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CLASS 8

Please fill the following details immediately

Name _____

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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	UN487

UCN/QP-8/02

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01 Select the simplest value of

$$\sqrt{10+\sqrt{25+\sqrt{108+\sqrt{154+\sqrt{225}}}}}$$

(A) 4 (B) 6 (C) 8 (D) 10

02 Choose the quotient, if $(x^4 - y^4)$ is divided by $(x + y)$

(A) $(x^3 + x^2y + xy^2 + y^3)$ (B) $(x^3 - x^2y + xy^2 + y^3)$

(C) $(x^3 - x^2y - xy^2 + y^3)$ (D) $(x^3 - x^2y + xy^2 - y^3)$

03 Choose the factor of 12345678998765016.

(A) 6 (B) 8

(C) 24 (D) Options (A), (B) & (C)

04 The difference between the radii of two circles is 7 cm and the difference between the areas is 1078 cm². What is the circumference of the smaller circle ?

(A) 1386 cm² (B) 156 cm

(C) 132 cm (D) 156 cm²

05 If $\frac{x}{x^{1.5}} = 8x^{-2.5}$ and $x > 0$, then select value of x.

(A) 64 (B) $2\sqrt{2}$ (C) 4 (D) $\frac{\sqrt{2}}{4}$

Space for rough work

06 By what number $\left(-\frac{15}{28}\right)$ be multiplied to obtain $\left(\frac{4}{3}\right)$?

(A) $\frac{5}{7}$ (B) $-\frac{5}{7}$

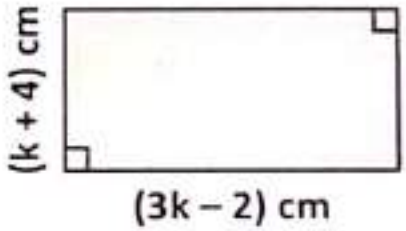
(C) $\left(-\frac{112}{45}\right)$ (D) $\frac{56}{45}$

07 Choose the rational number which lies between $\frac{-1}{4}$ & $\frac{-1}{3}$.

(A) $\frac{-7}{24}$ (B) $\frac{-5}{16}$

(C) $\frac{-13}{48}$ (D) All the above

08 If the perimeter of the given rectangle is 60 cm, then what is k ?



(A) 7 (B) 9 (C) 12 (D) 29

Space for rough work

09 The length of a rectangle exceeds its breadth by 9 cm. If the length and breadth are each increased by 3 cm, the area of the new rectangle will be 84 cm^2 more than that of the original rectangle. What is the perimeter of the original rectangle ?

(A) 50 cm (B) 54 cm

(C) 60 cm (D) 100 cm

10 By selling a bouquet for ₹ 322, a florist gains 15%. At what price should he sell it to gain 25% ?

(A) ₹ 280 (B) ₹ 350

(C) ₹ 420 (D) ₹ 480

11 Find the compound interest on ₹ 31250 at 8% per annum for $2\frac{3}{4}$ years.

(A) ₹ 38,637 (B) ₹7648

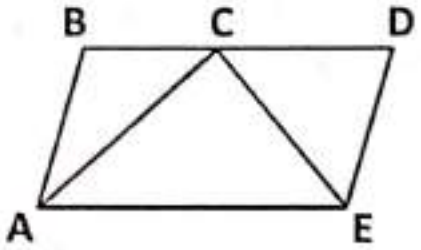
(C) ₹6478 (D) ₹7387

Space for rough work

15 What is the least number should be added to 18670918 to make a perfect square ?

(A) 123 (B) 213 (C) 313 (D) 303

16 In the figure, BD || AE and $\angle BCA = \angle DCE$. If $\overline{CE} = 3$ cm, what is the length of $\overline{AC}$?



(A) 4 cm (B) $3\sqrt{3}$ cm

(C) 3 cm (D) 5 cm

17 What is the simplified form of $\dfrac{\left(x^{a+b}\right)^3\left(x^{b+c}\right)^3\left(x^{c+a}\right)^3}{\left(x^a x^b x^c\right)^6}$?

