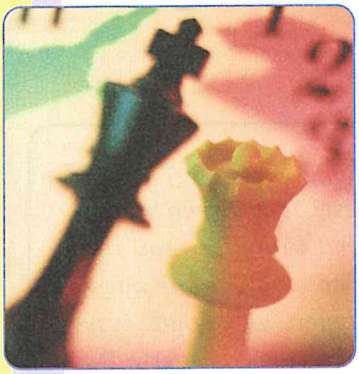


nstse
Test • Assess • Achieve

National Level Science Talent Search Examination

Conducted by
UNIFIED COUNCIL
An ISO 9001 Certified organization

CLASS IX

Please fill the following details immediately

Name _____

Hall Ticket No. _____

Questions : 60 **Time : 60 minutes**

INSTRUCTIONS

Read all instructions carefully before attempting any question.

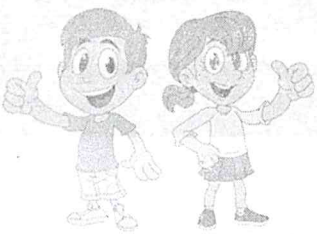
- Ensure that the 'Class' printed here and inside, is the same as the test you are appearing for.
- You must complete the paper within the time allotted.
- Do not open this question paper until you are permitted to.
- You are not allowed to use a calculator.
- Figures herein are not to scale. Hence, you cannot depend on the estimate of size or measurement. Use your knowledge of the subject.
- Rough work shall be carried out only in the space provided for the same throughout this booklet. No separate sheets are allowed for the same.
- Return your answer sheet to the invigilator soon after completion and before leaving the examination hall. Take the question paper with you.
- There is no negative marking.
- Results would be made available on **www.unifiedcouncil.com**

PAPER CODE	UN446

UCN/QP-IX/02

Conducted by

UNIFIED COUNCIL
INDIA'S 1st ISO 9001:2015 Certified Organisation in Testing & Assessment
Foundation for Success
www.unifiedcouncil.com



Dear student,

Ready for the test? Take a deep breath and relax. Don't forget to read the questions very carefully. Some questions that look tough, will be quite easy after you have read them properly. Do not spend too much time on any question. Go to the next question and later come back to the ones you felt were tough. Be cool, give your best and have fun. Good luck!

(Space for Rough Work)

01 $\sqrt{16+2\sqrt{6}+2\sqrt{22}+2\sqrt{33}}$ =

(A) $\sqrt{2}+\sqrt{3}-\sqrt{11}$ (B) $-\sqrt{2}+\sqrt{3}+\sqrt{11}$

(C) $\sqrt{2}-\sqrt{3}-\sqrt{11}$ (D) $\sqrt{11}+\sqrt{3}+\sqrt{2}$

02 $\sqrt{12-\sqrt{12-\sqrt{12.....}\infty}}$ = _____

(A) 3 (B) -4 (C) -3 (D) 3.14

03 Find the value of $\frac{a^3+b^3+c^3-3abc}{ab+bc+ca-a^2-b^2-c^2}$,
when $a = -5$, $b = -6$, $c = 10$.

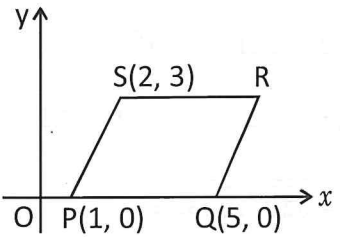
(A) 1 (B) -1 (C) 2 (D) -2

04 If $2x + 3y = 16$ and $4x - 2y = 4$ then find the value of $8y$.

(A) 24 (B) 28 (C) 36 (D) 42

Space for Rough work

05 **In the given figure PQRS is a parallelogram. Find the coordinates of R.**



(A) (5, 2) (B) (5, 3)

(C) (6, 2) (D) (6, 3)

06 **The area of a right triangle is 63 sq.cm. If the base of the triangle exceeds that of the altitude by 5 cm, find the altitude of the triangle.**

(A) 7 cm (B) 9 cm

(C) 11 cm (D) 10 cm

Space for Rough work

07 ABCD is a trapezium in which AB || CD. P, Q are the mid-points of AD and BC. Find PQ.

(A) $\frac{1}{2}(AB)$ (B) $\frac{1}{2}(CD)$

(C) $\frac{1}{2}(AB - CD)$ (D) $\frac{1}{2}(AB + CD)$

08 A rational number has non-terminating repeating decimal, if prime factors of its denominator are not of the form _____.

