General Knowledge Sample Paper - 4

SECTION-III : GENERAL TEST			
1. Who is the founder of the concept			
"Sarvodaya"?			
(a) Vinobha Bhave			
(b) Mahatma Gandhi			
(c) Jai Prakash Narayan			
(d) K G Mushroowala			
2. The directive principles			
incorporated in the Indian			
Constitution have been inspired			
by the constitution of			
(a) Australia (b) Ireland			
(c) USA (d) Canada			
3. Which one of the following wood			
is used in making cricket bats?			
(a) Linun usitatissimum			
(b) Morus alba			
(c) Salix purpurea			
(d) Cedrus deodara			
4. How many states are there in the			
Indian Union?			
(a) 27 (b) 28			
(c) 30 (d) 29			
5. The Battle of Plassey was fought			
between			
(a) Sirajudduala and Robert			
Clive.			
(b) None of the options			
(c) Mir Kasim and Robert Clive.			
(d) Mir Jafar and Robert Clive.			
6 In which year was the first World			
Environment Day observed?			
(a) 1972 (b) 1980			
$ \begin{array}{c} (a) 1972 \\ (b) 1900 \\ (c) 1073 \\ (d) 1074 \end{array} $			
(C) 17/3 (U) 19/4			
7. A bullet of mass m and velocity			
a is fired in to a large block of			
wood of mass M. The final			
velocity of the system is			
M m			
(a) $\frac{1}{m+M}$ a (b) $\frac{1}{m+M}$ a			
(c) $\frac{m+M}{m+M}a$ (d) $\frac{m+M}{m+M}a$			
m = m			

- 8. Soilless agriculture refers to
 - (a) Hydropon ics
 - (b) Hygroponics
 - (c) Sericulture
 - (d) Inter-cropping

- 9. The idea of parliamentary form of government is adapted from (a) US (b) UK
 - (c) Ireland (d) USSR
- 10. How many Nobel Prize awards are awarded each year?(a)10 (b) 6
 - (c) 5 (d) 8
- 11. Phycology is the study of(a) Bacteria(b) Algae(c) Fungi(d) Lichens
- 12. Which was the first talkie film made in India?
 - (a) Kisan Kanya
 - (b) Raja Harishchandra
 - (c) Mother India
- (d) Alam Ara 13. Barter transactions means
 - (a) Goods are exchanged with gold.
 - (b) Coins are exchanged for goods.
 - (c) Money acts as a medium of exchange.
 - (d) Goods are exchanged with goods.
- 14. External Affairs Minister Sushma Swaraj inaugurated the 3rd Indian Ocean Conference.
 Where was the conference held from 27-28 August 2018?
 (a) Colombo, Sri Lanka
 - (b) Vishakapatnam, Andhra Pradesh
 - (c) Hanoi, Vietnam
 - (d) Kuala Lampur, Malaysia
- 15. 'Cloud burst' means
 - (a) Sowing of seeds of a crop in cloudy weather.
 - (b) Abnormally heavy downpour of rain, associated with a thunderstorm.
 - (c) Formation of artificial rain.
 - (d) Presence of scattered flakes of cloud in the sky.
- 16. Which of the following memories must be refreshed many times per second?
 - (a) ROM
 - (b) Dynamic RAM
 - (c) EPROM
 - (d) Static RAM
- 17. Who was Akbar's famous revenue minister?

(b) Todarmal (c) Rana Pratap Singh (d) Humayun 18. Name the first Asian country to Orbit Mars. (a) Japan (b) Pakistan (c) China (d) India 19. Who was the first Indian to become member of British Parliament? (a) D.N. Wacha (b) Surendranath Banerjee (c) Dadabhai Naoroji (d) Firozshah Mehta 20. More than 50% of the world's coal deposits are held by (a) USA, Russia and China (b) China, India and Russia (c) India. Russia and USA (d) China, India and USA 21. 'Red Data Book' provides an account of (a) Endangered plants only (b) Fossil plants (c) Endangered plants and animals (d) Extinct animals only 22. When number of turns in a coil is trippled, without any change in the length of coil, its self inductance becomes? (a) Nine times (b) Three times (d) One-third (c) Six times 23. Dry ice is the solid form of: (a) Air (b) Carbon dioxide (c) Nitrogen (d) Water

(a) Tansen

- 24. The common name of sodium bicarbonate is
 - (a) Soda ash
 - (b) Baking soda
 - (c) Soda lime
 - (d) Baking powder
- 25. The instrument used to measure pressure
 - (a) Anemometer
 - (b) Aneroid Barometer
 - (c) Hygrometer
 - (d) Thermometer

Directions (Q. 26-29): Select the related word/letters/number from the given alternatives.

