gets a small piece of a thin strip of P. He first cleans the strip, then burns it completely. As a result he gets a powdery ash Q. He collects the ash and mixes it with a small amount of water to form a new substance R. Then he decides to test the nature of new substance formed. So, he put small amount of the new substance on a litmus strip. He finds that it turns litmus strip to T.

a) P – sodium, Q – sodium oxide, R – sodium hydroxide, S – blue, T - Red

b) P – sulphur, Q – sulphur oxide, R – sulphur hydroxide, S – Red, T - Blue

c) P – magnesium , Q – magnesium oxide, R – magnesium hydroxide, S – Red, T - Blue

d) All of these

44. How is the concentration H_3O^+ hydronium ions affected when a solution of an acid is diluted?

a) No. of hydronium ion per volume decreases and concentration decreases

b) No. of hydronium ion per volume increases and concentration increases

c) Neither the concentration increases nor decreases

d) None of the above

45. Limestone, chalk and marbles are different forms of _____.

a) $CaCO_3$ b) $MgCO_3$ C) $MgCl_2$ d) $CaCl_2$

REASONING

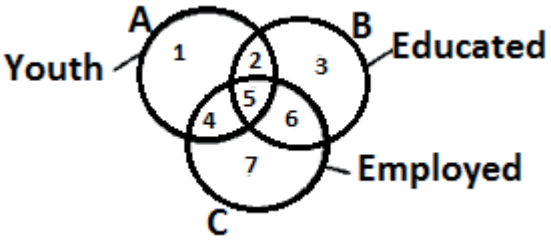
46. Study the diagram below and identify the region representing youth who are employed but not educated.

a) 4 only

b) 1, 4, 7

c) 4, 7

d) 4, 5 ,6



47. There are 6 schools P, Q, R, S, T and U located in various directions.

i) School P is 5 km far from school T in west direction and 25 km far from school R in south-east direction.

ii) School U is 15 km north of school S which is 25 km north-west of School Q.

iii) Schools P, T and Q are situated on a straight line from west to east and the distance between school P and school Q is 25 km.

What is the distance between school S and school R?

a) 50 km b) 75 km c) 35 km d) 25 km

48. If CLOTHES is EXHAUST and THRICE is STABLE, then SHIRT is

a) BLUSH b) STAUL c) THULE d) BLASH

49. Find the character or number which replaces the question mark in the series given below. N5V K7T H10R E14P ?

a) H9R b) H10Q c) B19N d) 110R

50. In a certain code language, '315' means 'good sweet fruit', '632' means 'good red rose' and '295' means ' rose and fruit'. Which of the following stands for 'fruit' in that language ?

a) 1 b) 5 c) 3 d) 2

OUR STELLAR PERFORMERS IN NEET 2023

PRABANJAN J
JIPMER

ALL INDIA
1st
RANK

720
720

SANJAY PRAKASH S
705 / 720
JIPMER

AKSHAY I N
700 / 720
JIPMER

BHUVAANESH MS
700 / 720
JIPMER

KISHOREKUMAR K S
695 / 720
MMC

AKSHVITHA R S
690 / 720
MMC

IRENE KAVYA M
685 / 720
JIPMER

CHAMPIONS WHO HAVE SECURED 638 & ABOVE IN NEET 2023

AMALAN J A
676

NIRMAL N
675

SANJAY KUMAR S
675

AISHWARYA V
675

SHREYA NAMBIAR R
672

ANJANA R
670

DARSHAN S
665

HRITHIN P
665

VARSHINI K
665

SUJITH KUMAR V
662

ROHAN RAVI
661

MONESH SANTHOSH M
661

APARNA P ANIL
660

JOTHIKA R J
657

SUSHMITHA V
656

NITHIN KUMAR K
655

SUNIL KUMAR V
645

JOSHITAA B R
643

UDHAYA KRUTHIKA K
642

KANISTHIKA V R
641

SUJO S
641

JASHWANTH D
640

MARAN M
639

DENNIS ANTONY D
638

TOTAL MEDICAL SELECTION THROUGH NEET - 2023
289

PRANAV RAGURAM

ALL INDIA 1st RANK

OPEN CATEGORY

JEE MAIN

(B. PLANNING)

