IMPORTANT INSTRUCTIONS

- The maximum marks are 300. Time allotted is **90 MINUTES.**
- There are five sections in the question paper having total **75 questions:**
  - Section – A : Maths (20 Questions)
  - Section – B : Science (20 Questions)
  - Section – C : English (15 Questions)
  - Section – D : Aptitude (10 Questions)
  - Section – E : General Knowledge (10 Questions)
- Each question carries **4 marks.**
- **Negative Marking : ¼ (One-fourth) mark** will be deducted for every incorrect answer.
- **Use only BLUE / BLACK ball pen to fill the circles in bubble sheet.**
- Use of PENCIL is strictly **not allowed.**
- **Do not use marker or white fluid** to hide the mark.

SECTION – A
MATHS

Choose the correct option.

1) Mr. Anil had a balance of ₹ 11700 in his account. He deposited amount of ₹ 1925, ₹ 3380, ₹ 4000 on different days of a month and withdraw ₹ 2500, ₹ 5850, ₹ 1000 also. What is his final balance (in ₹) at the end of the month?
   a) 11700 b) 11655 c) -2000 d) -2050

2) The equivalent form of 0.000000748 is
   a) 748×10^{-6} b) 74.8×10^{-7} c) 7.48×10^{-7} d) 0.748×10^{-9}

3) If A and B are in the ratio 4 : 5 and the difference of their squares is 81. Then, find the value of A?
   a) 36 b) 15 c) 45 d) 12

4) Pick the odd one out.
   a) $\frac{2}{3} \times \left(\frac{1}{2} - \frac{1}{4}\right) = \frac{2}{3} \times \frac{1}{2} - \frac{2}{3} \times \frac{1}{4}$
   b) $\frac{4}{5} \times \left(\frac{2}{3} - \frac{2}{7}\right) = \frac{4}{5} \times \frac{2}{3} + \frac{4}{5} \times \frac{-2}{7}$
   c) $\frac{7}{9} \times \left(\frac{-7}{11} + \frac{2}{11}\right) = \frac{7}{9} \times \frac{2}{11} + \frac{7}{9} \times \frac{-7}{11}$
   d) $\frac{3}{5} \times \left(\frac{3}{7} - \frac{2}{5}\right) = \frac{3}{5} \times \frac{3}{7} + \frac{3}{5} \times \frac{2}{-5}$

5) The cost price of a TV set is ₹ 48000. It was sold at a profit of 15%. What is the profit earned?
   a) ₹ 4800 b) ₹ 3600 c) ₹ 6000 d) ₹ 7200

6) 1600 pupils attended a concert. 5% of the pupils were late for the concert. How many pupils were punctual for the concert?
   a) 1220 b) 1440 c) 1520 d) 80

7) Harsha lends ₹ 300 to Supriya at 4% and ₹ 600 to Rashmi at 6% for the same time. If the total amount she gets at the end is ₹ 1092. What is the time?

a) 12 years b) 7 years c) 3 years d) 4 years

8) Mr. Xen asked two of his students to solve the expression $\left(\frac{24a^3b^{-8}}{6a^{-5}b^2}\right)^{\frac{-1}{2}}$ and write the answer on blackboard. Andy wrote the answer as $2a^{-4}b^5$, Whereas Zuck wrote the answer as $\frac{4b^5}{a^4}$. Who wrote the correct answer?

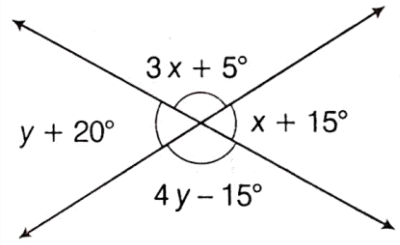
a) Andy b) Zuck c) Both of them d) None of these

9) Hari's father's age is 7 yr more than four times Hari's age. Hari's father's age is 47 yr old. Form an equation to find Hari's age, if Hari's age is x year old.

a) $4x + 7 = 47$ b) $2x + 7 = 47$ c) $3x + 1 = 47$ d) $4x + 47 = 7$

10) What are the values of x and y in the given (fig. 1)?

a) $\angle x = 40°, \angle y = 75°$
b) $\angle x = 20°, \angle y = 35°$
c) $\angle x = 40°, \angle y = 35°$
d) None of the above



(fig. 1)

11) A train is moving at a speed of $\frac{2024}{15}$ km/h. How much distance will it cover in $\frac{25}{4}h$?

