General Knowledge Sample Paper - 8

SECTION-III : GENERAL TEST

1. Who has been re-elected as Regional Director for South-East Asian region of World Health Organization (WHO) for another 5-year term beginning February 2019?
   (a) Poornima Balakrishnan
   (b) Dr. Srishti Savarna
   (c) Aditi Bhatt
   (d) Dr. Poonam Khetrapal Singh
2. Who is the author of the book "The Three Mistakes of My Life"?
   (a) Ruskin Bond
   (b) Chetan Bhagat
   (c) Amrita Pritam
   (d) Jhumpa Lahiri
3. Who is the first Indian woman to win an Asian Games gold in 400 metre race?
   (a) Sania Mirza
   (b) Kamaljeet Sandhu
   (c) Shiny Abraham
   (d) P.T. Usha
4. Who invented the mobile phone?
   (a) Tim-Berners-Lee
   (b) Raymond Samuel Tomlinson
   (c) Chuck Hull
   (d) Martin Cooper
5. Who was the creator of the famous Rock Garden of Chandigarh?
   (a) Khushwant Singh
   (b) Charles Corbusier
   (c) Edward Baker
   (d) Nek Chand
6. As a result of higher rate of inflation in India, the U.S. dollar will
   (a) Depreciate
   (b) Constant
   (c) Negligible
   (d) Appreciate
7. India and which country announced a working group for Gaganyaan, ISRO's first manned mission at the sixth edition of Bengaluru Space Expo, on 6th September 2018?
   (a) Germany (b) France
   (c) Russia (d) China
8. According to 2011 Census, the State having maximum population is
   (a) Maharashtra
   (b) Tamil Nadu
   (c) Kerala
   (d) Uttar Pradesh
9. Expand NABARD.
   (a) National Bank for Agriculture and Rural Development
   (b) National Bank for Agri Related Development
   (c) National Bank for Agriculture and Resource Development
   (d) National Bank for Asian Reaserch Development
10. Who is the only second Vice-President of India to get a second consecutive term after S. Radhakrishnan?
    (a) K.R. Narayanan
    (b) B.S. Shekhawat
    (c) M.H. Ansari
    (d) Dr. Shankar Dayal Sharma
11. An ordinance issued by the Governor has to be passed by the Assembly within
    (a) 8 weeks (b) 10 weeks
    (c) 12 weeks (d) 6 weeks
12. Who was the founder of the Indian National Army?
    (a) Nehru
    (b) Subhash Chandra Bose
    (c) Bal Gangadhar Tilak
    (d) Gandhiji
13. Cuba is the largest producer of
    (a) Barley (b) Sugar
    (c) Wheat (d) Rice
14. Seismography is the science of
    (a) Rivers
    (b) Earthquakes
    (c) Volcanoes
    (d) Mountains
15. Which of the following is true with reference to blood platelets?
    (a) They have prominent nuclei.
    (b) They are involved in phagocytosis.
    (c) They have a pigment called haemoglobin.
    (d) They are also called thrombocytes.
16. Which part of the cinchona yields a drug?
    (a) Pericarp (b) Bark
    (c) Endosperm (d) Leaf
17. If density of oxygen is 16 times that of hydrogen, what will be their corresponding ratio of velocity of sound?
    (a) 4: 1 (b) 2: 1
    (c) 1: 16 (d) 1: 4
18. Which of the following colour of light deviates least through the prism?
    (a) yellow (b) green
    (c) violet (d) red
19. Hydraulic brakes work on the principle of
    (a) Thomson's law
    (b) Newton's law
    (c) Bernoulli's theorem
    (d) Pascal's law
20. An example of hormone is
    (a) Cytosine (b) Renin
    (c) Oxytocin (d) Peprin
21. Name the two research stations maintained by India in Antarctica.
    (a) Gangotri and Himadri
    (b) Sagar Nidhi amd Yamunotri
    (c) None of these
    (d) Maitri and Bharti
22. The 'EL Nino' phenomena which sparks climatic extreme around the globe, originates in the
    (a) Sea of China
    (b) Pacific Ocean
    (c) Indian Ocean
    (d) Atlantic Ocean
23. What is the famous 'Chipko' movement associated with?
    (a) Saving the tigers
    (b) Saving the wetland
    (c) None of these
    (d) Trees
24. Which city will host the 2022 Commonwealth Games (CWG)?
    (a) Glasgow (b) Montreal
    (c) Colombo (d) Durban
25. Which gas emitted by power stations causes acid rain?
    (a) Carbon dioxide
    (b) Sulphur dioxide

(c) Helium
(d) Nitrogen

Directions (Q. 26-28): Select the related word/letters/number from the given alternatives.

26. Frog : Amphibian : : Cobra : ?
(a) Insect (b) Protozoa
(c) Parasite (d) Reptiles

27. EFGH : LNPR : : ABCD : ?
(a) PQRS (b) HJLN
(c) HIJK (d) EFGH

28. 25 : 260 : : 30 : ?
(a) 320 (b) 310
(c) 340 (d) 300

Directions (Q. 29-32): Select the odd word/letters/number pair from the given alternatives.