(A) $2^m \times 5^n$ (B) $7^m \times 3^n$

(C) $11^m \times 3^n$ (D) $13^m \times 3^n$

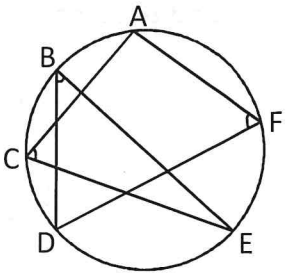
09 In ΔABC, 'D' is a midpoint of BC. E is a midpoint of BD. 'O' is a point on AE such that $OE = \frac{1}{3}$ AE. If area of $\Delta BOE = 2\ cm^2$ then area of ΔABC is _____

(A) $18\ cm^2$ (B) $12\ cm^2$

(C) $24\ cm^2$ (D) $36\ cm^2$

Space for Rough work

10 **In the given circle, find ∠ACE + ∠EBD + ∠AFD.**



(A) 360°
(B) 180°
(C) 270°
(D) Data insufficient

11 **The distance between the tops of two trees 20 m and 28 m high is 17m. What is the horizontal distance between the two trees ?**

(A) 9 m
(B) 11 m
(C) 15 m
(D) 31 m

Space for Rough work

12 **Which of the following is a polynomial ?**

(A) $x+\frac{1}{x}$ (B) $2x^{\frac{3}{2}}-4x^{\frac{1}{2}}+1$

(C) $3x^2-4x+5\sqrt{x}-11$ (D) None of these.

13 **In a cyclic quadrilateral ABCD, $\angle A = (2x + 4)^\circ$, $\angle B = (y + 3)^\circ$, $\angle C = (2y + 10)^\circ$ and $\angle D = (4x - 5)^\circ$. Find the biggest angle.**

(A) 117° (B) 127°

(C) 132° (D) 110°

14 **ABCDE is a regular pentagon, diagonal AD divides $\angle CDE$ in two parts, what is the ratio of $\angle ADE$ and $\angle ADC$?**

(A) 3 : 1 (B) 1 : 4

(C) 3 : 4 (D) 1 : 2

Space for Rough work

15 If $a^2 + 10b^2 + 5c^2 + 6ab + 2bc - 16c + 16 = 0$ then the possible value of $a - b + c =$ ____

(A) 5 (B) –3

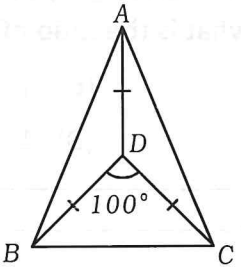
(C) –2 (D) 10

16 The sum and difference of two angles $\angle A$ and $\angle B$ of ΔABC are 112° and 22° in which $\angle B > \angle A$. Find the biggest side.

(A) AB (B) BC

(C) CA (D) AB = BC = CA

17 Find $\angle BAC$ in the below given figure.

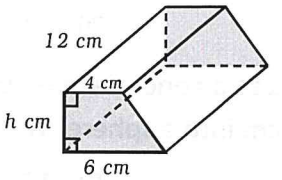


(A) 60° (B) 50°

(C) 40° (D) cannot find

Space for Rough work

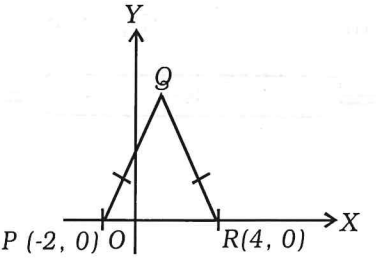
18 **The cross section of a prism 12 cm long, is a trapezium with the measurements shown. If the volume of the prism is 300 cm^3, calculate the value of h.**



(A) 5 cm (B) 6 cm

(C) 3 cm (D) 4 cm

19 **In the given figure, PQR is an isosceles triangle and QR = 5 units.**



What are the coordinates of Q ?