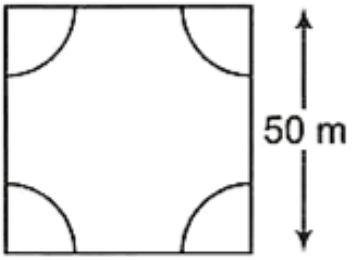
a) $\frac{2530}{3}$ km b) 2560 km c) $\frac{2560}{15}$ km d) None of these

12) Find the values of x, if the mode of the following data is 40
40, 28, 30, 40, 28, 25, 14, 25, 25, 26, 30, 40, 30, x, 28

a) 36 b) 40 c) 35 d) 25

13) A square park has each side 50 m. At each corner of the park, there is a flower bed in the form of a quadrant of radius 7 m, as shown in the (fig. 2). Find the area of remaining part of the park.

a) 2346 sq mtr
b) 2340 sq mtr
c) 2250 sq mtr
d) 2155 sq mtr



(fig. 2)

14) If the mean age of combined group of boys and girls is 18 yr and the mean of age of boys is 20 and that of girls is 16, then what is the percentage of boys in the group?

a) 60% b) 50% c) 45% d) 40%

15) An elevator descends at a speed of 1 floor/sec. If Mohan takes the elevator from 24th floor of a multistoried building to reach to the 3rd basement of parking, then how much time will he take?

a) 27 sec b) 24 sec c) 21 sec d) 18 sec

16) A man purchases a certain number of apples at 3 per rupee and the same number of apples at 4 per rupee. He mixes them together and sells them at 3 per rupee. What is the gain or loss percent?

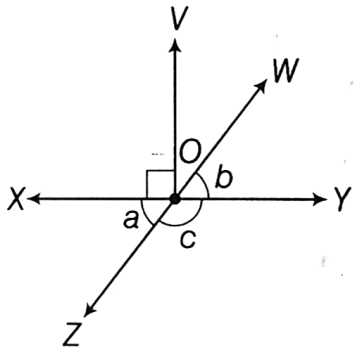
a) Gain%, $14\frac{2}{7}$% b) Loss%, 15% c) Gain%, 20% d) Loss%, $14\frac{2}{7}$%

17) If 6A = 4B = 9C what is A : B : C?

a) 6 : 4 : 9 b) 9 : 4 : 6 c) 4 : 9 : 6 d) 6 : 9 : 4

18) In the given (fig. 3), lines XY and WZ intersect at O. If $\angle XOV = 90°$ and c : b = 7 : 3, then the measure of $\angle a$ is

a) 46°
b) 54°
c) 64°
d) 66°



(fig. 3)

19) If $a^x = b^y = c^z$ and $abc = 1$, then what is the value of $xy + yz + zx$?

a) 1 b) 3 c) 0 d) 5

20) In the population of 1000,640 are males. Find the percentage of female.

a) 36% b) 40% c) 32% d) 48%

SECTION – B
SCIENCE

21) Read the given statements and select the correct option.

Statement 1: The digested food is absorbed mainly in the small intestine.

Statement 2: The inner wall of small intestine contains numerous finger-like projections called villi.

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.

22) Raghav categorized the following household items into acids and bases.

	Acids		**Bases**
1.	Lemon	4.	Baking soda
2.	Antacid	5.	Vinegar
3.	Tea	6.	Curd

Which of them are placed under the wrong category?

a) 3 and 5 only b) 2 and 6 only
c) 3, 4 and 5 only d) 2, 5 and 6 only

23) Which of the following do not represent that a chemical change is taking place?