29. (a) Truck (b) Car
(c) Motorcycle (d) Aeroplane

30. (a) FLR (b) KQW
(c) PIB (d) CIO

31. (a) 6210 (b) 7020
(c) 1431 (d) 1280

32. (a) 86 (b) 68
(c) 136 (d) 102

Directions (Q. 33-35): A series is given with one missing term. Select the correct alternative from the given ones that will complete the series.

33. RS, ZA, HI, ?
(a) LM (b) KL
(c) PQ (d) PR

34. PON, LKJ, GFE, ?
(a) ABC (b) EFG
(c) AZY (d) JMK

35. 250, 275, 301, ?
(a) 396 (b) 328
(c) 395 (d) 300

36. A, B, C, D and E are standing in a row, D is the immediate neighbour of A and E. B is at the right of E and C is at the extreme right. Who is in the middle?
(a) B (b) E
(c) C (d) A

37. Arrange the given words in the sequence in which they occur in the dictionary.
(i) Shortage
(ii) Shore
(iii) Shamelessly
(iv) Shadiness
(v) Shallow
(a) iii, iv, v ii, i (b) iv, iii, ii, v
(c) iv, v, iii, ii, i (d) iii, iv, ii, i, v

38. In a certain code language, "SPARROW" is written as "1326654", and "RING" is written as "6978" How is "RAINS" written in that code language?
(a) 62971 (b) 62972
(c) 62917 (d) 62977

39. In the following question. Select the missing number from the given series.

36	44	32
72	88	64
54	66	?

(a) 44 (b) 48
(c) 50 (d) 64

40. Which of the following interchanges in signs will make the given equation correct?
$7 - 15 \times 5 = 250$
(a) = and × (b) + and –
(c) = and – (d) × and –

41. In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
_k_m_kl_jk_m
(a) jljlm (b) jljml
(c) jllmj (d) jllmm

42. Rahul leaves his home and walks 5 km towards east, turns in the south-east direction and walks for 10 km, then he turns north-east and moves 10 km. Again, he moves towards the north for 10 km. In which direction is he now from starting point?
(a) West
(b) East
(c) North-east
(d) North-west

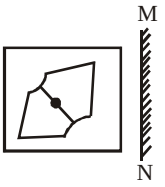
43. Introducing a boy, Ankit said, "He is the son of daughter of my grandfather's son". How is that boy related to Ankit?
(a) Cousin (b) Brother
(c) Father-in-law (d) Nephew

44. Identify the diagram that best represented the relationship among the given classes.
Sweets, Sugar, Salt, Jaggery

(a)  (b) 

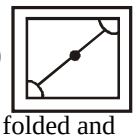
(c)  (d) 

45. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?
Question figure:

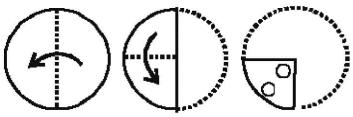


Answer figures:

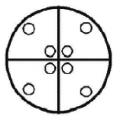
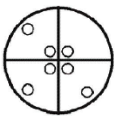
(a)  (b) 

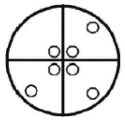
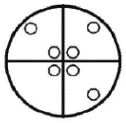
(c)  (d) 

46. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.
Question Figure:



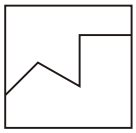
Answer Figures:

(a)  (b) 

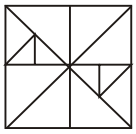
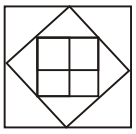
(c)  (d) 

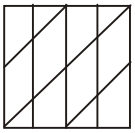
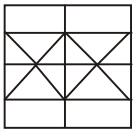
47. From the given answer figures, select the one in which the question figure is hidden/ embedded.

Question Figure:



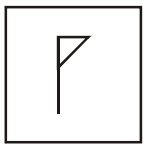
Answer Figures:

(a)  (b) 

(c)  (d) 

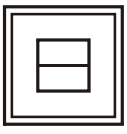
48. From the given answer figures, select the one in which the question figure is hidden/ embedded.

Question Figure:



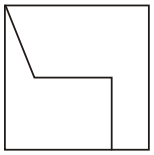
Answer Figures:

(a)  (b) 

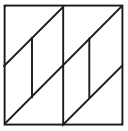
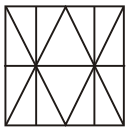
(c)  (d) 

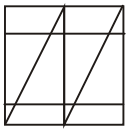
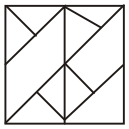
49. From the given answer figures, select the one in which the question figure is hidden/ embedded.

Question Figure:



Answer Figures:

(a)  (b) 

(c)  (d) 

50. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of Matrix-I are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, '1' can be represented by 20, 58 etc. and 'A' can be represented by 12, 69 etc. Similarly, you have to identify the set for the word 'ANIMAL'.

