IMPORTANT INSTRUCTIONS

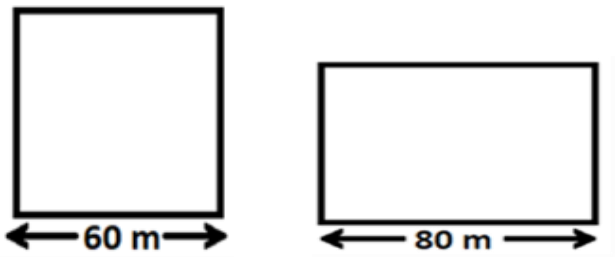
- The maximum marks are 300. Time allotted is **90 MINUTES.**
- There are five sections in the question paper having total **75 questions:**
  - Section – A : Maths (20 Questions)
  - Section – B : Science (20 Questions)
  - Section – C : English (15 Questions)
  - Section – D : Aptitude (10 Questions)
  - 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.**
- **Use of marker and correction pen is strictly prohibited.**

SECTION – A
MATHS

Choose the correct option.

1) A square and a rectangular field with measurements as given in the following figure have the same perimeter. Which field has a larger area?

   a) Square
   b) Rectangle
   c) Both have the same area
   d) Cannot determine



(a) (b)

2) Simplify: $(16)^{0.25} \times (8)^{\frac{2}{3}}$

   a) 4 b) 6
   c) 2 d) 8

3) If $2^x \times 8^y = 32$ and $y = 1$ then find x.

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

4) If a number is increased by 15% and become 276, what is the original number?

a) 240 b) 260

c) 270 d) 250

5) If the diagonals of a rhombus are 24 cm and 10 cm, find its perimeter.

a) 26 b) 34

c) 52 d) 68

6) A sum becomes ₹2700 in 2 years and ₹2916 in 3 years at compound interest. Find the rate of interest.

a) 6% b) 8%

c) 10% d) 12%

7) If $\sqrt{(5+2\sqrt{6})} = \sqrt{a} + \sqrt{b}$, find $a + b$.

a) 5 b) 6

c) 7 d) 8

8) The remainder when 2^{10} is divided by 9 is:

a) 8 b) 7

c) 6 d) 5

9) If $x + \frac{1}{x} = 4$, find value of $x^4 + \frac{1}{x^4}$

a) 190 b) 192

c) 194 d) 196

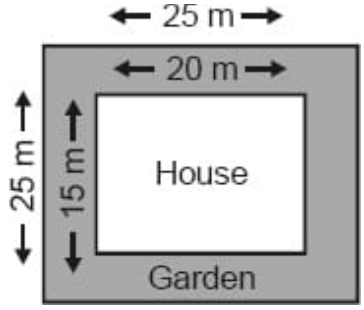
10) Mrs. Kaushik has a square plot with the measurement as shown in the figure. She wants to construct a house in the middle of the plot. A garden is developed around the house and the total cost of developing a garden around the house at the rate of Rs. 55 per m^2 is

a) Rs. 17875

b) Rs. 18757

c) Rs. 15875

d) Rs. 17758



11) Simplify $(a+b)^3 - (a-b)^3$

a) $2b\ (3a^2 + b^2)$ b) $6ab\ (a^2 - b)$

c) $2a\ (a^2 + b^2)$ d) $3a^2b(a-b)$

12) Factorize $2x^2 - 13xy + 21y^2 = 0$, find ratio $x : y$

a) 3 : 7 b) 7 : 2

c) 3 : 1 d) both b) and c)

13) Fill in the blanks (for **P, Q, R, S & T**) from the table and choose correct option:

i) 0 is neither **P** nor **Q**.

ii) **R** has no reciprocal.

iii) The rational numbers **S** and **T** are equal to their reciprocal.

	P	Q	R	S	T
a)	Positive	Negative	1	$\frac{1}{2}$	$-\frac{1}{2}$
b)	Integer	Rational	0	–1	–1
c)	Positive	Negative	0	-1	–1
d)	Natural	Integer	–1	-1	1

14) A train travels 300 km at a certain speed. If the speed had been 10 km/h more, the journey would have taken 1 hour less. Find the original speed.

a) 40 km/h
b) 50 km/h
c) 60 km/h
d) 70 km/h

15) Which statement is incorrect?