(A) 0 (B) 1

(C) x^{a+b+c} (D) x

18 The base circumference of a cylinder is 220 cm and its height is 63 cm. What is the volume of the cylinder ?

(A) 2,10,496 cm^3 (B) 1,96,468 cm^3

(C) 2,42,550 cm^3 (D) 2,08,448 cm^3

Space for rough work

19 If $a^{x-1} = bc$, then choose the equal of 'a'

(A) $(abc)^x$ (B) $(abc)^{\frac{1}{2}}$

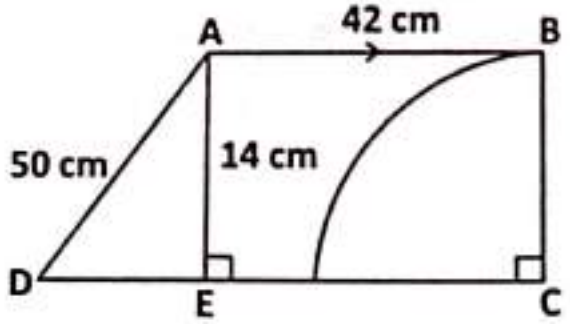
(C) $(abc)^{-x}$ (D) $(abc)^{-\frac{1}{2}}$

20 Select the result of $\left(a^{\frac{1}{3}}+b^{\frac{1}{3}}\right)\left(a^{\frac{2}{3}}-a^{\frac{1}{3}}b^{\frac{1}{3}}+b^{\frac{2}{3}}\right)$

(A) $(a - b)$ (B) $\left(a^{-\frac{2}{3}}+b^{-\frac{2}{3}}\right)$

(C) $\left(a^{\frac{-3}{2}}-b^{\frac{-3}{2}}\right)$ (D) $(a + b)$

21 In the figure ABCD is a trapezium of AB||DC and $\angle C = 90°$. A quarter circle of 'C' as centre and BC as radius removed. Choose the remaining area of the trapezium ABCD



(A) 660 cm^2 (B) 770 cm^2

(C) 696 cm^2 (D) 594 cm^2

22 What is the value of 'x' in the given equation

$$\left(\frac{9x+4}{x+6}\right) = \left(\frac{18x-4}{2x+9}\right)?$$

(A) 4 (B) 3 (C) –2 (D) –5

23 In a certain experiment the count of bacteria was increasing at the rate of 2.5% per hour. At present the bacteria is 5,37,920. What was the count of bacteria 2 hours ago ?

(A) 5,00,000 (B) 5,08,496

(C) 5,12,000 (D) 4,96,800

24 Choose the option which is equal to $(87654322)^2 - (12345678)^2$

(A) 7549654000000 (B) 123456789876543 21

(C) 7530864400000000 (D) 123456778897643 21

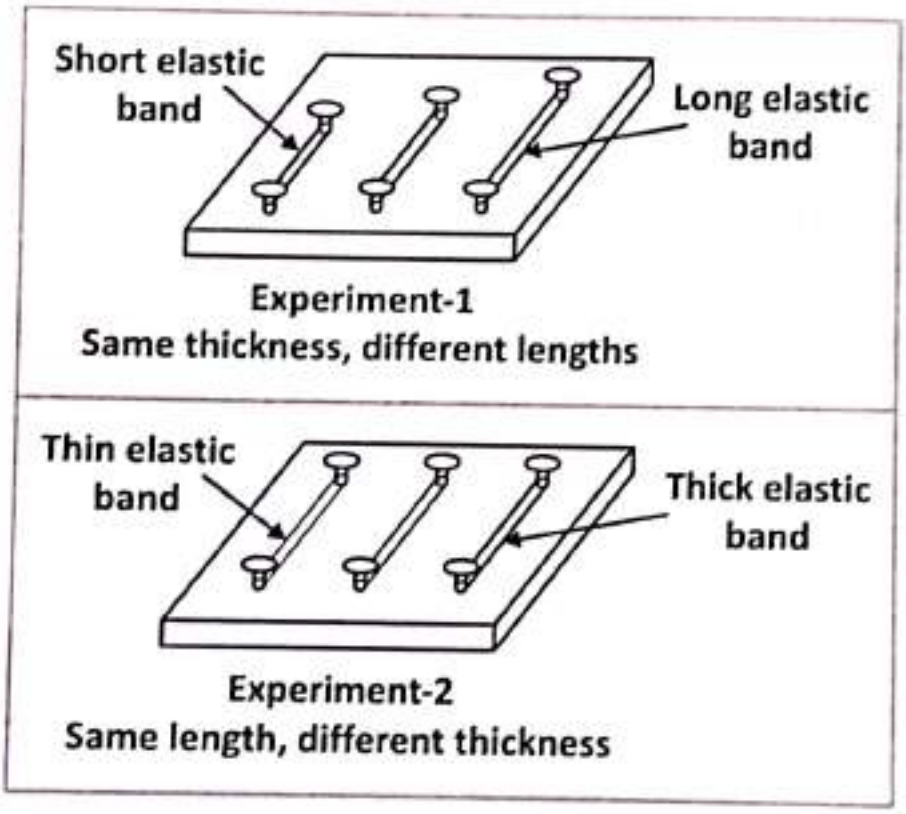
25 In a quadrilateral the four angles are equal. What is each equal angle ?