(A) (–6, 3) (B) (8, 3)

(C) (4, 5) (D) (1, 4)

Space for Rough work

20 In a trapezium ABCD, in which AB || CD. P & Q are mid points of AC & BD. If PQ = 5 cm then AB – CD = _____

(A) 10 cm (B) 15 cm

(C) 7.5 cm (D) 12 cm

21 A child reshapes a cone make up of clay of height 24 cm and radius 6 cm into a sphere. The radius of sphere is

(A) 6 cm (B) 12 cm

(C) 24 cm (D) 48 cm

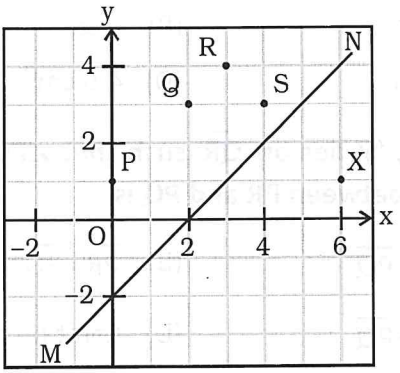
22 In a rectangle ABCD, P & Q are mid points of AD & CD respectively. If AB = 15 cm & BC = 8 cm then PQ = _____

(A) 7.5 cm (B) 4 cm

(C) 8.5 cm (D) 9 cm

Space for Rough work

23 **In the given figure, MN is a straight line. Of the points marked P, Q, R and S, which is the image of X under a reflection in the line MN ?**



(A) P (B) Q (C) R (D) S

Space for Rough work

24 **ABCD is a parallelogram and E is midpoint of AD. EC meets BD at O. If the area of parallelogram ABCD is 36 cm^2 then area of ΔCOD is**

(A) 3 cm^2 (B) 6 cm^2

(C) 9 cm^2 (D) 4.5 cm^2

25 **In ΔPQR, 'S' lies on $\overline{QR}$ such that $\angle PQR = \angle PSQ$ then relation between PR and PQ is**

(A) $\overline{PR} < \overline{PQ}$ (B) $\overline{PR} = \overline{PQ}$

(C) $\overline{PR} > \overline{PQ}$ (D) Can't be compared

Space for Rough work

26 **An astronaut's boots of weight 120 N on Earth is measured again when they are brought to the Moon's surface. What is the weight of the boots on the Moon ? Take the g of the Earth as 10 N/kg and the g of the Moon as 1.6 N/kg.**

(A) 11.8 N (B) 15.3 N

(C) 19.2 N (D) 21.7 N

27 **You lift a suit case from the floor and keep it on a table. The work done by you on the suit case does not depend on**

(A) path taken by suit case.

(B) time taken in doing the work.

(C) weight of suit case.

(D) both (A) and (B).

Space for Rough work

28 **A motor cycle and a car are moving on a horizontal road with the same velocity. If they are brought to rest by the application of brakes, which provided equal retardation, then**

(A) motor cycle will stop at shorter distance.

(B) car will stop at a shorter distance.

(C) both will stop at the same distance.

(D) nothing can be predicted.

29 **Acceleration due to gravity on moon is 1.6 m/sec^2. An inflated balloon is released on moon. It will**

(A) move down with acceleration 1.6 m/s^2.

(B) move up with acceleration 1.6 m/s^2.

(C) move up with acceleration 9.8 m/s^2.

(D) move down with acceleration 9.8 m/s^2.

30 **A student of mass 60 kg takes 10 s to climb a flight of stairs that has 20 steps. The height of each step is 15 cm, calculate the power of the student.**

(A) 110 W (B) 130 W

(C) 150 W (D) 180 W

Space for Rough work

31 **The gravitational attraction between the two bodies increases when their masses are**

(A) reduced and distance is reduced.

(B) increased and distance is reduced.

(C) reduced and distance is increased.

(D) increased and distance is increased.

32 **A cricket ball of mass 250 g collides with a bat with a velocity 10 m/s and returns with same velocity within 0.01 sec. The force acting on bat is**

(A) 25 N (B) 50 N

(C) 250 N (D) 500 N

33 **A particle starts from rest and travels a distance s with uniform acceleration, then it travels a distance 2s with uniform speed, finally it travels a distance 3s with uniform retardation and comes to rest. If the complete motion of the particle is a straight line then the ratio of its average velocity to maximum velocity is**

(A) 6 / 7 (B) 4 / 5

(C) 3 / 5 (D) 2 / 5

Space for Rough work

34 **Which of the following examples is not related to the concept of inertia ?**

(A) A book remains stationary on a table.

(B) A car passenger jerks forward when the car brakes suddenly.