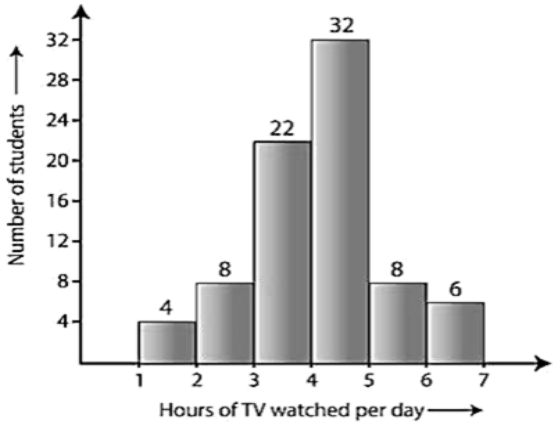
a) Every rectangle is a parallelogram.
b) Every square is a rectangle but not every rectangle is a square.
c) Every rhombus is a rectangle.
d) Every square is also a rhombus.

16) In an examination, $37\frac{1}{2}$ % of the candidates were girls. If 75% of the boys and $62\frac{1}{2}$ % of the girls passed and 380 boys failed. Find the number of failed girls.

a) 342
b) 340
c) 360
d) 364

17) The number of hours for which students of a particular class watched television during holidays is shown through the given graph. What is the scale used on y-axis?

a) 1 unit = 4 students
b) 1 unit = 12 students
c) 1 unit = 24 students
d) 1 unit = 8 students

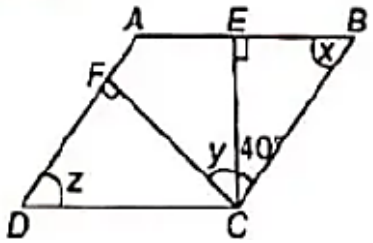


18) Which of the following is a rational number between $\frac{1}{2}$ & $\frac{3}{4}$.

a) $\frac{1}{3}$
b) $\frac{3}{2}$
c) $\frac{5}{3}$
d) $\frac{5}{8}$

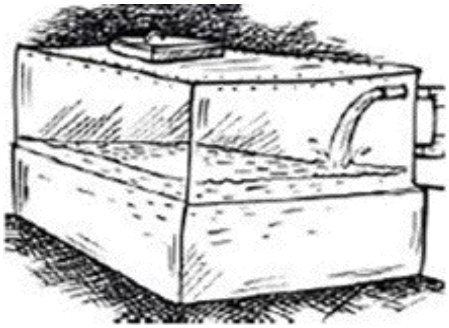
19) ABCD is a parallelogram. Find the angles x, y, and z in the given figure.

a) 40°, 50°, 60°
b) 60°, 60°, 60°
c) 50°, 50°, 50°
d) 60°, 70°, 70°



20) Water is pouring into a cuboidal reservoir at the rate of 60 litres per minute. If the volume of reservoir is 108 m^3, find the number of hours it will take to fill the reservoir.

a) 30 hours
b) 40 hours
c) 50 hours
d) 60 hours



SECTION – B
SCIENCE

21) Which of the following statement is INCORRECT?

a) H_2SO_4 is known as KING OF CHEMICALS.

b) Aqua Regia is a mixture of conc. HCl and conc. HNO3 in the ratio of 3 : 1

c) The acid found in lemons is oxalic acid.

d) The characteristic properties of acids is due to the hydronium ion.