(A) 45° (B) 90° (C) 60° (D) 100°

Space for rough work

26 A student carried out two experiments to investigate the sounds produced by vibrating various elastic bands. In one experiment, the length of the elastic band is changed but the thickness is kept the same.

In the other experiment, the thickness of the elastic band was varied but the length has been kept the same (see diagrams).

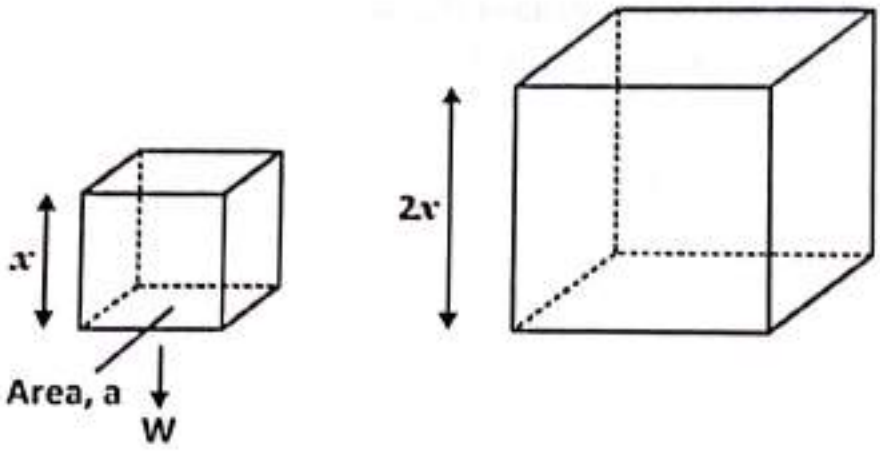


Space for rough work

Which of these conclusions would you expect from both the experiments ?

	Experiment 1	Experiment 2
(A)	The longer the length of rubber band, the lower is the pitch.	The shorter and thicker the rubber band, the higher is the pitch.
(B)	The shorter the length of rubber band, the higher is the pitch.	The thicker the rubber band, the higher is the pitch.
(C)	The longer the length of rubber band, the higher is the pitch.	The thinner the rubber band, the lower is the pitch.
(D)	The shorter the length of rubber band, the lower is the pitch.	The thicker the rubber band, the lower is the pitch.

27 Two cubes are made from the same material. One cube has sides that are twice as long as the other.



Standing on one face, the small cube exerts a pressure $p = \frac{W}{a}$ where a is the area of the face.

What is the pressure exerted by the larger cube standing on one of its faces ?

(A) 2 p (B) 4 p

(C) 8 p (D) 16 p

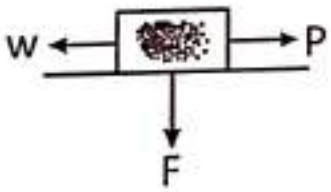
28 Read and complete the following sentences by choosing correct words.

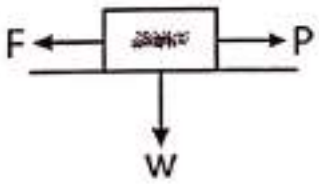
When lightning occurs there is an _____ (i) _____. It can occur between two or more (ii) _____ and the (iii) _____.