26. Scientist : Laboratory :: Astronomer : ? (a) Garage (b) Battlefield (c) Observatory (d) Hospital 27. CGK : DHL : UYC : ? (b) WZD (a) VZD (c) WZA (d) VAE 28. BCD : DEG : FIJ : ? (b) JLN (a) HKM (c) FGH (d) KLN 29. 56:72::90:? (a) 96 (b) 97 (c) 100 (d) 110 Directions (Q. 30-32): Select the odd word/letters/number pair from the given alternatives. 30. (a) WYA (b) MNO (c) ACE (d) EGI 31. (a) 243 (b) 264 (d) 405 (c) 333 32. (a) 369 (b) 257 (c) 346 (d) 628 Directions (Q. 33-35): A series is given with one term missing. Select the correct aternative from the given ones that will complete the series. 33. CM, EK, Gl, ? (a) lK (b) IG (d) PS (c) LM 34. FGH, NOP, VWX, ? (a) FGH (b) DEF (c) EFG (d) FGH 35. 4.9.25.64.169.? (a) 441 (b) 225 (c) 289 (d) 256 36. In the following question, two statements are given followed by two conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusion, if any, follows from the given statements. Statements:

> (I) The DRDO has tested the Smart Anti Airfield Weapon from an Indian Air Force aircraft.

(II) The lightweight high-precision guided bomb is one of the world class weapons systems. Conclusions: (I) DRDO Chairman Dr. S. Christopher congratulated the DRDO and the IAF teams for the successful mission. (II) The test was carried out by IAF's Aircraft and System Testing Establishment. (a) Only conclusion II follows (b) Conlusion I and II both follow (c) Neither I nor II follows (d) Only conclusion I follows 37. Sanjeev secured the highest marks in the class. Rahul secured more than Nirbhay but lesser than Sameer. Arpit secured more than Rahul. Who got the 4th Rank out of the five. (a) Sameer (b) Nirbhay (c) Rahul (d) Arpit 38. Arrange the given words in the sequence in which they occur in the dictionary. (i) Forehead (ii) Forensic (iii)Forest (iv)Foremost (a) i, iv, ii, iii (b) iii, ii, iv, i (c) i, ii, iii, iv (d) i, iv, iii, ii 39. In a certain code language, "SELDOM" is written as "NPEMFT". How is "SACRIFICE" written in that code language? (a) FDJGJDSBT (b) FDJGJSDBT (c) FDJSJGTBD (d) FGDJGDSBT 40. In the following question, select

40. In the following question, select the missing number from the given series.

	17	24	16	
	8	?	11	
	81	100	25	
(a) 1			(b)	16
(c) 14			(d) 2	20

41. If "S" denotes "multiplied by","V" denotes "subtracted from","M" denotes "added to" and "L" denotes "divided by", then

- 343 L 7 S 6 V 94 M 11 = ? (a) 111 (b) 222 (c) 211 (d) 305
- 42. In the following question, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

r_pr_p_q_r_p

- (a) qrppq (b) qqrpq
- (c) qrprp (d) qrppr
- 43. A man moves 24 metres in south direction and turns 90 degrees anticlockwise and moves another 7 metres and takes a right turn and moves 3 metres and then moves 3 metres in the north direction. Find the distance between his initial and his final position.
 - (a) 25 m (b) 30 m (c) 27 m (d) 35 m
- 44. Nisha's father's brother-in-law is the brother of Neha. How is Nisha related to Neha?
 - (a) Sister
 - (b) Niece
 - (c) Mother
 - (d) Mother-in-law
- 45. If a mirror is placed on the line MN, then which of the answer figure is the right image of the given figure? Question figure:



Answer figures:



46. Identify the diagram that best represents the relationship among the given classes.

Mathematics, Arithmetic, Algebra



47. A piece of paper is folded and punched as shown below in the question figure. From the given answer figure, indicate how it will appear when opened.