22) Rishabh was performing an experiment with a blue coloured solution (X) in a beaker. By mistake a shaving blade fell into the beaker. After half an hour, he found that the colour of the solution in beaker changed to green (Y). What could be the solutions X and Y respectively?

a) Copper sulphate, Iron sulphate

b) Iron sulphate, Copper sulphate

c) Iron sulphate, Zinc sulphate

d) Copper sulphate, Zinc sulphate



23) Match the following Column I with Column II

	Column I		Column - II
P)	Insect	I)	Skin
Q)	Fishes	II)	Gills
R)	Earthworm	III)	Trachea
S)	Human	IV)	Lungs

a) P – III, Q – II, R – I, S – IV

b) P – IV, Q – III, R – II, S – I

c) P – I, Q – II, R – III, S – IV

d) P – III, Q – I, R – II, S – IV

24) A body immersed in a fluid experiences an upward thrust which depends on

a) the weight of the fluid displaced by it

b) the volume of the body

c) the mass of the body

d) all of these

25) Match the following Column I with Column II

	Column I		Column - II
1)	No more solute can be dissolved	I)	Threshing
2)	More solute can be dissolved	II)	Centrifugation
3)	Conversion of water vapour into water	III)	Saturated solution
4)	Removal of grain from stalk	IV)	Unsaturated solution
5)	Separation of cream from curd	V)	Condensation

a) 1 - II, 2 - IV, 3 - V, 4 - I, 5 - III

b) 1 - IV, 2 - III, 3 - V, 4 - II, 5 - I

c) 1 - III, 2 - IV, 3 - V, 4 - I, 5 - II

d) 1 - IV, 2 - III, 3 - V, 4 - I, 5 - II

26) The Arctic Tern migrates annually from the Arctic to the Antarctic, covering up to 90,000 km—the longest migration of any animal. This feat requires enormous energy expenditure and physiological risk. What is the strongest evolutionary justification for this species incurring such an immense and hazardous metabolic cost?



a) The journey is necessary to stimulate the bird's immune system against diseases found at high latitudes.
b) The migration serves primarily to reach specialized, isolated breeding grounds (the Arctic) that offer complete predator avoidance.
c) The energetic cost of the journey is significantly lower than the energetic cost of enduring the resource collapse and freezing temperatures of the wintering environment.
d) The benefit lies in maximizing daylight hours for feeding across the globe, leading to a consistently positive net energy balance throughout the year

27) Black bears have thick fur that traps air. How does this air insulate the bear in winter?

a) The air reduces thermal (heat) energy flow to the environment.
b) The air produces thermal (heat) energy to keep the bear warm.
c) The air transforms chemical energy to thermal (heat) energy.
d) The air transfers thermal (heat) energy to the bear.



28) **Assertion (A) :** The acute, life-threatening dehydration seen in a patient with Cholera is primarily due to the failure of the small intestine to absorb water from the gut lumen.
Reason (R): The *Vibrio cholerae* bacterium releases a toxin that permanently activates a specific cellular pathway, causing intestinal cells to actively pump massive amounts of water and electrolytes *into* the lumen, overpowering the normal absorptive capacity.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is NOT the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

29) **Assertion (A):** Incomplete combustion of coal is chemically less favorable than complete combustion because it releases Carbon Monoxide, which is highly toxic, and reduces the overall energy output.
Reason (R): The fundamental chemical reason for incomplete combustion is the presence of an excess amount of oxygen relative to the fuel, preventing the complete oxidation of carbon to CO_2.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is NOT the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

30) If you chew on a piece of bread long enough, it will begin to taste sweet because

a) maltase is breaking down maltose

b) lipases are forming fatty acids

c) amylase is breaking down starches to disaccharides

d) disaccharides are forming glucose

31) Three substances given below are kept in open for a few days and some changes were observed. Eggs, Bottle, Moth balls. Which of the substances will show chemical changes?

a) Eggs

b) Bottle

c) Both Eggs and Moth balls

d) None of these





32) A car travels at a constant speed of 60 km/h for 2 hours and then at a constant speed of 80 km/h for 1 hour. What is the average speed of the car for the entire journey?

a) 70 km/h

b) 66.67 km/h

c) 73.33 km/h

d) 65 km/h



33) A person standing on a railway platform observes a train approaching. The train's engine horn emits a sound of a certain frequency. As the train passes the person and moves away, the apparent frequency of the horn's sound decreases. This phenomenon is known as the:

a) Doppler Effect b) Bernoulli's Principle

c) Archimedes' Principle d) Law of Reflection

34) Which of the following statements about rusting is correct?

a) It is a physical change because the substance's composition remains the same.

b) It is a chemical change because a new substance, iron oxide, is formed.

c) It can occur in a dry, oxygen-free environment.

d) It is a quick process that doesn't require moisture.