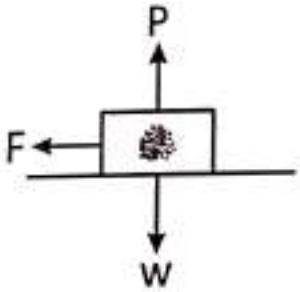
	(i)	(ii)	(iii)
(A)	electric charge	clouds	trees
(B)	electric discharge	metals	sky
(C)	electrical conduction	environment	earth
(D)	electric discharge	clouds	earth

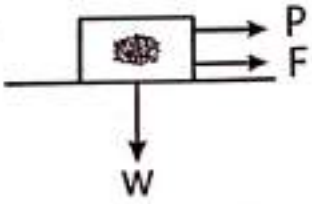
29 An object of weight *w* is pulled along a rough, horizontal surface by a force P. The force of friction is F.

Which diagram correctly shows the direction of these forces on the object ?

(A) 

(B) 

(C) 

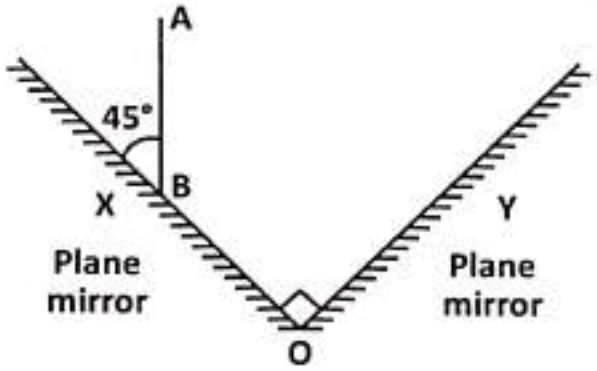
(D) 

Space for rough work

30 **In which electrolysis experiment would there be no change in the concentration of the solution ?**

	Electrolysis	Electrodes
(A)	Aqueous copper(II) sulphate	Copper
(B)	Aqueous copper(II) sulphate	Carbon
(C)	Concentrated aqueous sodium chloride	Carbon
(D)	Dilute sulphuric acid	Platinum

31 **Two plane mirrors X and Y are placed at right angles to one another. A ray of light AB hits mirror X at an angle of 45° as shown below.**



This ray will be reflected from mirror Y at an angle.

(A) 20° (B) 35°

(C) 45° (D) 60°

Space for rough work

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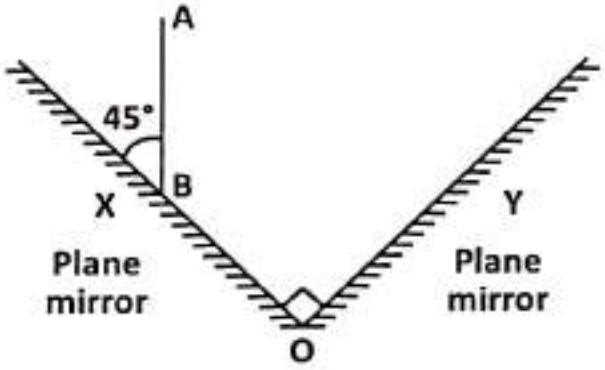


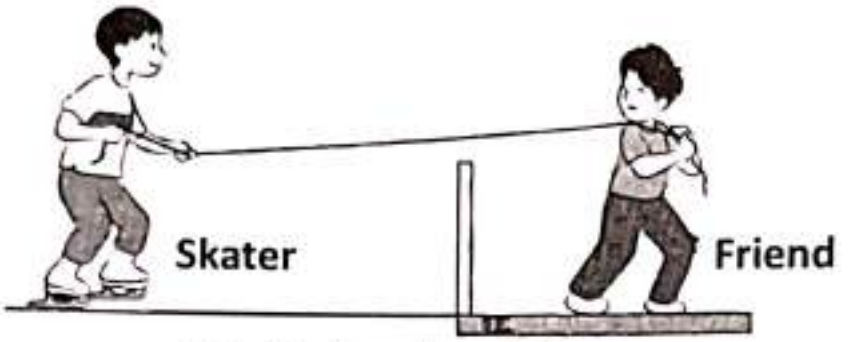
This ray will be reflected from mirror Y at an angle.