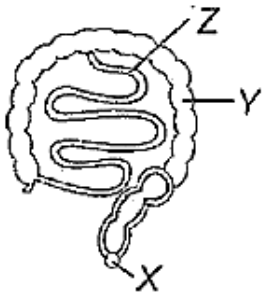
I) A gas is produced.
II) Precipitate is formed.
III) State of a substance changes
IV) A new odour is produced.
V) Shape of a substance changes

a) I) and V) only b) I) and IV) only
c) II), III) and V) only d) III) and V) only

24) Which of the following is the correct path of oxygen in humans during inhalation?
   a) Nostrils → Nasal Cavity → Pharynx → Trachea → Bronchi → Bronchiole → Alveoli
   b) Nostrils → Nasal Cavity → Trachea → Pharynx→ Bronchi→ Bronchiole → Alveoli
   c) Nostrils → Nasal Cavity → Pharynx → Trachea→ Alveoli→ Bronchi → Bronchiole
   d) Nostrils → Nasal Cavity → Pharynx → Bronchi→ Trachea→ Bronchiole → Alveoli

25) Read the given statements and select the correct option.
   Statement 1: Doctors use the urine test to diagnose some diseases in the body.
   Statement 2: An examination of urine tells a lot about whether various organs in the body are functioning normally or not.
   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.

26) **Direction :** Refer to the given diagram showing in (fig. 4) a part of human alimentary canal and answer the questions.
   Which of the following statement(s) is/are correct for the structure labelled as Z?
   a) Absorption of digested food takes place here.
   b) The undigested food is passed out to the structure Y.
   c) It has very large surface area due to presence of numerous villi.
   d) All of these.



(fig. 4)

27) Which of the following statements are correct?
   I) The tangy taste of cola drinks is due to carbonic acid which is an organic acid.
   II) Inorganic acids are prepared artificially in the industries and are extremely corrosive.
   III) Hydrochloric acid reacts with metals to varying degrees therefore, it is stored in glass bottles.
   IV) Organic acids are weak acids and are used as food supplements.
   a) I), II) and III) only
   b) I) and IV) only
   c) II) and IV) only
   d) I) II) III) and IV)

28) In a pressure-kerosene stove,
   (i) We pump kerosene and convert it into vapours.
   (ii) The vapours are then ignited.
   Which of the following is true about the above statements?
   a) (i) is a chemical change; (ii) is a physical change.
   b) (i) is a physical change; (ii) is a chemical change.
   c) Both (i) and (ii) are physical changes.
   d) Both (i) and (ii) are chemical changes.

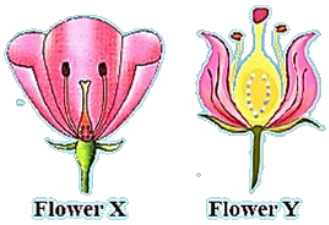
29) When a person breathes in, what happens to the diaphragm and to the rib cage?
   Which of the following statement is correct?
   a) Diaphragm Becomes flatten and Rib cage Moves downwards and inwards
   b) Diaphragm Becomes flatten and Rib cage Moves outwards and upwards
   c) Diaphragm Becomes more curved and Rib cage Moves downwards and inwards
   d) Diaphragm Becomes more curved and Rib cage Moves outwards and upwards

30) Pulmonary _____ carries _____ rich blood from the heart to the lungs and pulmonary _____ carries _____ rich blood from the lungs to the heart.
Select the option that correctly fills up the blank spaces in the above passage.

a) Vein, Carbon dioxide, Artery, Oxygen
b) Vein, Oxygen, Artery, Carbon dioxide
c) Artery, Carbon dioxide, Vein, Oxygen
d) Artery, Oxygen, Vein, Carbon dioxide

31) Study the given diagrams showing in (fig. 5) the cross-section of two flowers. Which of the following statements is/are correct regarding them?