Matrix-I

	0	1	2	3	4
0	Y	L	U	A	C
1	K	S	A	O	L
2	I	L	N	L	T
3	V	C	E	F	U
4	D	K	D	U	A

Matrix-II

	5	6	7	8	9
5	Q	M	O	Y	S
6	F	O	D	L	A
7	N	H	I	O	R
8	J	N	G	Q	O
9	O	R	T	H	I

(a) 69, 22, 99, 56, 23, 03
(b) 69, 22, 99, 56, 03, 23
(c) 69, 22, 98, 56, 03, 23
(d) 69, 22, 99, 65, 03, 23

51. A student multiplied a number by 6/7 instead of 7/6. What is the percentage error in the calculation?
(a) 36.11 percent
(b) 26.53 percent
(c) 13.27 percent
(d) 18.06 percent

52. If $\cos 135° = x$, then the value of x is:
(a) $-1/\sqrt{2}$ (b) $-\sqrt{3}/2$
(c) $-1/2$ (d) 2

53. A tent is to be built in the form of a cylinder of radius 7 m surmounted by a cone of the same radius. If the height of the cylindrical part is 8m and slant height of the conical part is 12 m, how much canvas will be required to build the tent? Allow 20% extra canvas for folding and stitching : (Take $\pi = 22/7$).
(a) 1478.4 sq mts
(b) 2217.6 sq mts
(c) 369.6 sq mts
(d) 789.2 sq mts

54. If 2 shirts are offered free on purchase of 3 shirts priced ₹ 600 each, then what will be the effective discount on each shirt?
(a) 30 percent
(b) 66.67 percent
(c) 40 percent
(d) 25 percent

55. A rice trader buys 12 quintals of rice for ₹ 1,870. 15% rice is lost in transportation. At what rate should he sell to earn 20% profit?
(a) ₹ 110.3 per quintal
(b) ₹ 187 per quintal
(c) ₹ 220 per quintal
(d) ₹ 224 per quintal

56. By increasing the price of entry ticket to a fair in the ratio 13:16, the number of visitors to the fair has decreased in the ratio 11 : 9. In what ratio has the total collection increased or decreased?
(a) decreased in the ratio 144 : 143
(b) increased in the ratio 117 : 176
(c) increased in the ratio 143 : 144
(d) decreased in the ratio 176 : 117

57. Simplify $486\ b^3x^2a^4z^3/27a^3b^2z$:
(a) $18bx^2az$ (b) $18bx^2az^2$
(c) $36ba^2z$ (d) $36bxa^2z$

58. To travel 672 km, an Express train takes 14 hours more than Rajdhani. If however, the speed of the Express train is doubled, it takes 8 hours less than Rajdhani. The speed of Rajdhani is:
(a) 30.5 km/hr (b) 14.3 km/hr
(c) 38.7 km/hr (d) 22.4 km/hr

59. If $x + y = 12$ and $x^2 + y^2 = 94$, then xy is:
(a) 25 (b) 50
(c) 144 (d) 238

60. The measures of the four angles of a quadrilateral are in the ratio 1 : 2 : 4 : 5. What is the measure of the biggest angle?
(a) 120° (b) 30°
(c) 60° (d) 150°

61. In which of the following quadrilaterals opposite angles are supplementary?
(a) Rhombus
(b) Parallelogram
(c) Trapezium
(d) Cyclic quadrilateral

62. Mahanath works 2 times as fast as Sahay. If Sahay can complete a job alone in 21 days, then in how many days can they together finish the job?
(a) 7 days (b) 6 days
(c) 5 days (d) 2 days

63. The sum of the digits of a 2-digit number is 11. If we add 45 to the number, the new number obtained is a number formed by interchange of the digits. What is the number?
(a) 83 (b) 38
(c) 64 (d) 46

64. A boat goes 4 km upstream and 4 km downstream in 1 hour. The same boat goes 5 km downstream and 3 km upstream in 55 minutes. What is the speed (in km/hr) of boat in still water?
(a) 6.5 (b) 7.75
(c) 9 (d) 10.5

65. In an election between two candidates, the winning candidate has got 70% of the votes polled and has won by 15400 votes. What is the number of votes polled for loosing candidate?
(a) 38500
(b) 11550
(c) 26950
(d) 13550

66. A man gains 15% by selling a calculator for a certain price. If he sells it at the triple the price, then what will be the profit percentage?
(a) 125 (b) 175
(c) 225 (d) 245

67. A group of boys has an average weight of 36 kg. One boy weighing 42 kg leaves the group and another boy weighing 30 kg joins the group. If the average now becomes 35.7 kg, then how many boys are there in the group?
(a) 30 (b) 32
(c) 40 (d) 56

68. A shopkeeper allows 25% discount on the marked price of an article and he suffered a loss of 15%. What will be the profit percent if the article is sold at marked price?
(a) 11.76 (b) 12.12
(c) 13.33 (d) 14.28

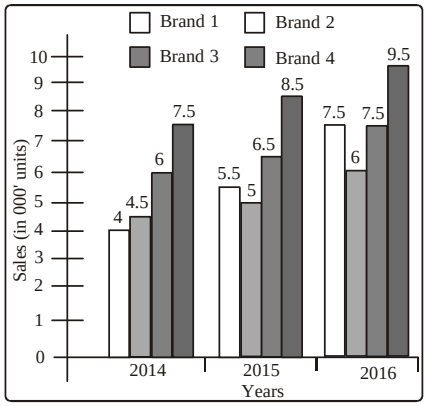
69. A can do a piece of work in 6 days working 8 hours a day while B can do the same work in 4 days working 10 hours a day. If the work has to be completed in 5 days, so how many hours do they need to work together in a day?
(a) 4 (b) $5\frac{4}{11}$
(c) $6\frac{4}{11}$ (d) $4\frac{4}{11}$