35) A student is performing an experiment to verify the laws of reflection. She measures the angle of incidence as 35°. What should be the angle of reflection for the law of reflection to be valid?

a) 0° b) 55°

c) 35° d) 90°

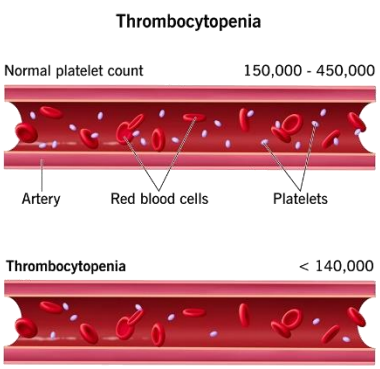
36) An object of mass 5 kg is lifted vertically to a height of 2 m. If the gravitational acceleration is 9.8 m/s, what is the work done against gravity?

a) 9.8 J b) 98 J

c) 2.5 J d) 10 J

37) A patient is diagnosed with thrombocytopenia, a condition characterized by a dangerously low count of circulating platelets. Which of the following clinical findings is the most direct and life-threatening consequence of this deficiency?

a) Decreased oxygen-carrying capacity leading to severe tissue hypoxia.
b) A compromised primary immune response resulting in recurrent bacterial infections.
c) Failure of the hemostatic plug formation, leading to spontaneous internal hemorrhaging and prolonged bleeding time.
d) Reduced ability to maintain blood viscosity, causing erratic changes in blood pressure.



38) Which of the following non-metals is a good conductor of electricity?

a) Graphite
b) Phosphorus
c) Sulphur
d) Carbon (diamond)

39) A person is standing 20 m away from a tall building and claps their hands. The echo is heard 0.12 s later. What is the approximate speed of sound in the air?

a) 166.7 m/s
b) 240 m/s
c) 200 m/s
d) 333.3 m/s

40) Sericulture is the commercial rearing of silkworms for silk production. A silk farmer, interested in maximizing silk yield, knows that the economically valuable silk thread is secreted only during a specific, intense feeding stage of the insect's development.
Question: If the farmer must determine the optimal time to harvest the silk cocoon and protect the primary stage of the silk worm from environmental stressors, which two consecutive stages of the silkworm's life cycle must the farmer closely manage?

a) The Egg stage (for hatching) and the Adult stage (for mating).
b) The Pupa stage (for cocoon formation) and the Adult stage (for silk collection).
c) The Larva stage (for intense feeding) and the subsequent Pupa stage (when the cocoon is spun).
d) The Larva stage (for movement) and the Adult stage (for immediate silk secretion).

SECTION – C
ENGLISH

Read the text and answer the questions that follow.

When we view the ubiquity of the internet around us today, we find it hard to believe that it is barely thirty years old. It was invented in the USA to allow various computers to communicate with each other, an improvement upon the limited possibilities of the physical linking of computers prevalent then.

Begun in 1990, the World Wide Web (www) is among the principal services available on the internet, and has had a major impact on how we use this facility. With almost countless websites in numerous languages, www has become the most popular content provider in the world, with a host of search engines to facilitate navigation.

In fact, it is not uncommon today to even measure progress in a region or country, using the yardstick of internet access among the population. However, in this respect, India presents

an interesting case where the soaring numbers of users often mask the digital divide between the literate minority and the large, illiterate masses.

Nonetheless, while educationists now have bold plans to exploit the internet to the hilt towards the spread of literacy in the country, the availability of hardware and IT skills are a stumbling block, compounded by the huge number of computer-illiterate that defies all planning within a foreseeable time frame.

Yet, we can only marvel at the internet for all that it can accomplish at the click of a mouse.