(A) 20° (B) 35°

(C) 45° (D) 60°

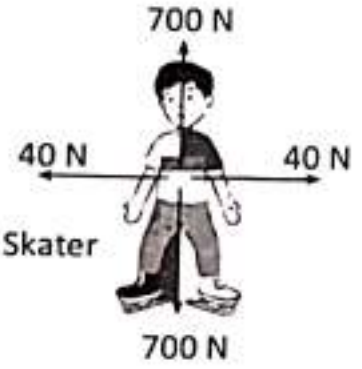
Space for rough work

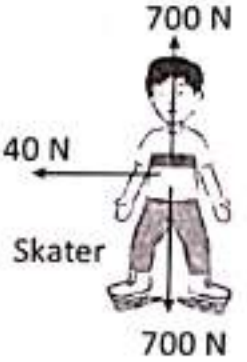
32 A skater standing on a frictionless ice rink weighs 700 N. A rope tied to the skater is held by his friend standing at the side of the rink.

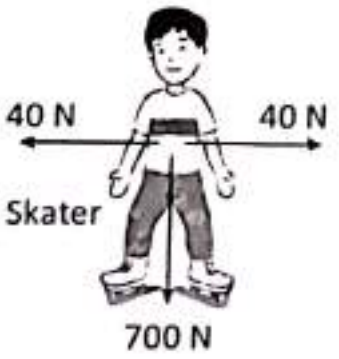


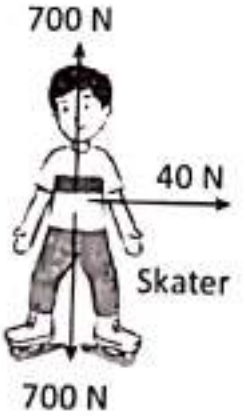
Frictionless ice rink

His friend pulls the rope with a force of 40 N towards the side of the rink. Which diagram most accurately shows the forces acting on the skater ?

(A)


(B)


(C)


(D)


33 **If plus sign (+) denotes the positive electrode and minus sign (–) denotes the negative electrode, then which option is correct for an iron spoon to be copper plated ?**

(A) Iron spoon (+), copper plate (–), Iron sulphate electrolyte

(B) Iron spoon (–), copper (+), Iron sulphate electrolyte

(C) Copper plate (–), Iron spoon (+), Copper sulphate electrolyte

(D) Copper plate (+) Iron spoon (–), Copper sulphate electrolyte

34 **Roller–skating is a sport of moving on surfaces with roller–skates.**

We move faster on roller–skater than on shoes as they

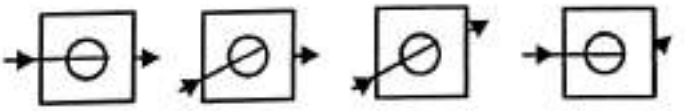
(A) have rollers to reduce friction.

(B) have more surface in contact with ground.

(C) have no gravitational force.

(D) absorb heat from the ground.

35 **Rays of light passing through the holes in four cardboards is shown below.**



1 2 3 4

Which of the given diagrams shows the correct direction of light passing through the holes of cardboards ?

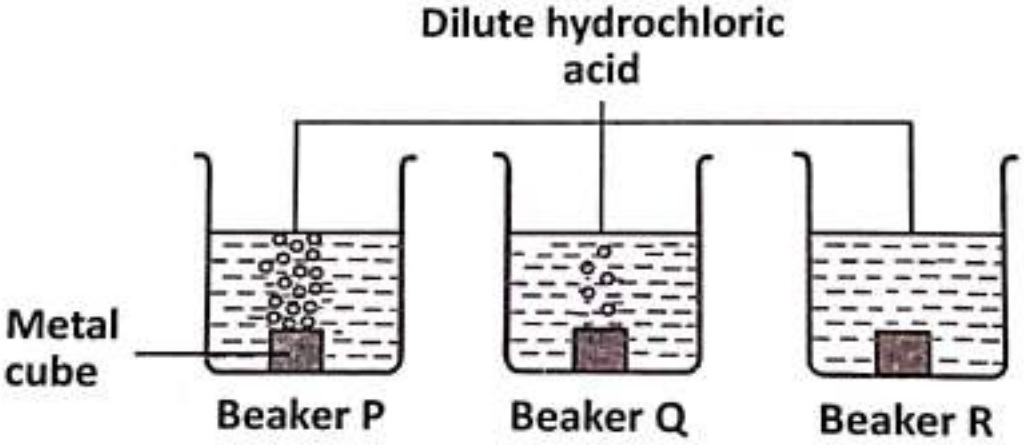
(A) 1 and 2 (B) 2 and 3

(C) 1 and 3 (D) 3 and 4

36 X is an Inexhaustible natural resource which is found in Y quantity in nature and Z is not likely to get exhausted by human activities. What are X, Y and Z ?