70. If the square of sum of three positive consecutive natural numbers exceeds the sum of their squares by 292, then what is the largest of the three numbers?
(a) 5 (b) 6
(c) 7 (d) 8

71. By which least number should 5000 be divided so that it becomes a perfect square?
(a) 2 (b) 5
(c) 10 (d) 25

72. A can do a work in 8 days, B can do the same work in 10 days and C can do the same work in 12 days. If all three of them do the same work together and they paid ₹ 7400, what is the share (in ₹) of B?
(a) 2600
(b) 3000
(c) 2400
(d) 2000

Directions (Q. 73-75): The bar chart given below shows the sales [in 1000 units] of 4 mobile brands for 3 years.



73. What is the percentage increase in the number of mobile phones of Brand 2 sold from 2014 to 2015?
(a) 8.33 (b) 33.33
(c) 37.5 (d) 11.11

74. What is the percentage increase in the total number of mobiles sold by these four brands from 2014 to 2016?
(a) 42.16
(b) 38.63
(c) 32.43
(d) 30.16

75. In 2017, the sales of each brand increased by the same percentage as it did in the year 2016. What will be the approximate average sales (in units) of mobiles per brand in year 2017?
(a) 9150 (b) 8360
(c) 9436 (d) 9678

SECTION-III : GENERAL TEST

1. (d) On September 5, 2018, Dr. Poonam Khetrapal Singh was unanimously re-elected as Regional Director of WHO for another five-year term beginning February 2019. She is the first woman to have been elected to the position of Regional Director for WHO South-East Asia Region. She is an Indian civil servant and had worked with World Bank and WHO.

2. (b) 'The Three Mistakes of My Life' is the third novel written by Chetan Bhagat. The book was published in May 2008. The novel follows the story of three friends and is based in the city of Ahmedabad, Gujarat. The movie version of the novel is Kai Po Che!

3. (b) Kamaljeet Sandhu won gold medal at 1970 Asian Games in 400 m race. She ran the distance in 57.3 seconds. She was the first Indian woman to win gold medal at any Asian games. She received Padma Shri award in 1971.

4. (d) Martin Cooper, an American engineer, conceived the first handheld mobile phone while at Motorola in 1973. He led the team that developed it and brought it to market in 1983. He is considered the "father of the cell phone" and is also cited as the first person in history to make a handheld cellular phone call in public.

5. (d) The Rock Garden of Chandigarh is a sculpture garden that was created by Nek Chand, a government official who started it secretly in his spare time in 1957. It is also known as Nek Chand's Rock Garden. Today it is spread over an area of 40 acres. It is completely built of industrial and home waste items.

6. (d) A relatively higher rate of inflation causing rise in prices of the goods in India as compared to those in the USA will make US goods relatively cheaper and the Indian goods expensive. This will lead to rise in imports of US goods into India and the reduction in Indian exports to the USA that will, in turn, cause the foreign exchange rate of dollar in terms of rupees to rise and the price of Indian rupee in terms of dollar will fall. Thus, as a result of higher rate of inflation in India, the US dollar -will appreciate and the Indian rupee will depreciate.

7. (b) On September 6, 2018, India and France announced a working group for Gaganyaan, ISRO's first manned mission at the sixth edition of Bengaluru Space Expo. India plans to send three humans to space before 2022. ISRO and CNES, the French space agency, will be combining their expertise in fields of space medicine, astronaut health monitoring, life support, radiation protection, space debris protection and personal hygiene systems for the mission. ISRO plans to conduct experiments on microgravity through its astronauts.

8. (d) With total population of 199,281,477, Uttar Pradesh is the most heavily populated state of India as per the 2011 Census. It constitutes 16.49% of India's population. Maharashtra and Bihar come next with respective contributions of 9.28% and 8.58% to the national population.

9. (a) NABARD stands for National Bank for Agriculture and Rural Development. It was established on 12 July 1982 by a special Act of parliament to focus on upliftment of rural India by increasing the credit flow for elevation of agriculture & rural non-farm sector. It is headquartered in Mumbai (Maharashtra).

10. (c) Mohammad Hamid Ansari is the only second vice-president of India to get a second consecutive term after S. Radhakrishnan. He was elected as Vice President of India on 10 August 2007 and took office on 11 August 2007. He was re-elected on 7 August 2012.

11. (d) As per Article 213 of Indian Constitution, an Ordinance promulgated by the Governor of a state has to be laid before the Legislative Assembly or where there is a Legislative Council in the State, before both the Houses. It ceases to operate at the expiration of six weeks from the reassembly of the Legislature, or if before the expiration of this period a resolution disapproving it is passed by the Legislative Assembly and agreed to by the Legislative Council.

