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 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) Fill in the blanks with the help of options, given in the box.

i)	$(2x+3)$	ii)	$(2x-3)$	iii)	4	iv)	2	v)	$(x+4)$
vi)	$(x-4)$	vii)	9	viii)	7	ix)	12		

I. $8x^2 - 18x + 9 = (4x - 3) \times$ _____

II. If $x^2 - 12 - x = A \times (x + 3)$, then A = _____.

III. If the area of square is $625cm^2$ and its side is $(7x - 24)cm$, then $x =$ _____.

IV. $x^2 + 10x + 16 = (x + 8)\ (x + p)$ then p = _____.

Codes

	I	II	III	IV		I	II	III	IV
a)	(i)	(iii)	(vii)	(iii)	b)	(ii)	(vi)	(viii)	(iv)
c)	(i)	(vi)	(viii)	(ix)	d)	(ii)	(vi)	(ix)	(iii)

2) Choose the odd one from the given series.

a) $\frac{3x-5}{6} = \frac{x}{3}$

b) $\frac{z}{3} - \frac{1}{3} = \frac{4}{3}$

c) $6y + 7 = 3y + 22$

d) $\frac{7y-1}{4} = \frac{10}{3}$

3) State 'T' for true or 'F' for false

I. If the selling price is less than cost price, then profit occurs.

II. Discount percent is calculated on SP.

III. On selling a fan for ₹ 810, the gain is 8%. Then, CP of fan is ₹ 750.

IV. In case of discount, the marked price is always fixed more than selling price.

V. CP = MP – Discount

Codes

	I	**II**	**III**	**IV**	**V**		**I**	**II**	**III**	**IV**	**V**
a)	F	F	T	T	T	b)	T	T	T	T	F
c)	F	T	T	T	F	d)	T	T	T	F	T

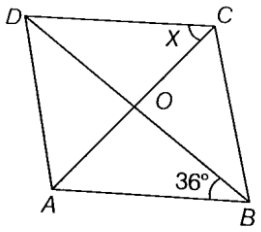
4) Given (fig. 1) is rhombus and $\angle OBA$ is 36°, then the value of $\angle x$ is

a) 44°

b) 54°

c) 114°

d) 56°



(fig. 1)

5) In 853* 431, which number should be replaced by the * to make the number divisible by 9?

a) 3 b) $32 + 4\sqrt{2}$ c) 0 d) 8

6) If a number 573 xy is divisible by 9 [where, x, y are digits], then the value of $x + y$ is

a) 8 b) 3 c) 5 d) 7

7) A person borrowed some money from a friend and promised him to pay daily for 1 month. He will pay like ₹ 1 for first day, ₹ 3 for second day, ₹ 5 for third day and so on for 30 days. If he paid an interest of ₹ 150 included in the above amount, then the money borrowed by him is

a) ₹ 600 b) ₹ 750 c) ₹ 900 d) ₹ 1200

8) **Match the column:**

	Column I		**Column II**
I.	$\sqrt[6]{\left(\frac{91125}{216}\right)^2}$	(i)	9
II.	Smallest cubic number is	(ii)	$\frac{8}{5}$
III.	If $\sqrt[3]{4\ \frac{12}{125}} = x$, then x is	(iii)	1
IV.	If $(27)^{1/3} = 3$, then $\sqrt[3]{729}$ is	(iv)	$\frac{45}{6}$

Codes :

	I	**II**	**III**	**IV**		**I**	**II**	**III**	**IV**
a)	(i)	(ii)	(iii)	(iv)	b)	(iv)	(iii)	(ii)	(i)
c)	(iv)	(ii)	(iii)	(i)	d)	(ii)	(iv)	(i)	(iii)

9) If $\frac{8^{x+1}}{2^{x-x}} = 64$, then the value of 3^{2x+1} is equal to

a) 1 b) 3 c) 9 d) 27

10) There are 80 coins of ₹ 5 in the purse. These coins constitute 20% of its total coins. How many coins are there in the purse?

a) 400 b) 320 c) 480 d) 240

11) Rahul borrowed some amount at the rate of 6% per annum for first 2 years, at the rate of 9% per annum for next 3 years at simple interest. If he pays a total interest of ₹ 11400 at the end of 5 years, then how much amount did he borrow?