2023

NIT / IIIT ADMISSIONS - 2023

NIT TRICHY


MOHIT A


SUHAS T M


HARISH KUMAR S


HRISHITA T


AKASH V


SRI HARSHINI S


GIREESH A


MOHITH PRANAV M


HARSHITHA G

NIT TRICHY


YUGESH R P S


VIRANYU SRINIVASAN

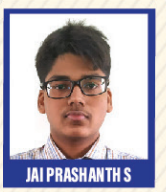

SARAN R


PAVITHRA A

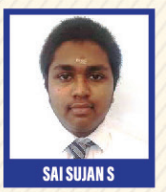

YASHVANTH KUMAR S


SHAILESH

NIT WARANGAL


JAI PRASHANTH S

NIT CALICUT


SAI SUJAN S


GANESH RAJA

IIIT TRICHY


DURJESH V

IIIT KANCHIPURAM


SANTHANA SRINIVASAN R


VETHAASREE G


NITHYANAND R


PRAMESH

IIIT DARWAD


NITHIN ATHREYA R

IIIT MANIPUR


MOHAMMED IMRAAN H

BITS PILANI


VIJAY KRISHNA A

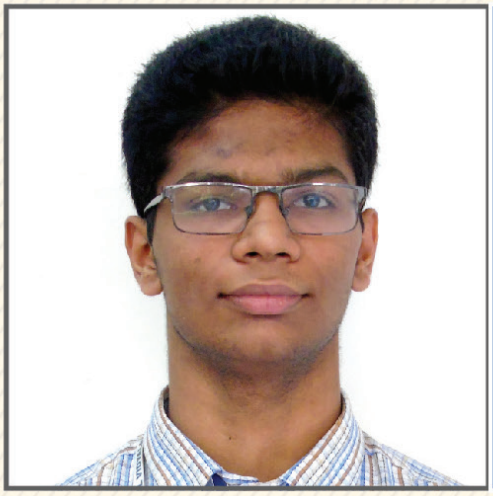

ARJUN S

23	51	68	90	108	125	162
Students Secured above	Students Secured above	Students Secured above	Students Secured above	Students Secured above	Students Secured above	Students Secured above
99 PERCENTILE	98 PERCENTILE	97 PERCENTILE	96 PERCENTILE	95 PERCENTILE	94 PERCENTILE	90 PERCENTILE

45%

SUCCESS RATE IN NEET

EXCEPTIONAL PERFORMANCE IN



CRL 635

JEE ADVANCED 2023

SHRAVAN J

IIT ADMISSIONS - 2023

IIT MADRAS


SHRAVAN J


LALITH AKASH M


SANDEEP M R


ITHYA KRISHNAN


MOGITH GURU A P


PRANAV RAGHURA


MITHIN VIKKASH S


SREE RAGHAV M R


EYAGIRISH BALA.

IIT MADRAS


DOBALAN MOHA


SUVETHA G


KARTHICK A


VASANTH P


VISHWESH J


PRANAV RAM P S

IIT BOMBAY


MONICA S

IIT HYDERABA

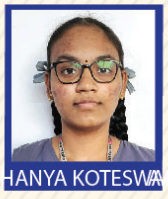

GOKUL KRISHNA J

IIT BHUVANESWA


YASH RAJ REDDY

IIT TIRUPATI


SURIYAA M M


HANYA KOTESWA

IIT GANDHINAGAR

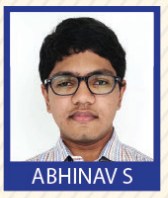

KASH VENKATES.