(i) Plants of these flowers have developed from seeds.
(ii) Flower X is a female flower and flower Y is a bisexual flower.
(iii) Fertilisation can take place in both flowers.



(fig. 5)

a) (i) only
b) (ii) only
c) (i) and (iii) only
d) (i), (ii) and (iii)

32) Which of the following moving cars, has an average acceleration of 2.0 m s^{-2}?

a) A car reaching a speed of 10 m s^{-1} in 2 s.
b) A car reaching a speed of 20 m s^{-1} in 5 s.
c) A car reaching a speed of 30 m s^{-1} in 10 s.
d) A car reaching a speed of 40 m s^{-1} in 20 s.

33) A fuse wire is made up of alloy

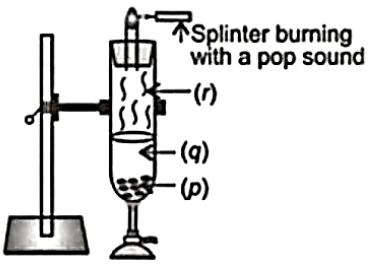
a) Nichrome
b) Tin-lead
c) Manganin
d) Constantan

34) Ishaan tested the nature of a few common substances with different indicators and recorded his observations as follows:
Substance P turned methyl orange yellow Substance Q turned phenolphthalein colourless.
Substance R did not have any effect on blue or red litmus.
Substance S turned China rose indicator green.
P, Q, R and S could be respectively

a) Lemon juice, fermented milk, salt solution and milk of magnesia
b) Sugar solution, vinegar, water and curd
c) Lime water, apple juice, sugar solution and saliva
d) None of these

35) Observe the given (fig. 6) carefully and identify the substances marked as (p), (q) and (r).

	(p)	**(q)**	**(r)**
a)	Zinc	Water	Carbon dioxide
b)	Magnesium	Hydrochloric acid	Oxygen
c)	Magnesium	Water	Carbon dioxide
d)	Zinc	Hydrochloric acid	Hydrogen



(fig. 6)

36) Read the given paragraph.
Sometimes, during strenuous activity such as long distance running, your body cannot get enough **(i)** to produce the required energy. To get the additional energy, **(ii)** to respiration occurs within your muscle cells. In this process, there is partial breakdown of **(iii)** to produce **(iv)**, the accumulation of which in the body causes **(v)**.
Complete the above paragraph by selecting the correct sequence of words.

a) Food, Aerobic, Starch, Uric acid, Uremia
b) Carbon dioxide, Anaerobic, Protein, Lactic acid, Bone cramps
c) Oxygen, Aerobic, Fructose, Hydrochloric acid, Muscular cramps
d) Oxygen, Anaerobic, Glucose, Lactic acid, Muscular cramps

37) Read the following statements.

(i) _____ tissue is involved in transportation of food in plants.

(ii) Transpiration produces a _____ pull in the plant that causes the water to move upwards.

(iii) _____ is the loss of water from leaves and other aerial parts of a plant.

(iv) _____ are known as soldiers of the body.

Select the option that correctly fills up the blanks in any two of the statements.

a) (i)-Phloem; (iii)- Transpiration b) (ii)-Suction; (iv)-Platelets

c) (i)-Xylem; (iv)-Leucocytes d) (iii)-Transpiration; (iv)- Plasma

38) Refer to the given (fig. 7) and select the correct statement(s).

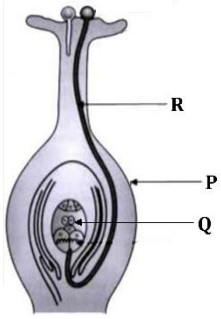
i) The part labelled as P give rise to fruit.

ii) The part labelled as R is responsible for transfer of female gamete.

iii) The part labelled as Q transforms into endosperm.

iv) The part labelled as Q is female gamete.