a) ₹ 29230.8 b) ₹ 13000 c) ₹ 11000 d) ₹ 14000

12) A train covers a distance of 30 km in 30 min. How much time it will take to cover a distance of 15 km?

a) 1 h b) $\frac{1}{4}$ h c) $\frac{1}{3}$ h d) $\frac{1}{2}$ h

13) $\sqrt[3]{3\left(\sqrt[3]{x}-\frac{1}{\sqrt[3]{x}}\right)}=2$ then the value of $\left(x-\frac{1}{x}\right)$ is

a) $\frac{728}{9}$ b) $\frac{72}{27}$ c) $\frac{728}{27}$ d) $\frac{3}{15}$

14) The perimeter of a triangle is $8\ p^2-9p+9$ and two of its sides are $2p^2-3p+1$ and $5p^2-p+4$. Then, third side of the triangle is

a) $2p^2-6p+5$ b) p^2-5p+4 c) $3p^2-2p+1$ d) $4p^2+3p+6$

15) Given $\frac{6x^2+13x-4}{2x+5}=\frac{12x^2+5x-2}{4x+3}$ then the value of $\frac{2x^2+3x+2}{5x+7}$ is

a) $-\frac{7}{12}$ b) $\frac{7}{12}$ c) $\frac{3}{14}$ d) $-\frac{5}{7}$

16) Gunpowder contains 75% nitre and 10% sulphur. Find the amount of gunpowder which carries 9 kg nitre. What amount of gunpowder would contain 2.5 kg sulphur?

a) 24 kg and 27 kg b) 10 kg and 18 kg c) 15 kg and 27 kg d) 12 kg and 25 kg

17) A sum of ₹ 1550 was lent partly at 5% and partly at 8% per annum simple interest. The total amount (interest) received after three years is ₹ 300. The ratio of the money lent on 5% and that of 8% are

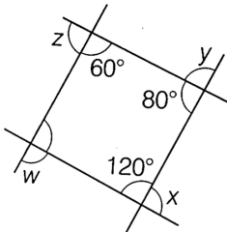
a) 5 : 8 b) 8 : 5 c) 16 : 15 d) 31 : 6

18) The marked price of a pen is increased by 20% and then a discount of 20% is allowed. If marked price is not increased and discount of 20% is offered. Then, by how much per cent is the selling price changed?

a) 25% b) 20% c) − 20% d) − 10%

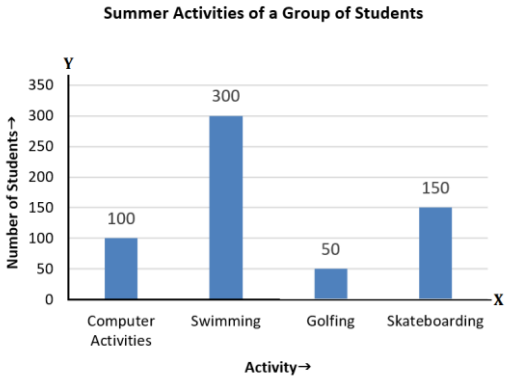
19) In the given (fig. 2), the value of $x+y+z+w$ is

a) 180°
b) 360°
c) 3π
d) 120°

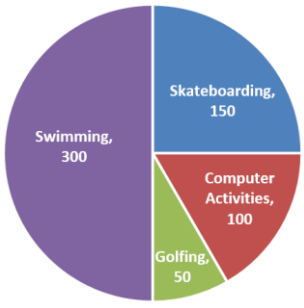


(fig. 2)

DIRECTIONS: The bar graph (fig. 3) given below shows the favourite summer activities of 600 students of a school. By converting the graphical representation into a pie-chart (fig. 4), answer the following questions carefully.



(fig. 3)



(fig. 4)

20) What is fraction of central angle for Golfing and Skateboarding together?

a) $\frac{1}{3}$ b) $\frac{1}{6}$ c) $\frac{2}{3}$ d) $\frac{5}{6}$

SECTION – B
SCIENCE

21) Consider the following statements

I. Coal is made up of only carbon.

II. Anthracite and lignite are the two main types of coal.

III. Anthracite coal is the hardest and has more carbon content.

IV. Lignite is the softest and has high carbon and oxygen content.

The incorrect statements are

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

22) Charcoal does not produce flame because

a) It is a non-combustible substance

b) It undergoes explosion immediately when it comes in contact with fire.

c) It is a liquid fuel.

d) It does not produce vapours.