	X	Y	Z
(A)	Coal	Limited	Always
(B)	Air	Limited	Most
(C)	Sunlight	Unlimited	Never
(D)	Petroleum	Unlimited	Never

37 Different metal cubes of the same size each were dropped into beakers containing dilute hydrochloric acid.



What are the possible identities of the metal cubes in the beakers P, Q and R ?

	Beaker P	Beaker Q	Beaker R
(A)	Mg	Fe	Cu
(B)	Na	K	Pb
(C)	Pb	Mg	Ag
(D)	Zn	Al	Au

38 Read the passage given below.

The amount of heat energy produced on (i) combustion of 1 kg of a fuel is called its (ii). It is expressed in units of (iii). Fuels like wood and coal release unburnt (iv) particles which are pollutants and cause many respiratory diseases such as (v). Identify a correct option.

	(i)	(ii)	(iii)	(iv)	(v)
(A)	Incomplete	Ignition value	J	Carbon dioxide	Bronchitis
(B)	Partial	Ignition temp.	J/kg	Carbon monoxide	Asthma
(C)	Complete	Calorific value	kJ/kg	Carbon	Asthma
(D)	Partial	Calorific value	J/kg	Carbon	Bronchitis

39 Some statements are given below.

(I) Teflon is used to make the windscreen wipers of cars because it has low friction.

(II) Nylon is used to make ropes for rock climbing because it is very strong.

(III) Bakelite is used for making electric plugs, switches etc. as it is a good conductor.

(IV) Dusters made up of nylon or other synthetic materials as they are good for use in kitchen as they are soft.

(V) Blended fabrics are long lasting as they contain only synthetic fibres.

Identify correct statements.

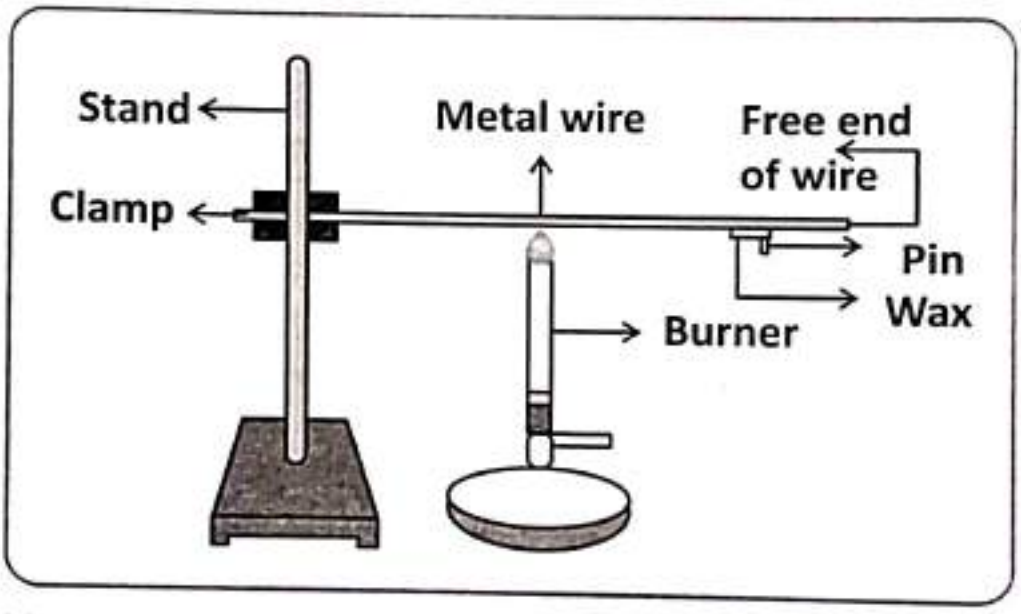
(A) (III), (IV) and (V) only

(B) (I) and (II) only

(C) (II), (III) and (IV) only

(D) (II), (IV) and (V) only

40 **Observe the diagram given below along with the statements.**



(i) Metals are good conductors of heat.

(ii) Metals have high melting points.

(iii) The best conductors of heat are lead and mercury.

(iv) Silver and copper are comparatively poor conductors of heat.