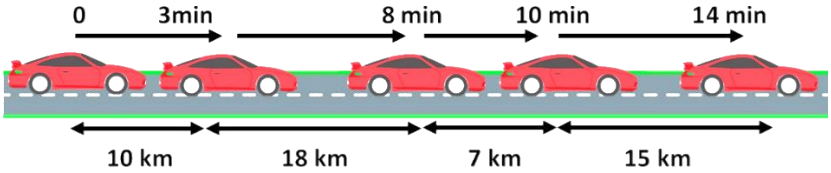
v) The part labelled as R carries pollen.



(fig. 7)

a) i) only b) i), iii) and v) only c) iii) and iv) only d) ii) and v) only

39) A car follows the given path as shown in (fig. 8). What will be average speed of the car?



(fig. 8)

a) 1.25 km h^{-1} b) 33.33 km h^{-1} c) 214.28 km h^{-1} d) 48 km h^{-1}

40) The diagram in the given (fig. 9) shows some passengers sitting in the moving bus and a person standing outside, a tree and a house. With reference to the diagram, choose the correct option.



(fig. 9)

(i) For a passenger sitting within the bus, the tree and house appear to be moving in backward direction relative to a co-passenger.

(ii) For a person standing on the road, the bus seems to be moving in the forward direction relative to tree and house.

(iii) For a passenger sitting within the bus, a person standing on the road seems to be moving in forward direction relative to a co-passenger.

a) Only (i) and (ii) b) Only (ii) and (iii) c) Only (i) and (iii) d) All (i), (ii) and (iii)

SECTION – C
ENGLISH

Read the text and answer the questions that follow.

Japan is an island nation located in the Pacific Ocean. It is known as the land of the rising sun because the characters that make up its name mean 'sun-origin'. It is technologically very advanced and is very famous for Shinkansen. In English, they are known as 'bullet trains'.

However, the literal translation means new trunk line. Bullet trains are high speed passenger rail trains. The term 'bullet' is due to the pointed nose of the train that is like that of a bullet along with its sleek and aerodynamic appearance.

These trains are operated by Japan Railways. Running at speeds of up to 320 kilometres per hour, the Shinkansen is known for punctuality, comfort, safety and efficiency. There are two types of coaches Ordinary and the Green car. Both have comfortable chairs facing forward with a generous amount of foot space, although the Green car is more comfortable and offers more leg room. The network consists of multiple lines which have been exclusively built for and used only by the Shinkansen trains. However, the Shinkansen has multiple train categories ranging from the fastest that stops only at major stations to the slowest that stops at every station.

The original service began in 1964, connecting the cities of Tokyo and Osaka. The trains travelled at approximately 125 miles per hour (200 kilometres per hour) making the journey time between the two cities at about 2.5 hours.

Over six billion passengers have travelled on the railway since 1964 with no major accidents.

The success of these trains led to further development of rail in other European and Asian countries. Two of the more notable services are Alta Velocidad Española (AVE) and Train à Grande Vitesse (TGV) from Spain and France respectively. TGV has an extensive network and has carried in excess of 1.3 billion passengers since the service began in 1981. The AVE started 11 years later and is planning an expansion which would create a larger network than the French line.

Riding in a bullet train feels like gliding through air. Even though they travel at such high speeds, the ride is smooth and peaceful. It is a great system and has benefited people by reducing the time of travel. However, there is a downside to this. Travelling by bullet trains is quite expensive. A ticket to travel to another city could cost you almost as much as an air ticket. However, train stations are located in the middle of a city, compared to airports that are usually on the outskirts, making it more convenient and providing value for money.

41) This passage will mostly appeal to _____
   a) tourists who travel to Japan
   b) Japanese business travellers
   c) people who are interested in Japan
   d) people who would not like to know about trains

42) The AVE began in _____.
   a) 1910 b) 1981 c) 1992 d) 1911

43) Which bullet train has carried the maximum number of passengers?
   a) The Green car b) TGV c) AVE d) Shinkansen

44) What does downside mean?
   a) Upside down b) Disadvantage c) Hill d) Argument

45) Why are bullet trains more convenient than air travel?
   a) Train stations are centrally located.
   b) Trains have more leg room.
   c) Air tickets are more expensive.
   d) Trains are more punctual.