23) Which of the following statements is correct?

a) If the ovum released from the ovaries is not fertilized, then it is shed along with blood during menstruation.

b) Testes lie within the scrotum inside the abdominal cavity.

c) Multiple fission can be seen in Amoeba.

d) Both a) and c).

24) Which of the following represents the correct increasing order of calorific value of the given fuels?

a) Hydrogen < LPG < Biogas < Cow dung cake < Coal

b) Cow dung cake < Biogas < LPG < Coal < Hydrogen

c) Cow dung cake < Coal < Biogas < LPG < Hydrogen

d) Hydrogen < Cow dung cake < LPG < Biogas < Coal

25) The effect of force depends on

I. magnitude of the force applied. II. area over which force is applied.

III. the direction in which force is applied. IV. the point where the force is applied

Codes :

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

26) Thyroxine controls _____ in frogs and the development of _____ during embryonic development of other vertebrates. Thyroxine production requires the presence of _____ in diet. Select the correct sequence of words to complete the above passage.

a) Development, Circulatory system, Iodine

b) Metamorphosis, Circulatory system, Calcium

c) Development, Nervous system, Iron

d) Metamorphosis, Nervous system, Iodine

27) When air is passed through red hot coke, a gaseous fuel is produced. The name of this gaseous fuel and its composition are respectively

a) Natural gas, $CO + H_2$ b) Producer gas, $N_2 + CO$

c) Water gas, $H_2 + CO$ d) None of these

28) Identify the given (fig. 5) agricultural tool.

a) Combine
b) Hoe
c) Cultivator
d) Seed drill



(fig. 5)

29) How many of the following can be considered as farmer's friend?

Ladybug, Locusts, Praying mantis, Ground beetle, Frog, Earthworms, Wild boar

a) 3 b) 5 c) 4 d) 6

30) Which of the microorganisms thrive under extreme environmental conditions like high temperature and acidic pH, lack of oxygen, and high salt concentration?

a) Cyanobacteria b) Archaebacteria c) Eubacteria d) All of these

31) Which of the following reactions takes place in soda-acid type fire extinguisher?

a) $CaCO_3 \xrightarrow{\Delta} CaO + CO_2$
b) $2NaHCO_3 \xrightarrow{\Delta} Na_2CO_3 + H_2O + CO_2$
c) $2NaHCO_3 + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O + 2CO_2$
d) $CaCO_3 + H_2SO_4 \rightarrow CaSO_4 + H_2O + CO_2$

32) An animal who is known to exhibit-viviparity will show which of the following features.

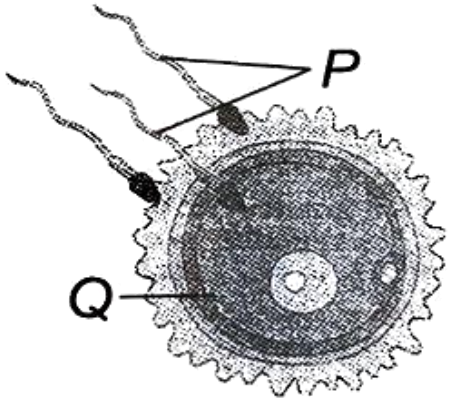
I. They lay eggs.
II. Eggs are fertilised and developed outside the mother's body always.
III. The sperm meets the ovum inside the mother's body.
IV. All embryos are developed inside the mother's body.

Codes :

a) I, III and IV b) I and IV c) III and IV d) All of these

33) Refer to the given (fig. 6) and select the incorrect statement regarding this.

a) P represents the human male gamete which consists of head, middle-piece and tail.
b) Q represents the human female gamete which is a single cell.
c) The process shown in the figure is fertilization.
d) The resulting structure formed after the shown process is fetus.



(fig. 6)

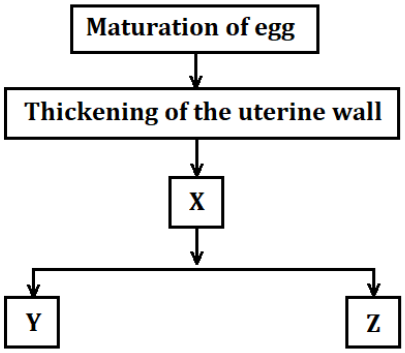
34) Study the flowchart in given (fig. 7)

Read the statements given below and select the option which correctly relates with X, Y and Z.

i) X could be the process of fertilisation where one of the male gametes entering the female reproductive tract fuses with the egg.

ii) For Y- in absence of fertilisation, uterine lining sheds off as menstrual bleeding.

iii) Z-represents establishment of a pregnancy after fusion of gametes.