12. (b) The Indian National Army was first formed in 1942 under Mohan Singh, by Indian prisoners of war of the British- Indian Army captured by Japan in the Malayan campaign and at Singapore. However, it soon fell into decline. It was revived under the leadership of Subhas Chandra Bose after his arrival in Southeast Asia in 1943.

13. (b) At present, Brazil, India and China are the three leading sugar producing countries of the world.

14. (b) Seismography is the scientific measuring and recording of the shock and vibrations of earthquakes. The study of these records is known as seismology. The instrument for automatically detecting and recording the intensity, direction, and duration of a movement of the ground, especially of an earthquake, is known as seismograph.

15. (d) Platelets, also called thrombocytes, are a component of blood whose function is to stop bleeding by clumping and clotting blood vessel injuries. Unlike red and white blood cells, platelets are not actually cells but rather small fragments of cells.

16. (b) The bark of cinchona tree yields quinine, a white crystalline alkaloid having antipyretic (fever-reducing), antimalarial, analgesic (painkilling), and anti-inflammatory properties. Quinine was the first effective Western treatment for malaria caused by Plasmodium falciparum.

17. (d) The velocity of sound in a gas is given by

$$v = \sqrt{\frac{\gamma p}{\rho}} \qquad \text{... (i)}$$

Clearly, velocity v is inversely proportional to the square root of density (p) of the gas. Now, let us consider two gases which are at the same pressure (P) and the same value of γ. If ρ_1 and ρ_2 be their densities, then velocity of sound in the two gases are

$$v_1 = \sqrt{\frac{\gamma p}{\rho_1}} \text{ and } v_2 = \sqrt{\frac{\gamma p}{\rho_2}}$$

For example, density of oxygen is 16 times the density of hydrogen, therefore from (ii), we have

$$\frac{vH}{v_0} = \sqrt{\frac{\rho_0}{\rho H}} = \sqrt{\frac{16\,pH}{PpH}} = 4$$

or $vH = 4v_o$

So the corresponding ratio of velocity of sound in oxygen and hydrogen is 1: 4.

18. (d) In refracting media like glass prism, water, etc., lights of different colors travel with different speeds. The speed of violet colour is the least, while the speed of red colour is the largest in prism. As a result, the refractive index of glass is largest for violet colour and least for red colour. So the violet colour is deviated the most, while red colour is deviated least on passing through the prism.

19. (d) Hydraulic brake works on Pascal's law which states that pressure exerted anywhere in a confined incompressible fluid is transmitted equally in all directions throughout the fluid such that the pressure variations remain the same. The wheel cylinder of hydraulic drum brakes acts as a double hydraulic press, multiplying the force on the fluid by the ratio of

the area of the cylinder to the area of the supply line. Besides the muliplication of force achieved, Pascal's principle guarantees that the pressure is transmitted equally to all parts of the enclosed fluid system.

20. (c) Oxytocin is a hormone that is normally produced in the hypothalamus and stored in the posterior pituitary gland. It plays a role in social bonding, sexual reproduction in both sexes, and during and after childbirth. It is released due to stretching of the cervix and uterus during labor and with stimulation of the nipples from breastfeeding.

21. (d) India has three research stations in Antarctica: Dakshina Gangotri Maitri and Bharati. India's first committed research facility, Dakshin Gangotri, was set up in 1983. It is currently being used as a supply base. Maitri and Bharati were set up in 1989 and 2012 respectively.

22. (b) El Nino (Little Boy, or Christ Child in Spanish) refers to the large-scale ocean-atmosphere climate interaction linked to a periodic warming in sea surface temperatures across the central and east-central Equatorial Pacific. It was originally recognized by fishermen off the coast of South America in the 1600s, with the appearance of unusually warm water in the Pacific Ocean.

23. (d) The Chipko movement refers to an organized resistance to the destruction of forests that arose in India during the 1970s. The name of the movement comes from the word 'embrace', as the villagers hugged the trees, and prevented the contractors from felling them. In 1987, the Chipko Movement was awarded the Right Livelihood Award.

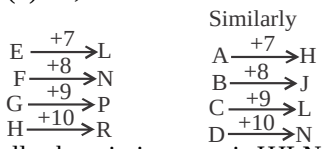
24. (d) The South African city of Durban was, in September 2015, selected as the host for the 2022 Commonwealth Games at the Federation's general assembly in New Zealand. It was the only contender after Edmonton withdrew its bid. This is the second time a Commonwealth Republic will become a host after Delhi, India in 2010.

25. (b) Sulfur dioxide (SO_2) and nitrogen oxides (NO_x) are the principal pollutants that cause acid rain. SO_2 and NO_x emissions released into the air react with water vapor and other chemicals to form acids that fall back to Earth. Power plants burning coal and heavy oil produce over two-thirds of the annual SO_2 emission.

26. (d) As, Frog is related to the group Amphibian.

Similarly, Cobra is related to the group Reptiles.

27. (b) As,



Finally, the missing term is HJLN.

28. (b) As, 25 × 10 + 10 = 260

Similarly

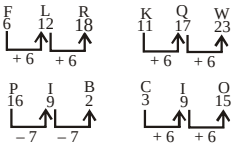
30 × 10 + 10 = 310

Finally, the missing number is 310.