WORD AND STRUCTURE KNOWLEDGE

46) Identify the abstract noun in the sentence given below.
Shreya's childhood was traumatic.
a) Shreya b) Traumatic c) Childhood d) Was

47) Choose the part of the sentence that has an error.
There is no way that I can say with confidently that I was not a part of that rowdy group.
a) There is no way that I can b) say with confidently that
c) I was not a part of d) that rowdy group

48) Fill in the blanks with appropriate distributive pronouns.
_____ of the children can stand still for even a few minutes.
a) Neither b) Someone c) Everyone d) None of these

49) Fill in the blank with correct indefinite pronoun.
Can _____ answer this question?
a) Everything b) any c) anyone d) anything

50) Choose one word for the given definitions.
A person who draws or produces maps-
a) Calligrapher b) Cartographer c) Choreographer d) Chauffeur

51) Choose the appropriate meaning for the following idiom/proverb.
"In the teeth of" means _____.
a) in agreement with each other b) in direct opposition to
c) in cheerless and depressed state d) in the control of someone

52) Choose the correct antonym of the given word “Regress”.
a) Develop b) Truncate c) Slide d) Patrol

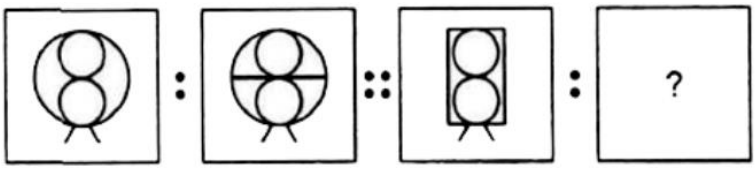
53) Choose the option with correct spelling.
What is the spelling of the word that means 'to be able to see through'?
a) Transparent b) Trensperent c) Transperant d) Trensparant

54) Choose the most suitable option to complete the conversation.
Paul: I will not let my efforts go _____ vain. I will keep trying until I am successful.
a) up b) on c) in d) at

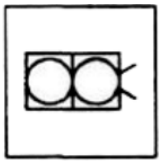
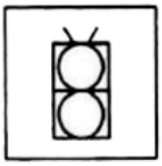
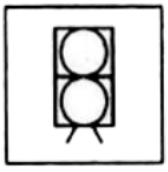
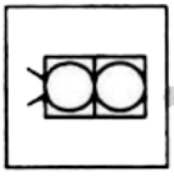
55) Choose the correct option to fill in the blank.
Animals move around the countryside _____ whereas people need papers and documents.
a) freeing b) freely c) freedom d) free

SECTION – D
APTITUDE

56) In (fig. 10) which figure/pattern will complete the second pair in the same way as first pair?



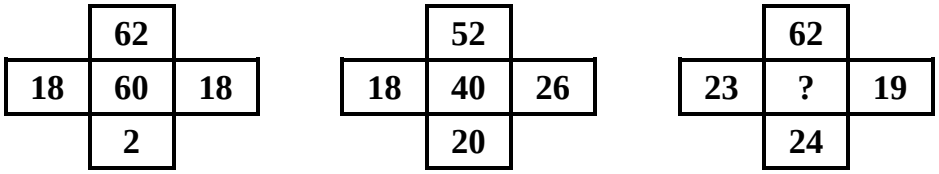
(fig. 10)

a)  b)  c)  d) 

57) Mr. Shyam's wife Sonam has two children Sahil and Shalu. Mitesh is the brother of Shyam. How is Mitesh related to Shalu?

a) Father b) Mother c) Daughter d) Uncle

58) In (fig. 11) find the number which will replace the questions mark (?).