(fig . 7)

a) X - release of eggs from ovaries, Y- fertilisation of gametes and Z - menstruation

b) X - release of sperm , Y – shedding of Endometrium wall, Z- Establishment of a pregnancy

c) X - Establishment of a pregnancy , Y - absence of fertilization , Z- fusion of gametes

d) None of these

35) Select the incorrect statement

a) Grass and dampness on a cricket ground increase friction.

b) Friction causes parts of a machine to wear out.

c) Moving parts of a car (e.g. wheel) become hot due to friction.

d) Friction is less on a dry floor than a wet floor.

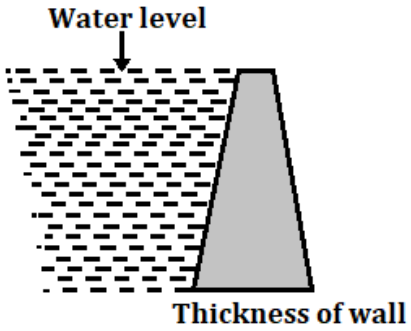
36) Given (fig. 8) shows the cross-section of a dam and its reservoir. The widening of the wall towards the bottom is due to

a) Increase in pressure with depth of water.

b) Decrease in pressure with depth of water.

c) Change in density of water.

d) Increase in mass of the wall



(fig. 8)

37) Which of the following statement (s) is / are incorrect about noise?

I. Vehicles should have proper silencers.

II. Sudden exposure to high noise can cause a heart attack.

III. Use of amplifiers and loudspeakers should not be restricted.

IV. Planting of trees helps reduce noise.

Codes :

a) I, II and III b) II and III c) Only III d) I and IV

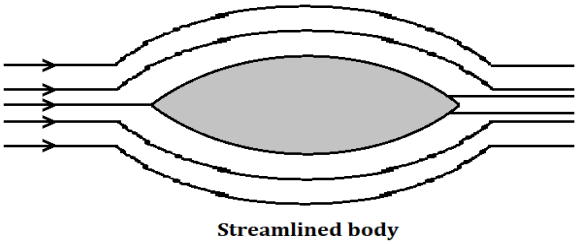
38) A rocket and a bird have a streamlined shaped body as shown in (fig. 9) because

a) It gives force to move

b) It moves through air with minimum friction.

c) It increases the speed of the object

d) All of the above



(fig. 9)

39) Bees which are not carrying honey, fly with a flapping frequency of 440 Hz while those which are carrying honey, fly with a flapping frequency of 300 Hz. The sound made by bees which are not carrying honey has

a) a long pitch
b) a higher pitch
c) a smaller loudness
d) a greater loudness

40) Sometimes, rainwater is found harmful for crops, buildings, soil, etc. Such rain is called acid rain and is responsible for the discoloration of Taj Mahal over years. The main cause of acid rain is

a) release of carbon monoxide due to incomplete combustion of fuel, which dissolves in rainwater to give acid rain
b) release of carbon particles in the atmosphere which dissolve in rainwater to given acid rain
c) release of oxides of Sulphur and nitrogen during the combustion of fuel, which dissolve in rainwater to give acid rain
d) release of methane and other gases due to burning of wood, which dissolve in rainwater to give acid rain.

SECTION – C
ENGLISH

Read the text and answer the questions that follow.

Rewilding is the practice of letting areas of land revert back to their natural state. It is popular amongst some groups and very controversial amongst others. A south London chalk stream and a 10,000-acre Highlands estate are among the projects reviving Britain's lost flora and fauna. Here are the top four rewilding sites in the UK.

1. Caledonia

The Scottish Highlands may appear to be pristine wilderness, but much of it is man-made moor. Trees have been stripped bare and kept at bay by centuries of over- stocking of animals for hunting, particularly deer, whose numbers have soared under the influence of sporting estates and in the absence of any natural predators.

Elsewhere, pine tree crops dominate a landscape that was once a richly mixed upland forest of juniper, birch, aspen and native pine. Relics of that past emerge in the form of ancient stumps from eroded peat bogs.