ABHISHEK S

IIT KHARAGPU


LOGHITH U S

IIT KANPUR


ABHINAV S

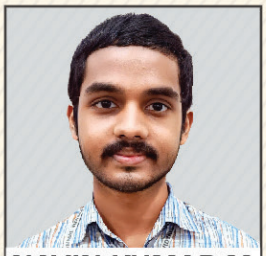
IIT VARANAS


GUNAL S

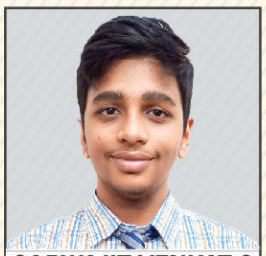
70% SUCCESS RATE IN IIT/NIT/DEEMED

IIT / NEET FOUNDATION ACHIEVEMENTS

INDIAN OLYMPIAD QUALIFIER IN MATHEMATICS (IOQM)-2023



NAVIN KUMAR M
STD - XII



SARWAJIT VENKAT S
STD - XI

RUDRA K
STD - XI

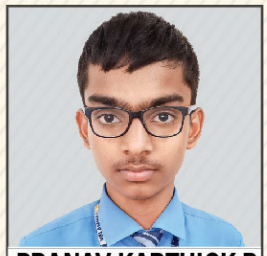
SAMUEL JOHN G
STD - X

PAVITHRA RS
STD - X

MAHATHI G R
STD - X

SHEREEYADATTA MV
STD - X

SIVIN G K
STD - X



PRANAV KARTHICK B
STD - IX

YOUNG RAMANUJAN COMPETITION

VARUN RAJA R
CLASS - VIII
STATE RANK - 2

RATHIN M
CLASS - VIII
STATE RANK - 2

MAHADEERA K K
CLASS - VIII
STATE RANK - 2

ARJUN R
CLASS - VIII
STATE RANK - 3

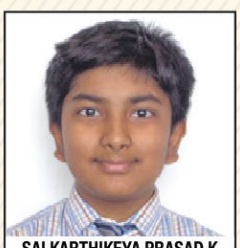
IIT MADRAS MATHEMATICS OLYMPIAD

VARUN RAJA R
CLASS - VII
STATE RANK - 1, TROPHY

THILAN KESHAV M
CLASS - VIII
STATE RANK - 3, TROPHY

INTERNATIONAL SOCIETY FOR OLYMPIAD IN MATHEMATICS (ISFO)

NARESH K
CLASS - VI
GIFT WORTH OF RS.5000/-



SAI KARTHIKEYA PRASAD K
CLASS - VI
GIFT WORTH OF RS.3000/-

VELAMMAL NEXUS

VELAMMAL NEXUS GROUP OF SCHOOLS

CHENNAI

MATHEMATICS

1	a	b	c	d	☐
2	a	b	c	d	☐
3	a	b	c	d	☐
4	a	b	c	d	☐
5	a	b	c	d	☐
6	a	b	c	d	☐
7	a	b	c	d	☐
8	a	b	c	d	☐
9	a	b	c	d	☐
10	a	b	c	d	☐
11	a	b	c	d	☐
12	a	b	c	d	☐
13	a	b	c	d	☐
14	a	b	c	d	☐
15	a	b	c	d	☐

PHYSICS

16	a	b	c	d	☐
17	a	b	c	d	☐
18	a	b	c	d	☐
19	a	b	c	d	☐
20	a	b	c	d	☐
21	a	b	c	d	☐
22	a	b	c	d	☐
23	a	b	c	d	☐
24	a	b	c	d	☐
25	a	b	c	d	☐
26	a	b	c	d	☐
27	a	b	c	d	☐
28	a	b	c	d	☐
29	a	b	c	d	☐
30	a	b	c	d	☐

CHEMISTRY

31	a	b	c	d	☐
32	a	b	c	d	☐
33	a	b	c	d	☐
34	a	b	c	d	☐
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	☐

REASONING

46	a	b	c	d	☐
47	a	b	c	d	☐
48	a	b	c	d	☐
49	a	b	c	d	☐
50	a	b	c	d	☐

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 ⊗○✓◐

Candidate Signature