41) Which of the following statements is incorrect?
   a) The internet is nearly three decades old
   b) The internet was invented to physically link computers
   c) The www is the most popular content provider
   d) The www was invented in 1990

42) 'Ubiquity' means _____.
   a) famous everywhere
   b) useful everywhere
   c) growing rapidly
   d) present everywhere

43) The www is available in _____.
   a) computer languages only
   b) numerical languages only
   c) many different languages
   d) very few languages

44) According to the text, 'digital divide' means the difference between those with and without skills and access to _____.
   a) Information and communication technologies
   b) science and technology
   c) digital information
   d) digital luxury

45) The most appropriate title for the passage is _____.
   a) Connecting the Literate
   b) The rise of the internet
   c) The digital divide
   d) Knowledge at your fingertips

WORD AND STRUCTURE KNOWLEDGE

46) **Question 46) to 48)** Choose the correct option to fill in the blank.
Jonathan was very irritable. He _____ for his glasses for an hour and he still _____
   a) had been looking, hasn't found
   b) have been looking, haven't found
   c) was looked, didn't found
   d) as being looked, couldn't found

47) If Someone says, 'It's yours for the taking.' It means _____.
   a) something is easily available
   b) someone is asking for something
   c) you are enquiring about something
   d) someone is refusing to lend something

48) What is the spelling of the word which means'a cruel or violent manner'?
   a) Visiously
   b) Veiciously
   c) Viciously
   d) Viceiously

49) **Directions (For Q. 49) :** Choose the correct option to complete the conversation.
If you want someone else to go ahead of you or pass through ahead of you, which of the following expressions would you use?
   a) You first, please
   b) After you, please
   c) First you, please
   d) Go before me, please

50) **Directions (For Q. 50) :** Read the underlined words in the following sentence by choosing the option which expresses the meaning of the idiom/phrase.
Due to his bad habit of borrowing money from others, he will <u>be in the mire</u> one day.

a) To be punished
b) To be imprisoned
c) To be insulted
d) To be in trouble

51) **Directions (For Q. 51) :** Choose the option with correct spelling.
How do you spell the word that means 'excessive and often incoherent talkativeness or wordiness'?

a) Logorhoea
b) Logorrhea
c) Logorhea
d) Logorroea

52) **Directions (For Q. 52) :**Choose the correct passive voice sentence from the given options.
God will shower his blessings on us one day.

a) Blessings will be showered on us by God one day.
b) Blessings were showered by God on us one day.
c) Both a) and b)
d) None of these

53) Choose the part of the sentence that has an error.
The country was gripped to a recession in economic activity and interest rates were soaring year by year.

a) The country was gripped
b) to a recession in
c) economic activity and interest rates
d) were soaring year by year

54) **Directions (For Q. 54) :**Choose the correct option to fill in the blank.
_____ has the power to combat corruption by being transparent; it is up to the _____ to contribute towards a fairer society.

a) All, individual
b) Anyone, individual
c) Everyone, individuals
d) No one, individuality

55) **Directions (For Q. 55) :** Choose one word for the following definition.
A government by the churchmen -

a) Oligarchy
b) Theocracy
c) Autocracy
d) Bureaucracy

SECTION – D
APTITUDE

56) In a row of girls, Monika is fifth from the left end and Sonia is sixth from the right end. When they interchange their places, Monika becomes thirteenth from the left end. What will be Sonia's new position from the right end?

a) 13^{th}
b) 15^{th}
c) 8^{th}
d) 14^{th}

57) How many 1's are there in the following series, each of which is immediately preceded by an even number but not immediately followed by a prime number?
2 6 3 1 4 6 1 2 7 5 4 1 8 1 6 5 2 1 3 4 7 6 1 4 5

a) 3
b) 4
c) 2
d) 5

58) Six students U,V,W,X,Y and Z are sitting around a circle facing the centre in a playground. Y is sitting third to the right of W. V is sitting just next to Z. U is sitting between Y and X. W is sitting second to the right of V. Who is sitting second to the right of Z?

a) Y
b) U
c) W
d) X

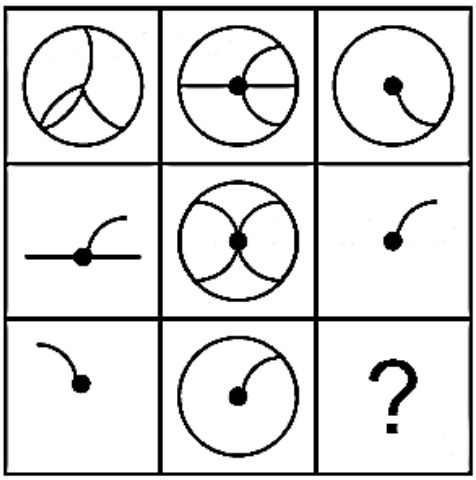
59) If 'A+B' means 'A is the father of B' and 'A-B' means 'A is the mother of B' then for P-Q+S, which of the following relation is true?