Its aim is to recreate the natural habitats of species, such as capercaillie, wild boar and lynx. Since its foundation back in the 1980s, the charity's volunteers have planted more than 1.5m native trees and have helped to restore and regenerate forest fragments elsewhere.

2. Ennerdale

In Ennerdale in the Lake District, Sitka spruce plantations is gradually being replaced by native broadleaves, the River Liza is being allowed to flow freely once more, and the beneficial grazing of Galloway cattle is replacing the lawn- mower effect of sheep. The valley bottom has become wilder as a result and there is more natural development occurring at a quicker rate as a result.

3. Coetir Anian

A group of Wales enthusiasts are working to bring back some of the country's wild woodlands and the animals that once roamed them, such as the pine marten, red squirrel, wild boar and beaver. They started

with the restoration of 750 acres of degraded moor in the hills above the River Dyfi, between Machynlleth and Aberystwyth. Now, they want to work with nearby landowners to bring around 10 times that into a wild heaven open to all, with a particular focus on helping urban kids deprived of natural highs to discover nature.

4. River Wandle

In south London, the River Wandle, which lends its name to Wandsworth, which had become little more than an urban sewer, is slowly being revived and restored as a free-flowing chalkland stream. The waters have begun to clear and the natural flora and fauna are returning albeit very slowly in comparison to some of the other sites. What makes this one special and contentious is the fact that it is on land that could well be used for urgently needed housing for the people of the city.

41) Choose the best title or heading for the passage.
   a) How Cities Become Jungles
   b) Pushing for a Wild Countryside
   c) Under the Canopy of the Forest
   d) Need More Wildlife

42) What industry has damaged Scottish forests?
   a) Power stations b) Fishing c) Hunting d) Agriculture

43) What has happened in Ennerdale?
   a) More trees have been planted.
   b) Nature seems to have speep up.
   c) Cows have been removed.
   d) The river has run dry.

44) In Wales the conservationists want
   a) animals to rule the countryside
   b) funding for their project
   c) kids to stay away
   d) more land from the locals

45) What is the meaning of the word 'contentious' in the last paragraph?
   a) Combative b) Rude c) Off putting d) Deliberate

WORD AND STRUCTURE KNOWLEDGE

46) Choose the part of the sentence that has an error.
   The traveller asked the farmer if he could tell him the way to the near inn.
   a) The traveller asked
   b) the farmer if
   c) he could tell him the way
   d) to the near inn.

47) Choose the correct synonym of the given word “Scintillating”.
   a) Pedestrian b) Touching c) Glittering d) Justifying

48) Choose the correct word/phrase to complete the sentence.
   At the advanced age of 40, she still ran very _____ in the Olympics.
   a) hard b) badly c) well d) sadly

49) Choose the correct option to complete the conversation.
   Anita : My younger sister learned to do it all by herself.
   Shweta : I don't doubt it but _____.
   a) that's easier said than done
   b) that's easier than rolling off a log
   c) that's easier on the eyes
   d) that's easier on the hands

Question 50) and 51) Choose the correct option to fill in the blanks.

50) Ginny has been an easy target for her stepmother’s abuse. But recently, she stood up for herself and gave her stepmother a taste _____.
   a) of her own medicine
   b) of her own pie
   c) of her own fruits
   d) of her own drugs

51) I met _____ European on my flight to America. Coincidentally, he was also _____ dermatologist by profession, and we exchanged our numbers.

a) a, an b) a, a c) an, no article d) no article, no article

52) What is the spelling of the word that means 'a system/plan that seems unfair'?

a) Arbittery b) Arbitary c) Arbitrary d) Orbitary

53) In the following question, the sentence has been given in active voice. From the given alternative, choose the one which best expresses the given sentence in passive voice.
'The scientist will have completed the research by next month.'

a) The research will have been completed by the scientist by next month.

b) The scientist will complete the research by next month.

c) The research will have been completing by the scientist by next month.

d) The scientist has completed the research by next month.

54) Choose the best option of indirect speech from of the sentences given below.
My uncle said to him, "You can go now."

a) My uncle asked him that you can go now. b) My uncle told him that he could go then.

c) My uncle advised him that he could go now. d) None of these

55) Read the underlined words in the following sentences by choosing the option which expresses the meaning of the idiom/phrase.
All the residents of the colony painted the town red on the eve of festival.

a) To white wash buildings b) To renovate buildings

c) To celebrate noisily in public places d) To create nuisance

SECTION – D
APTITUDE

56) **Directions :** Read the following information carefully and answer the questions.