(C) Coffee spills from a cup when the cup is pushed.

(D) The fragrance of a perfume diffuses into a living room.

35 **When a body is projected vertically up, its P.E. is twice its K.E. when it is at a height h above the ground. At what height will its K.E. be twice the P.E. ?**

(A) 2 h (B) h / 2

(C) h / 6 (D) h / 4

Space for Rough work

36 **Calculate the formula mass of potassium carbonate (K_2CO_3) [Given : Atomic masses: K = 39 u ; C = 12 u ; O = 16 u]**

(A) 112 u (B) 123 u

(C) 138 u (D) 165 u

37 **An unknown compound X (melting point of 130 – 131°C) is mixed with another unknown compound Y (melting point of 130 – 131°C). The mixutre of X and Y is found to melt at 127 – 130°C. What conclusion can be drawn from the result ?**

(A) X and Y are pure.

(B) Either X or Y is impure.

(C) X and Y are the same compound.

(D) X and Y are not the same compound.

Space for Rough work

48 **Which of the following factors will affect the amounts of oxygen and carbon dioxide in a greenhouse on a sunny day ?**

i) **Amount of nitrogen gas in the air.**

ii) **Amount of water vapour in the air.**

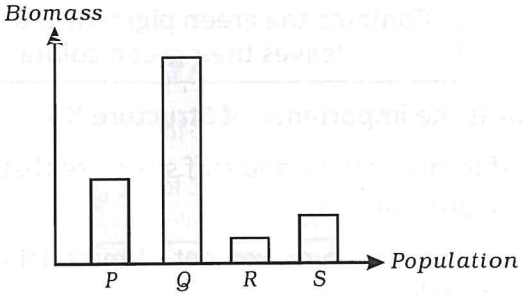
iii) **Number of plants in the greenhouse.**

iv) **Amount of sunlight received by the plants.**

(A) i and ii only (B) iii and iv only

(C) i, iii and iv only (D) i, ii, iii and iv

49 **The bar graph below shows the biomass of populations P, Q, R and S in a food chain.**



Based on the above bar graph, which of the following food chains shows the possible food relationship of these populations of organisms ?

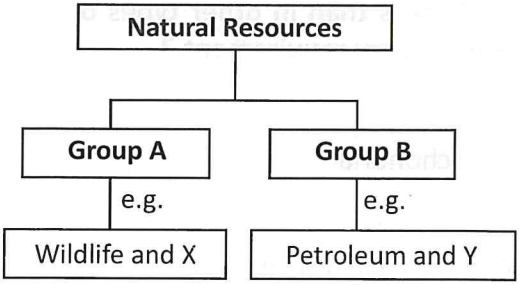
(A) P $\longrightarrow$ S $\longrightarrow$ R $\longrightarrow$ Q

(B) Q $\longrightarrow$ P $\longrightarrow$ S $\longrightarrow$ R

(C) Q $\longrightarrow$ R $\longrightarrow$ S $\longrightarrow$ P

(D) R $\longrightarrow$ S $\longrightarrow$ P $\longrightarrow$ Q

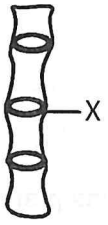
50 **Study the classification chart below**



Identify appropriate heading for Group A, Group B and resources X and Y.

	Group A	Group B	X	Y
(A)	Biodegradable	Non-biodegradable	Weed	Plastic
(B)	Biodegradable	Non-biodegradable	Non-metals	Alloys
(C)	Renewable	Non-renewable	Water	Coal
(D)	Renewable	Non-renewable	Minerals	Oxygen

51 **The diagram shows part of the xylem vessel. What is the substance X prevents the collapse of xylem vessel ?**



(A) Lignin
(B) Cellulose
(C) Starch
(D) Chromosome

52 **Muscle cells require large amounts of energy to function. Which organelle is found in greater number in muscle cells than in other types of cells because of this large energy requirement ?**

(A) Lysosomes

(B) Mitochondria

(C) Golgi complex

(D) Endoplasmic reticulum

53 **Which organelle modifies proteins before they are either used by the cell or transported out of the cell ?**