a) P is grandfather of S
b) S is granddaughter of P
c) S is grandchild of P
d) S is grandson of P

60) If 'ki top joe' means 'who are you', 'lin ki fin' means 'they are honest', 'fin ti joe' means 'who is honest', then what does 'lin' means?

a) They
b) Honest
c) Who
d) Are

61) Select a suitable figure from the four alternatives that would complete the figure matrix.





(1) (2) (3) (4)

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

62) A man travels 30m towards South, then he takes turn and travels 10m towards East. He takes turn and travels 23m towards North, and finally taking turn travels 14m towards East. In which direction and how far is he now from the starting point?

a) 15m, North-West
b) 17m, North-East
c) 25m, South-East
d) 20m, South-West

63) It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010?

a) Saturday
b) Sunday
c) Friday
d) Wednesday

64) Choose a figure which would most closely resemble the unfolded form of Figure



X Y Z


(1)


(2)


(3)


(4)

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

65) Sachin is younger than Rohit but older than Rahul. Rohit is as old as Vishal but younger than Hardik. Then Vishal is
a) Older than Hardik b) Younger than Hardik
c) Younger than Rohit d) Older than Rohit

SECTION – E
GENERAL KNOWLEDGE

66) Which Indian-born British American biologist was awarded the 2009 Nobel Prize in Chemistry for his work in Studies of structure and function of the ribosome?
a) V. Ramakrishnan b) K. Satyarthi
c) Amarty Sen d) A. Benerjee

67) The famous 1996 Hubble image of a tiny patch of sky containing 3,000 objects is known as
a) The Galaxy Zoo b) The Hubble Deep Field
c) Cosmic caterpillar d) The Star fair

68) This museum in Paris was originally a fortress but later became the royal palace of the kings of France. It was turned into a museum in the 18th century. It is home to the famous painting, the 'Mona Lisa'. Which museum are we talking about?
a) Musée Maillol b) The Louvre Museum
c) Uffizi Gallery d) Rijksmuseum

69) The Midday Meal Scheme is a school meal programme of the Government of India designed to improve the nutritional status of school children nationwide. In which year, the Supreme Court of India asked the central government to allocate funds to meet with the conversion of food grains into cooked midday meals?
a) 2004 b) 2003
c) 2002 d) 2001

70) Sangam literature is one of the main sources used for documenting the early history of these people of South Asia. The ancient Sangam poems are based on human experiences, emotions, human aspects and nature. To which of the following does it belong?
a) Tamil b) Malayali
c) Telugu d) Kannadigas

71) He was an Indian playback singer, musician, poet and author who won several awards like Sangeet Natak Akademi Award, Padma Award, Dadasaheb Phalke Lifetime Achievement Award and Bharat Ratna. He is popularly known as the "Bard of Brahmaputra" and "Sudhakantha". Who was he?
a) Dr. Bhupen Hazarika b) Pandit Ravi Shankar
c) Joshi Pandit Bhimsen d) Satyajit Ray

72) Yushi Tanaka and Momoka Kimura won Men's and Women's Singles respectively in the 2020 Peru International Series. Which sport are they associated with?

a) Lawn tennis
b) Table tennis
c) Badminton
d) Archery

73) The newly discovered exoplanet Kepler −452C is often called the “Earth’s cousin”. it orbits which star?

a) Proxima Centauri
b) Kepler – 452
c) Sirius
d) Vega

74) Distances in space cannot be measured using conventional measures such as kilometres and knots. Which of these is a unit of distance used to measure large distances of objects outside the solar system?

a) Fathom
b) Angstrom
c) Parsec
d) Dioptre

75) Where is the ‘Seattle Great Wheel’ located?

a) UK
b) USA
c) France
d) Greece