Which of the above statements are correct ?

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

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

41 Given below are some fuels.

Group P (natural), Group Q (processed), Group R (fossil)

(I)	Coal	(II)	Wood		
(III)	Natural gas	(IV)	Petroleum		
(V)	Kerosene	(VI)	LPG		
(VII)	Coke	(VIII)	Cowdung cake		
(IX)	Petrol	(X)	Diesel	(XI)	Biogas

Identify the fuels of groups P, Q and R respectively.

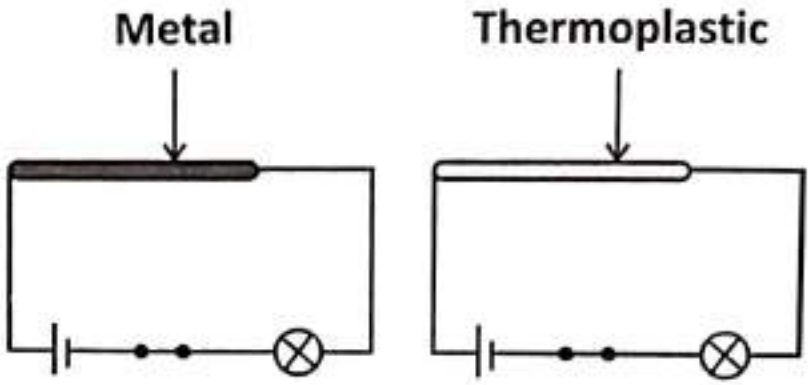
	Group P	Group Q	Group R
(A)	I, II, VIII	III, IV, X	II, IV, IX
(B)	I, II, III, IV, V	VI, VIII, X	III, IV
(C)	II, III, V	VI, VIII, X	III, IV, XI
(D)	I, II, III, VIII	V, VI, VII, IX	I, III, IV

42 Identify a highly reactive metal X and Y a lustrous non-metal.

	X	Y
(A)	Magnesium	Sulphur
(B)	Non-metal	Non-metal
(C)	Sodium	Iodine
(D)	Sodium	Graphite

Space for rough work

43 **Observe the figures given below.**



Identify a correct statement from the following.

(A) Both metal and thermoplastic are good conductors of electricity.

(B) Both metal and thermoplastic are poor conductors of electricity.

(C) Metal good conductors of electricity, thermoplastic poor conductor of electricity.

(D) All solids are poor conductors of electricity.

44 **Match the following columns with respect to the flame of a burning candle.**

Column I (Part)	Column II (Zone)	Column III (Colour)
P. Hottest part	(i) Innermost zone of unburnt wax vapours	(x) Blue
Q. Moderately hot part	(ii) Middle zone of partial combustion	(y) Black
R. Least hot part	(iii) Outermost zone of complete combustion	(z) Yellow

Identify a correct part, zone and colour of a burning candle flame.

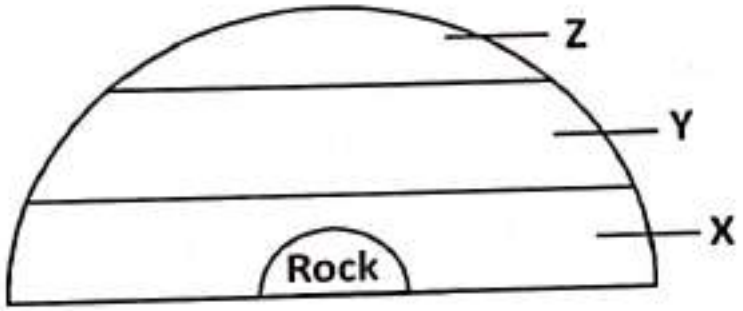
(A) P – (iii), (y); Q – (i), (z); R – (ii), (x)

(B) P – (ii), (x); Q – (iii), (y); R – (i), (z)

(C) P – (iii), (x); Q – (ii), (z); R – (i), (y)

(D) P – (i), (z); Q – (iii), (x); R – (ii), (y)

45 Fossil fuels like petroleum and natural gas along with water are often found together as large deposits deep inside the earth as shown below.



What are X, Y, and Z ?