48. How many triangles are there in the given figure?



49. In the given figure, how many people like cricket and tennis both?



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, "C" can be represented by 02, 14, etc., and 'G' can be represented by 85, 96, etc. Similarly, you have to identify the set for the word 'MODEST'. Matrix-I Matrix-II 0 1 2 3 4 0 H E C F F 5 6 7 8 9 5 K M O R R 1 A T E O C 6 P S M O Q
 7
 D
 P
 S
 M
 O

 8
 G
 D
 P
 S
 M
 2 0 A T E F 3 H O A T E 9 J G D P S 4 I I 0 A A (a) 78, 43, 86, 01, 77, 89 (b) 89, 42, 97, 01, 66, 23 (c) 56, 31, 76, 23, 66, 23 (d) 67, 13, 86, 34, 77, 33 51. What is the value of (91 + 92 + 93)+.....+ 140)? (a) 5775 (b) 1550 (c) 17325 (d) 23100 52. The average revenues of 9 consecutive years of a company is ₹ 80 lakhs. If the average of first 5 years is ₹ 75 lakhs and that of last 5 years is ₹87 lakhs, find the revenue for the 5th year. (a) ₹ 90 lakhs (b) ₹ 92 lakhs (c) ₹ 88 lakhs (d) ₹ 86 lakhs 53. In an army selection process, the ratio of selected to unselected was 3:1. If 60 less had applied and 30 less selected, the ratio of selected to unselected would have been 5:1. How many candidates had applied for the process? (a) 240 (b) 480 (c) 120 (d) 720 54. Manjeet can do a work in 18 hours. If he is joined by Jaya who is 100% more efficient, in what time will they together finish the work? (a) 6 hours (b) 3 hours (d) 24 hours (c) 12 hours

55. Two cars travel from city A to city B at a speed of 30 and 36 km/hr respectively. If one car takes 3 hours less time than the other carfor the journey, then the distancebetween City A and City B is :(a) 648 km(b) 810 km(c) 432 km(d) 540 km

56. A trader had 12 quintals of wheat. He sold a part of it at 13% profit and the rest at 23% profit, so that he made a total profit of 17 %. How much wheat did he sell at 23% profit?
(a) 720 here (b) 240 here

(a) 720 kg (b) 240 kg (c) 480 kg (d) 960 kg

- 57. A student multiplied a number by
- 6/13 instead of 13/6. What is the percentage error in the calculation?
 - (a) 369.44 percent
 - (b) 39.35 percent
 - (c) 184.72 percent
 - (d) 78.7 percent
- 58. Simple interest on a certain sum of money for 3 years at 14% per annum is half the compound interest on ₹ 10000 for 2 years at 10% per annum The sum placed on simple

annum. The sum placed on simple interest is: (a) ₹ 5000 (b) ₹ 1250

(c) ₹ 2000 (d) ₹ 2500

59. If the shopkeeper sells an item at ₹1000 which is marked as ₹ 1250, then what is the discount he is offering?

(a) 25 percent(b) 33.3 percent(c) 250 percent(d) 20 percent

60. If a cylinder of radius 7 cm and height 9 cm is melted and constructed into a cone of the same radius, what will be the height of this cone?

(a) 54 cm	(b) 9 cm
(c) 27 cm	(d) 13.5 cm

- 61. What is the measure of an interior angle of a regular dodecagon?
 (a) 120°
 (b) 140°
 (c) 150°
 (d) 144°
- 62. The diameter of a circle is 28 cm, find its area?(a) 616 sq cm(b) 308 sq cm
 - (c) 154 sq cm (d) 77 sq cm
- 63. Coefficient of x in (x + 8) (6 x) is: (a) 18 (b) 30 (c) -18 (d) -30