29. (d) Truck, Car and Motorcycle are moving on the road and Aeroplane is moving in the air.

Finally, Aeroplane is odd word.

30. (c)



Finally, the odd word pair is PIB.

31. (d) 6210 = 6 + 2 + 1 + 0 = 9

7020 = 7 + 0 + 2 + 0 = 9

1431 = 1 + 4 + 3 + 1 = 9

1280 = 1 + 2 + 8 + 0 = 11

Finally, the odd number is 1280.

32. (a) 68, 136 and 102 are divisible by 17 and 86 is not divisible by 17. So the odd number is 86.

33. (c)

R $\xrightarrow{+8}$ Z $\xrightarrow{+8}$ H $\xrightarrow{+8}$ P

S $\xrightarrow{+8}$ A $\xrightarrow{+8}$ I $\xrightarrow{+8}$ Q

Finally, the missing term is PQ.

34. (c)

P $\xrightarrow{-4}$ L $\xrightarrow{-5}$ G $\xrightarrow{-6}$ A

O $\xrightarrow{-4}$ K $\xrightarrow{-5}$ F $\xrightarrow{-6}$ Z

N $\xrightarrow{-4}$ J $\xrightarrow{-5}$ E $\xrightarrow{-6}$ Y

Finally, the missing term is AZY.

35. (b) 250 + 25 → 275

275 + 26 → 301

301 + 27 → 328

Finally, the missing number is 328.

36. (b) According to question, the sitting sequence is :

B C E D A

Left Righ

Finally, E in the middle.

37. (c) According to dictionary, the arrangement of the given words is—

(i) Shortage, (ii) Shore, (iii) Shamelessly, (iv) Shadiness, (v) Shallow

38. (a) As,

S P A R R O W

↓ ↓ ↓ ↓ ↓ ↓ ↓

1 3 2 6 6 5 4

and R I N G

↓ ↓ ↓ ↓

6 9 7 8

Similarly,

∴ R A I N S

↓ ↓ ↓ ↓ ↓

6 2 9 7 1

Finally, RAINS can be written in code language as 62971.

39. (b) As, $\frac{36+72}{2} = \frac{108}{2} = 54$

and $\frac{44+88}{2} = \frac{132}{2} = 66$

Similarly

$\frac{32+64}{2} = \frac{96}{2} = 48$

Finally, the missing number is 48.

40. (d) 17 – 15 × 5 = 250

After changing sign

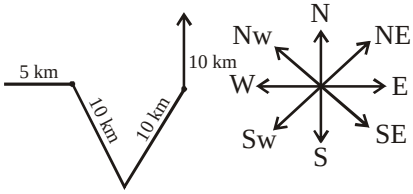
= 17 × 15 – 5 = (255 – 5) = 250

41. (b) The series is:

j k l m / j k l m / jk l

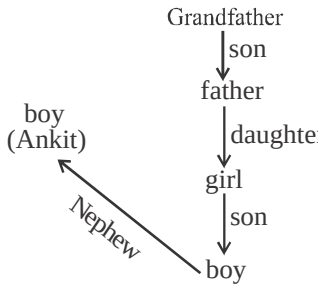
Finally, the set of words/letters is jklml.

42. (c)



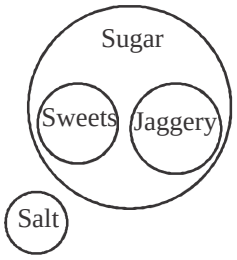
Finally , Rahul is in north-east direction from starting point.

43. (d) According to question,

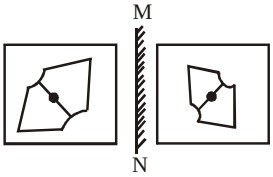


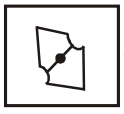
Finally, the boy is nephew of Ankit.

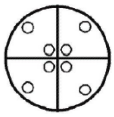
44. (c) Sweets, Sugar and Jaggery are in same group because sweets and jaggery are made with sugar and salt is different. So the representation of the given classes as given below—



45. (b)



Finally, the right mirror image of the given image is  .

46. (d) A piece of paper is folded and punched, when opened it will appear as given below— 

47. (d) 48. (b) 49. (b)

50. (b) A = 03, 12, 44, 69

N = 22, 75, 86

I = 77, 99

M = 56

A = 03, 12, 44, 69

L = 01, 14, 21, 23, 68

For 'ANIMAL' the set of numbers is 69, 22, 99, 56, 03, 23.