1. Madhav and Sheena are good in Drama and Science.
2. Anju and Madhav are good in science and Polity.
3. Anju, Pavitra and Neena are good in Polity and History.
4. Neena and Anju are good in Polity and Mythology.
5. Pavitra and Sheena are good in History and Drama.

Who is good in Polity, History and Drama?

a) Pavitra b) Sheena c) Madhav d) Anju

57) Ramanujan divides 92 by half and adds one-fourth of 12 to the result. What number he gets at the end?

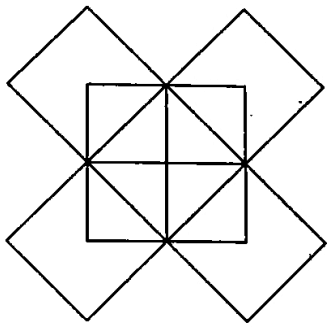
a) 178 b) 187 c) 188 d) 189

58) Sudiksha walked 12 m towards West, then turns to her right and walked 8 m and then turns to her left and walked 6 m. Finally she turns around and walked 12 m straight. What is the shortest distance between her starting point and the present position?

a) 40 m b) 30 m c) 20 m d) 10 m

59) Identify the number of squares in the (fig. 10) given below.

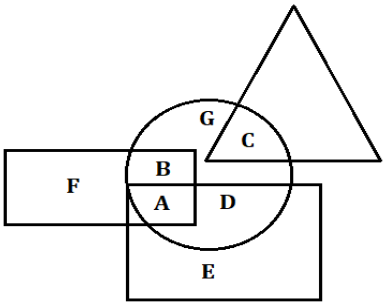
a) 10
b) 12
c) 13
d) 14



(fig. 10)

60) In the following (fig.11), square represents Rangers, triangle represents socialists, circle represents Australian and rectangle represents fathers. Which set of letter represents Australian who are rangers?

a) F, B, D, E
b) A, D
c) G, C, D
d) B, C, G, F



(fig. 11)

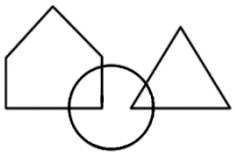
61) On which dates of April 2001 did Wednesday fall?

a) 2^{nd}, 9^{th}, 16^{th}, 23^{rd}
b) 4^{th}, 11^{th}, 18^{th} , 25^{th}
c) 12^{th}, 18^{th}, 27^{th}, 6^{th}
d) 1^{st}, 8^{th}, 15^{th}, 22^{nd}

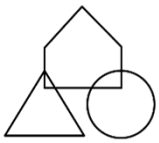
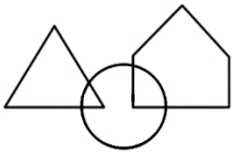
62) If the first and second letters in the word 'COMMUNICATIONS' were interchanged, also the third and the fourth letters, the fifth and sixth letters, and so on. Which letter would be the tenth letter counting from your right?

a) U
b) A
c) T
d) N

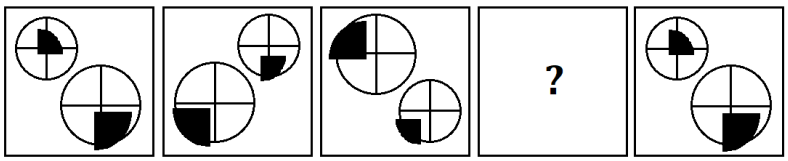
63) Find the correct mirror image of the following (fig. 12).



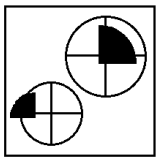
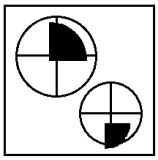
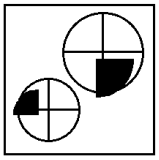
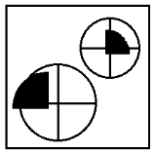
(fig. 12)

a) 
b) 
c) 
d) 

64) In (fig. 13) find the next term in the series given below.



(fig. 13)

a) 
b) 
c) 
d) 

65) P and Q are brothers. R and S are sisters. The son of P is the brother of S. Q is related to R as:
a) father b) son c) brother d) uncle

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