	X	Y	Z
(A)	Water	Crude oil	Natural gas
(B)	Water	Natural gas	Crude oil
(C)	Crude oil	Water	Natural gas
(D)	Natural gas	Water	Crude oil

Space for rough work

46 Which of these when used in farming causes soil and water pollution ?

(A) Compost (B) Vermicompost

(C) Fertilizer (D) Manure

47 Identify the disease that is described in the passage given below.

It is fatal disease caused by a parasite that commonly shows symptoms of high fever, shaking, chills and flu like illness.

(A) Cholera (B) Malaria

(C) Filariasis (D) Hepatitis B

48 Read the description given below.

The totality of genes, species and ecosystems of a region

Identify the term suitable to the given description.

(A) Biosphere reserve (B) Biodiversity

(C) Bio–conservation (D) Bio–community

Space for rough work

49 **Why offspring of viviparous animals survive better than offspring of oviparous animals ?**

(A) Embryo develops completely.

(B) Progenies have bigger sizes.

(C) Genetic variations occur.

(D) Proper embryonic care and protection is present.

50 **Where does the fusion of male and female gametes in human beings usually take place ?**

(A) Uterus (B) Vagina

(C) Ovary (D) Fallopian tube

51 **How does bacteria help in cleaning the environment ?**

(A) By eating up toxic chemicals only

(B) By eating up plastics only

(C) By eating up organic waste materials only

(D) All of the above

52 **How are plastids different from mitochondria ?**

(A) Presence of ribosome

(B) Presence of DNA

(C) Presence of thylakoids

(D) Presence of two layers of membrane

Space for rough work

53 'X' is a reproductive cell that is produced in ovary and Y is a reproductive cell that is produced in testes. Identify X and Y.

	X	Y
(A)	Sperm	Ovum
(B)	Ovum	Sperm
(C)	Zygote	Foetus
(D)	Embryo	Egg

54 What is the cell formed after fertilization known as ?

(A) Foetus (B) Embryo

(C) Zygote (D) None of the above

55 How can nitrogen be replenished in soil naturally ?

(A) Using vermicompost

(B) By using weedicides

(C) By crop rotation with a leguminous crop

(D) By using fertilizers in large amounts

Space for rough work

56 In this question a statement is given followed by two conclusions that can be derived from the statement either directly or indirectly or may not be derived. Which conclusion (s) follow (s) from the statement ?

Statement: One of the prime ministers of India said, "Wastage of anything is crime. Wastage of food is double crime."

Conclusions:

I. The issue of food wastage is of high importance to fight hunger, raise income and improve food security in India.

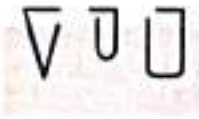
II. Food wastage is morally wrong because there are many people who are hungry simply because they have no food.

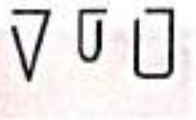
(A) only I follows (B) only II follows

(C) Both I & II follows (D) Neither I nor II follows.

57 Three paper clips are attached to a paper is given below. Which option shows the back side of the paper ?

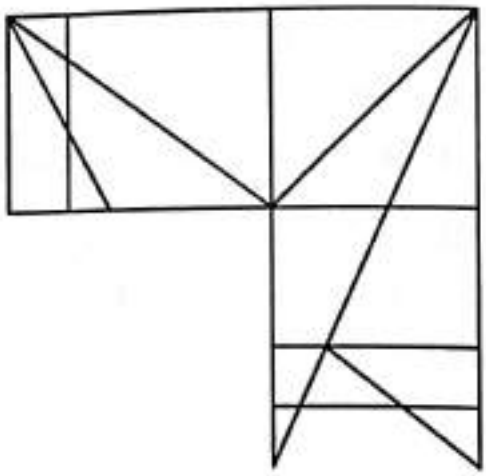
(A) 

(B) 

(C) 

(D) 

58 How many right - angled triangles are there in the given image ?



(A) 20 (B) 18

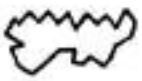
(C) 15 (D) 22

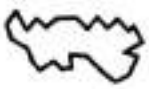
59 The day after the day after tomorrow is four days before Monday. What day is it today ?

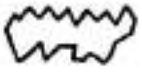
(A) Sunday (B) Monday

(C) Friday (D) Saturday

60 An egg is broken into three pieces. Shown are two of the pieces. Identify the third piece that completes the egg shell

(A) 

(B) 

(C) 

(D)