51. (b) Let the number be x

Percentage error

$$= \frac{\frac{7}{6}x - \frac{6}{7}x}{\frac{7}{6}x} \times 100\%$$

$$= \frac{49x - 36x}{\frac{7}{6}x \times 42} \times 100\%$$

$$= \frac{13 \times 6x}{7x \times 42} \times 100\% = \frac{1300}{49}\%$$

$$= 26.53\%$$

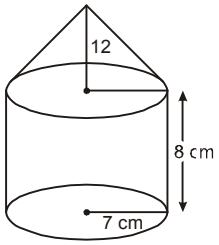
52. (a) If cos 135° = x,

Then x = cos 135°

= cos (180° – 45)

$$= -\cos 25 = -\frac{1}{\sqrt{2}}$$

53. (d)



$l = \sqrt{h^2 + r^2} = \sqrt{144 + 49}$

$= \sqrt{193} = 13{\cdot}9$ m

Total area of canvas = $2\pi rh + \pi rl$

$= \pi r(2h + l)$

$= \frac{22}{7} \times 7\ (2 \times 8 + 13{\cdot}9)$

$= 22\ (16 + 13{\cdot}9)$

$= 22 \times 29{\cdot}9 = 657{\cdot}8\ m^2$

Net cloth required

$$= \frac{657{\cdot}8 \times 120}{100}$$

$$= \frac{657{\cdot}8 \times 12}{10} = 789{\cdot}2\ m^2$$

54. (c) Cost price of each shirt

$$= \frac{₹\ 600}{3} = ₹\ 200$$

Cost price of 5 shirts

$= ₹\ 200 \times 5 = ₹\ 100$

Profit = ₹ 1000 – ₹ 600 = ₹ 400

$$\text{Effective percent} = \frac{400 \times 100\%}{1000}$$

$= 40\%$

55. (c) Left quantity of rice

$$= 12 \times \frac{100 - 15}{100}$$

$$= \frac{12 \times 85}{100} = \frac{1020}{100} = 10{\cdot}20 \text{ quintals}$$

S.P. at 20% profit

$$= \frac{120}{100} \times 1870$$

$= 12 \times 187 = ₹\ 2244$

$$\text{Selling price per quintal} = \frac{2244}{10{\cdot}20}$$

$$= \frac{22440}{102}$$

$= ₹\ 220$ per quintal

56. (c) Ratio of collection $= \frac{13}{16} \times \frac{11}{9}$

$$= \frac{143}{144} = 143:144$$

Ratio of collection increased in the ratio of 143 : 144.

57. (b) $\frac{486\, b^3 x^2 a^4 z^3}{27\, a^3 b^2 z}$

$= \frac{486}{27} a^{4-3} b^{3-2} z^{3-1} x^2$

$= 18\, a\, b\, z^2 x^2$

$= 18\, az^2\, x^2\, b$

$= 18\ ab\, z^2 x^2$

58. (c) Let speed of Rajdhani train be u and time t,

Speed of Express train = 2u

$$u = \frac{D}{T} = \frac{672}{(t+14)} \quad ...(i)$$

Speed of Express train

$$2u = \frac{672}{t-8} \quad ...(ii)$$

Dividing equation (i) by (ii), we get

$$\frac{1}{2} = \frac{t-8}{t+14}$$

$\Rightarrow$ $t + 14 = 2t - 16$

$\Rightarrow$ $2t - t = 14 + 16 = 30$

$\therefore$ $t = 30$ hours

$$\text{Speed of Rajdhani train} = \frac{672}{30}$$

$= 22{\cdot}4$ km/hr.

59. (a) $x + y = 12$

Squaring both sides

$(x + y)^2 = 12^2$

$\Rightarrow$ $x^2 + y^2 + 2xy = 144$

$\Rightarrow$ $94 + 2xy = 144$

$\Rightarrow$ $2xy = 144 - 94 = 50$

$\therefore$ $xy = \frac{50}{2} = 25$

60. (d) Let the angles be x, 2x, 4x and 5x.

$\because$ Sum of angles of a quadrilateral is 360°

$x + 2x + 4x + 5x = 360°$

$\Rightarrow$ $12x = 360°$

$\therefore$ $x = \frac{360°}{12} = 30°$

The biggest angle = 5x = $5 \times 30° = 150°$

61. (d) Cyclic quadrilateral.

62. (a) Sahay can complete a job = 21 days

Mahanath can complete a job = $\frac{21}{2}$ days

Sahay can do a work in 1 day $= \frac{1}{21}$

Mahanath can do a work in 1 day $= \frac{2}{21}$

Both work in 1 day $= \frac{1}{21} + \frac{2}{21}$

$= \frac{1+2}{21} = \frac{3}{21} = \frac{1}{7}$

Both will complete a work in 7 days.

63. (b) Let the number be $10x + y$

$x + y = 11$ ...(i)

$10x + y + 45 = 10y + x$

$10x + y - 10y - x = -45$

$9(x - y) = -45$

$x - y = -5$ ...(ii)

Solving equation (i) and (ii), we get

$x = 3$ and $y = 81$

Hence, the number = 30 + 8 = 38.

64. (c) Rate downstream of boat = x kmph.

Rate upstream = y kmph.

According to the question,

$$\frac{4}{x} + \frac{4}{y} = 1 \quad ...(i)$$

and $\frac{5}{x} + \frac{3}{y} = \frac{55}{60} = \frac{11}{12}$ ...(ii)

From equation (i) and (ii)

$x = 12$ km/hr. and $y = 6$ km/hr

$\therefore$ Speed of boat in still water

$$= \frac{1}{2}(x + y) = \frac{1}{2}(12 + 6)$$

$= 9$ kmph.