- 64. If x + y = 10 and $x^2 + y^2 = 68$, then find xy:
 - (a) 21 (b) 24
 - (c) 25 (d) 16
- 65. The sum of the digits of a 2-digit number is 17. If we add 9 to the number, the new number obtained is a number formed by interchange of the digits. Find the number.(a) 89 (b) 98
 - (c) 78 (d) 87
- 66. If $\left(\frac{x^2}{yz}\right) + \left(\frac{y^2}{zx}\right) + \left(\frac{z^2}{xy}\right) = 3$, then what is the value of $(x + y + z)^3$? (a) 0 (b) 1 (c) 2 (d) 3
- 67. A man starts running from point P at 11 : 00 a.m. with a speed of 10 km/hr. He runs for 2 hours and then takes a 1 hour rest. He continues this till he is caught by another man who starts at 2 : 00 p.m. from point P and runs nonstop at a speed of 15 km/hr towards the first man. At what time (in p.m.) will the first man be caught?
 (a) 6 : 20 (b) 4 : 40 (c) 6 : 00 (d) 5 : 30
- 68. The cost price of 60 articles is same as the selling price of x articles. If there is a profit of 20%, what is the value of x ?
 (a) 15 (b) 30
 - (c) 50 (d) 80
- 69. 5 years ago the average age of a family which includes father, mother and a son was 35 years. 3 years ago the average age of father and mother was 46 years. What is the present age (in years) of the son?
 (a) 20
 (b) 24
 (c) 26
 (d) 22
- 70. If $\frac{A}{3} = \frac{B}{2} = \frac{C}{2}$, then what is the value of ratio (C + A²₇ : (A + B²₇ : (B + C)²? (a) 9 : 4 : 25 (b) 25 : 4 : 9 (c) 64 : 25 : 49 (d) 49 : 25 : 64

- 71. Which one is the largest among the fractions $\left(\frac{5}{113}\right), \left(\frac{7}{120}\right), \left(\frac{13}{145}\right) \text{ and } \left(\frac{17}{160}\right)?$ (b) $\frac{7}{120}$ (a) $\frac{5}{113}$ (c) $\frac{13}{145}$ (d) $\frac{17}{160}$ 72. How many diagonals are there in octagon? (a) 12 (b) 14 (c) 20 (d) 24 Directions (Q. 73-75): The table given below represents the cost, revenue and tax rate for XYZ Limited for a period of 8 years. Cost and revenue are given in ₹ '000 crores. Year Revenue Cost Tax rate 800 Y1 600 20% Y2 1100 850 22% Y3 1200 900 22% Y4 1200 950 25% Y5 1050 30% 1350 Y6 1500 1200 30% Y7 1600 1240 33% **Y8** 1850 1400 15% Profit for any year = revenue $-\cos t$
 - Profit after tax for any year = profit of that year – tax of that year Tax on any year = tax rate of that year × profit of the year
- 73. How much tax (in ₹ '000 crores) was paid by XYZ limited in Y7 ?
 (a) 90
 - (b) 99
 - (c) 118.8
 - (d) 126
- 74. Which of the following is correct about profit after tax for years Y2, Y6 and Y8 ?
 (a) Y8 > Y6 = Y2
 - (b) Y6 > Y2 > Y8
 - (c) Y8 > Y6 > Y2
 - (d) Y6 = Y8 > Y2
- 75. How many distinct values of yearly profit are there ?(a) 3 (b) 4

(c) 5	(d)	6
. ,	. ,	

SECTION-III : GENERAL TEST

1. (b) Sarvodaya is a term meaning 'Universal Uplift' or 'Progress of All'. The term was first coined by Mohandas Gandhi as the title of his 1908 translation of John Ruskin's tract on political economy, "Unto This Last." Gandhi came to use the term for the ideal of his own political philosophy. Later Gandhian Vinoba Bhave, embraced the term as a name for the social movement in post-independence India which strove to ensure that self-determination and equality reached all strata of India society

2. (b) The Directive Principles of State Policy are guidelines or principles given to the central and state governments of India, to be kept in mind while framing laws and policies. The principles have been inspired by the Directive Principles given in the Constitution of Ireland and also by the principles of Gandhism. The Directive Principles of State Policy are contained in Part D7, Articles 36-51 of the Indian constitution.

3. (c) The cricket bat is exclusively made from a variety of White Willow called Cricket Bat Willow (Salix alba var caerulea), treated with raw (unboiled) linseed oil, which has a protective function. Salix alba var. caerulea is tough, durable, light, springy, straight grained and white. Stumps and bales are made of Morus (Mulberry). Salix purpurea (given as an option in the question) is the purple osier willow, the twigs of which are used to make ba skets, lobster-and crab-pots and furniture.

4. (d) India is a federal union of states comprising twenty-nine states and seven union territories. Telangana split from Andhra Pradesh to become the newest — 29th — State of India on 2nd June 2014 with Hyderabad as the shared capital.

5. (a) The Battle of Plassey was fought between Nawab Sirajud-Daulah, the last independent Nawab of Bengal, and the British East India Company under Robert Clive on 23 June 1757. It resulted in a decisive victory of the British East India Company over the Nawab and his French allies and the establishment of the Company rule in Bengal.