(A) Endoplasmic reticulum

(B) Golgi complex

(C) Mitochondrion

(D) Ribosome

54 **Which sequence correctly describes the flow of energy in a ecosystem ?**

(A) Carnivore $\rightarrow$ herbivore $\rightarrow$ plant $\rightarrow$ sun

(B) Carnivore $\rightarrow$ plant $\rightarrow$ herbivore $\rightarrow$ sun

(C) Sun $\rightarrow$ carnivore $\rightarrow$ herbivore $\rightarrow$ plant

(D) Sun $\rightarrow$ plant $\rightarrow$ herbivore $\rightarrow$ carnivore

55 **Which of the following plants structures contain haploid nuclei ?**

(A) Pollen grains (B) Root tip cells

(C) Sieve tubes (D) Xylem vessels

56 **Which statement represents a judgement instead of a fact ?**

(A) My presentation was excellent. I am sure my boss will promote me now.

(B) My presentation was excellent. The clients all told me they liked it.

(C) My presentation was excellent. It won an award from management.

(D) My presentation was excellent. It was cited as such on my peer evaluation.

57 **Blueberries cost more than strawberries.**
Blueberries cost less than raspberries.
Raspberries cost more than strawberries and blueberries.
If the first two statements are true, then the third statement is

(A) true (B) false

(C) uncertain (D) data inadequate

Space for Rough work

58 Choose the option which completes the given word.

AGREEMENT

(A) AGDEEMENT

(B) AGDEMEENT

(C) GADEEMETN

(D) AGEDEMENT

59 There is a flight of 6 steps in a staircase. Karthik can take one or two steps each time when he climbs the staircase. In how many ways can he complete the climbing ?

(A) 11 (B) 13

(C) 15 (D) 12

60 Here are some words translated from artificial language.

gorblflur means fan belt.

pixngorbl means ceiling fan.

arthtusl means tile root.

Which word could mean "ceiling tile" ?

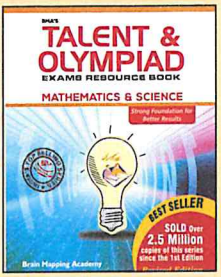
(A) gorbltusl (B) flurgorbl

(C) arthflur (D) pixnarth

Space for Rough work

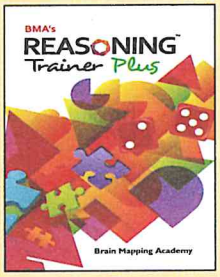
Most Popular Books in India for Academic Excellence

Classes 1 - 10



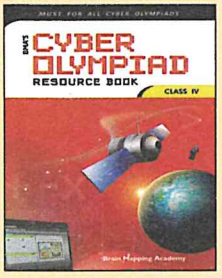
Price range ₹ 110 to 130

Classes 1 - 10



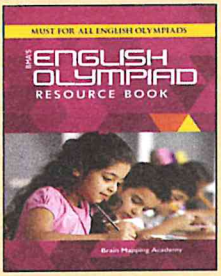
Price range ₹ 100 to 175

Classes 2 - 8



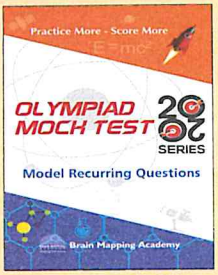
Each class ₹ 150

Classes 1 - 10



Each class ₹ 100

Classes 1 - 10

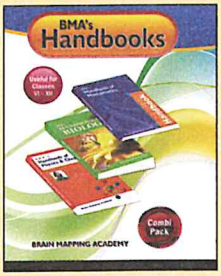


Each class ₹ 100

Classes 3 - 10

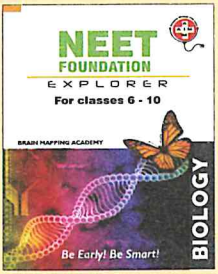
Each book ₹ 175

Combo Pack



₹ 540

Classes 6 - 10



Each class ₹ 200

Classes 6 - 10

Price range ₹ 550-795

Online payment facility is available at www.bmatalent.com ✆ 8142 635 635

UNIQUE 5 STEPS ASSESSMENT™

Get 15% discount on all packages by using the discount coupon code: KR157N

MapmySTEP.com

YOUR OLYMPIAD COACH

India's FIRST scientifically designed portal for Olympiad preparation

- Olympiad & Talent Exams chapter-wise preparation
- Mock Test Packages • Past question papers
- Analysis Reports • Free Demo Packages
- Free Android Mobile App

A unique opportunity to take about 50 tests per subject.