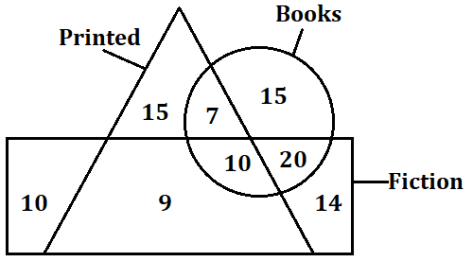


(fig. 11)

a) 32 b) 44 c) 34 d) 78

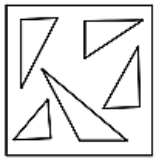
59) In the given (fig. 12), how many of the books are fiction?

a) 25
b) 20
c) 59
d) 45



(fig. 12)

60) Identify the answer figure form which the pieces given in the question (fig. 13) have been cut.



(fig. 13)

a)  b)  c)  d) 

61) Find the one which does not belong to the group.

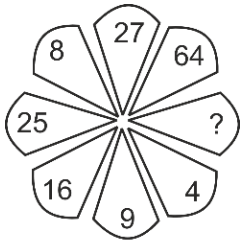
a) $\frac{42}{3}$ b) $\frac{27}{3}$ c) $\frac{75}{3}$ d) $\frac{57}{3}$

62) If P denotes +, Q denotes −, R denotes × and S denotes ÷, then find the value of 24 S 6 R 2 P 4 Q 5, when simplified.

a) 4 b) 5 c) 7 d) 9

63) In (fig. 14) find the number which will replace the question mark (?).

a) 36
b) 125
c) 343
d) 512



(fig. 14)

Directions: Read the following information carefully to answer the question 64) given below.

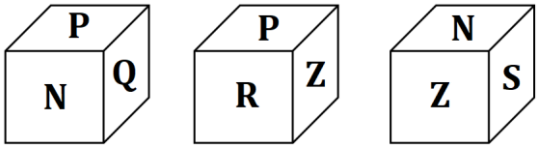
P, Q, R, S, T, U and W are seven students in a class. They are sitting on three benches I, II and III in such a way that there are at least two of them on each bench and there is at least one girls on each bench. R, a girl student, does not sit with P, T and S, U, a boy student, sits with only Q. P sits with his best friend in bench I. W sits on bench III. T is brother of R.

64) Who sits with U?

a) P b) Q c) R d) T

65) Three positions of a cube are shown in (fig. 15). What will come opposite to face containing 'N'?

a) P
b) Q
c) S
d) R



(fig. 15)

SECTION – E
GENERAL KNOWLEDGE

66) Recently, where was the "4th Rashtriya Hindi Vigyan Sammelan 2024" held

a) Lucknow b) Jaipur c) Bhopal d) Shimla

67) What is rank of India in Henley Passport Index, released in October 2024?

a) 65^{th} b) 72^{nd} c) 83^{rd} d) 94^{th}

68) Who won the 2024 Booker Prize for her novel 'Orbital'?

a) Samantha Harvey b) Nigella Lawson c) Douglas Hurd d) Penelope Fitzgerald

69) Which organization released the State of the Climate 2024 Report?

a) International Labour Organization (ILO)
b) Food and Agriculture Organization (FAO)
c) United Nations Environment Programme (UNEP)
d) World Meteorological Organization (WMO)

70) Which institute developed a device named 'AroTrack' to detect harmful pollutants in water?

a) IIT Bombay b) IIT Madras c) IIT Ahmedabad d) IIT Roorkee

71) Which country has declared a national emergency due to water shortages, drought and forest fires?

a) Ecuador b) Chile c) Paraguay d) Colombia

72) What is the name of the weak zone of the earth's crust?

a) Seismic b) Cosmic c) Formic d) Anaemic

73) What is the full form of DRDL?

a) Differential Research and Documentation Laboratory
b) Department of Research and Development Laboratory
c) Defence Research and Development Laboratory
d) None of these

74) International Civil Aviation Day is observed on which date?

a) 7 November b) 7 December c) 7 January d) 7 February

75) What is the theme of World Cancer Day 2024?

a) Close the Care Gap b) Not Beyond Us
c) Together let's do something d) We can I can