65. (b) Total votes polled = x

Vote percentage of the loser = 30%

According to the question,

40% of x = 15400

$\therefore$ 30% of $x = \frac{15400}{40} \times 30 = 11550$

66. (d) Let C.P. of calculator = ₹ 100

First S. P. of calculator = ₹ 115

Second S. P of calculator = ₹ 345

$\therefore$ Profit = ₹ (345 – 100) = ₹ 245

$\therefore$ Profit percent = 245

67. (c) Number of boys in the group = x

According to the question,

$36x = 35.7x + (42 - 30)$

$\Rightarrow$ $0.36x - 35.7x = 12$

$\Rightarrow$ $0.3x = 12$

$\Rightarrow$ $x = \frac{12}{0.3} = \frac{120}{3} = 40$

68. (c) Let C. P. of article = ₹ 100

Market price of article

$$x \times \frac{75}{100} = 85$$

$\Rightarrow$ $x = \frac{85000}{75} = ₹\ \frac{340}{3}$

When no discount is given,

$$\text{Profit} = ₹\left(\frac{340}{3} - 100\right)$$

$$= ₹\left(\frac{340 - 300}{3}\right) = ₹\ \frac{40}{3}$$

$\because$ Cost price of article = ₹ 100

$\therefore$ Profit percent $= \frac{40}{3} = 13\frac{1}{3}\%$

$= 13.33\%$

69. (d) A will finish the work in 48 days working for an hour daily.

B will do the work in 40 days working for an hour daily.

$\therefore$ (A + B)'s 1 day's work

$$= \frac{1}{48} + \frac{1}{40} = \frac{5+6}{240} = \frac{11}{240}$$

$\therefore$ Time taken by both while working for 1 hour daily $= \frac{240}{11}$ days

$\therefore$ Number of working hours daily to finish the work in 5 days

$$= \frac{240}{11\times 5} = \frac{48}{11} = 4\frac{4}{11} \text{ hours}$$

70. (d) Let the three consecutive natural numbers = x, x + 1 and x + 2.

According to the question,

$(x + x + 1 + x + 2)^2 - (x^2) - (x + 1) - (x + 2)^2 = 292$

$\Rightarrow (3x + 3)^2 - x^2 - x^2 - 2x - 1 - 4x - 4 = 292$

$\Rightarrow 9x^2 + 18x + 9 - x^2 - 6x - 5 = 292$

$\Rightarrow 6x^2 + 12x + 4 = 292$

$\Rightarrow 6x^2 + 12x - 288 = 0$

$\Rightarrow x^2 + 2x - 48 = 0$

$\Rightarrow x^2 + 8x - 6x - 48 = 0$

$\Rightarrow (x - 6)(x + 8) = 0$

$\Rightarrow x = 6$ because $x \neq -8$

$\therefore$ Largest number $= (x + 2) = 6 + 2 = 8$

71. (a) 5000

$= 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5$

$= 2^2 \times 5^2 \times 5^2 \times 2$

$\therefore$ Required number = 2

72. (c) Ratio of 1 day's work of A, B and C $= \frac{1}{8} : \frac{1}{10} : \frac{1}{12}$

$$= \left(\frac{1}{8}\times 120\right) : \left(\frac{1}{10}\times 120\right) : \left(\frac{1}{12}\times 120\right)$$

[$\because$ LCM of 8, 10 and 12 = 120]

$= 15 : 12 : 10$

Sum of the terms of ratio

$= 15 + 12 + 10 = 37$

$\therefore$ B's share $= ₹\left(\frac{12}{37}\times 7400\right)$

$= ₹\ 2400$

73. (d) Required percentage increase

$$= \left(\frac{5 - 4.5}{4.5}\right)\times 100$$

$$= \frac{0.5}{4.5}\times 100 = \frac{100}{9} = 11.11\%$$

74. (b) Number of mobile phones sold of all brands in year 2014

= (4 + 4.5 + 6 – 7.5) thousands

= 22 thousands

In year 2016

= (7.5 + 6 + 7.5 + 9.5) thousands

= 30.5 thousands

$\therefore$ Required percentage increase

$$= \left(\frac{30.5 - 22}{22}\right)\times 100$$

$$= \frac{8.5\times 100}{22} = \frac{425}{11} = 38.636\%$$

75. (a) In brand 1 percentage increase in 2016:

$$= \left(\frac{7.5 - 5.5}{5.5}\right)\times 100$$

$$= \frac{200}{5.5} = \frac{2000}{5.5} = 36.36$$

$$\text{Brand 2} = \frac{6-5}{5}\times 100 = 20\%$$

$$\text{Brand 3} = \left(\frac{7.5 - 6.5}{6.5}\right)\times 100$$

$= 15.38\%$

$$\text{Brand 4} = \left(\frac{9.5 - 8.5}{8.5}\right)\times 100$$

$= 11.76\%$

$\therefore$ Total sales in 2017

$$\left(\frac{7.5\times 136.36}{100} + \frac{6\times 120}{100} + \frac{7.5\times 115.38}{100} + \frac{9.5\times 111.76}{100}\right) \text{thousands}$$

= (10.2 + 7.2 + 8.6 + 10.6) thousands

= 36.6 thousands

$$\text{Average} = \frac{36.6\times 1000}{4} = 9150$$

❑❑❑