6. (c) The World Environment Day (WED) was established by the United Nations General Assembly (UNGA) on the day the United Nations Conference on the Human Environment began in Stockholm, Sweden, on 5 June 1972. The first World Environment Day was hosted in 1973. WED has been celebrated every year on 5 June since then.

7. (b) If v is the final velocity, then according to the principle of conservation of momentum,

 $m_1v_1 + m_2v_2 = (m_1 + m_2)v;$ or, $v = (m_1v_1 + m_2v_2)/(m_1 + m_2)$ Using values from the question, $v = (m \times a + 0)/(m + M) = ma/(m + M)$ 8. (a)

9. (b) The Constitution of India provides for a parliamentary form of government, both at the Centre and in the states that has been borrowed from the United Kingdom. The parliamentary government is also known as cabinet goverrment or responsible government or Westminster modal of government and is prevalent in Japan, Canada, among others.

10. (b) The Nobel Prize is given every year in the six fields—literature, medicine, physics chemistry, peace, and economics. The will of the Swedish inventor Alfred Nobel established the prizes in 1895. The prizes in five fields except economics were first awarded in 1901. The Nobel Memorial Prize in Economic Sciences was established by Sweden's Central Bank in 1968.

11. (b) Phycology is the scientific study of algae. Phycology algology is a branch of life science and often is regarded a sub-discipline of botany. It includes the study of prokaryotic forms known as blue green algae or cyanobacterias. 12. (d) India's first talkie film was Alam Ara (The Ornament of the World). The film was released on March 14, 1931 in Majestic Cinema in Bombay. Alam Ara was made under the banner of Imperial Movietone. It was produced and directed by Ardeshir Marwai Irani.

13. (d) Barter is a system of exchange where goods or services are directly exchanged for other goods or services without using a medium of exchange, such as money. Barter, as a replacement for money as the method of exchange, is used in times of monetary crisis, such as whether currency may be either unstable or simply unavailable for conducting commerce.

14. (c) From 27-30 August 2018, External Affairs Minister, Smt. Sushma Swaraj went on a 2 nation ministerial visit to Vietnam and Cambodia. India's visit to the two key ASEAN nations is seen as India's attempt to balance China's rising influence in the Southeast Asian region. She inaugurated 3rd Indian Ocean Conference in Hanoi, Vietnam.

15. (b) A cloudburst is an extreme amount of precipitation, sometimes accompanied by hail and thunder, that normally lasts no longer than a few minutes but is capable of creating flood conditions. A cloudburst can suddenly dump large amounts of water. However, cloudbursts are infrequent as they occur only via orographic lift or sudden condensation.

16. (b) Dynamic Random Access Memory (DRAM), the most common kind of Random Access Memory (RAM) for Personal computers and work stations, has to be refreshed many times per second in order to hold its data contents. DRAM is dynamic in that, unlike static RAM (SRAM), it needs to have its storage cells refreshed or given a new electronic charge every few milliseconds. DRAM stores each bit in a storage cell consisting of a capacitor and a transistor. Capacitors tend to lose their charge rather quickly thus, the need for recharging.

17. (b) Raja Todarmal was a warrior, an able administrator and an exemplary finance minister. He was one of the 'Navratnas' of Akbar's court. He became the finance officer (Mushrif-i-Diwan) of Akbar in 1575 and Diwan-i-Kul (Chief Finance Minister) in 1582 and introduced the reforms also known as Todarmal's rentroll, the book of land records in Mughal Empire.

18. (d) India is the first Asian nation to reach Mars orbit, and the first nation in the world to do so in its first attempt. Its Mars Orbiter Mission (MOM), also called Mangalyaan, was launched on 5 November 2013 by the Indian Space Research Organisation (ISRO). It has been orbiting Mars since 24 September, 2014.

19. (c) Dadabhai Naoroji, also known as the Grand Oldman of India, was the first Indian and Asian to be a British Member of Parliament. He was a Liberal Party member of parliament (MP) in the United Kingdom House of Commons between 1892 and 1895.

20. (a) The United States of America (22.6%), Russia (14.4%) and China (12.6%) together account for about 50 percent of the global coal deposits. Australia (8.9%) and India (7.0%) come next. In terms of coal production, China, USA and India are the world's topmost countries.

21. (c) The Red Data Book is the state document established for documenting rare and endangered species of animals, plants and fungi as well as some local sub-species that exist within the territory of the state or country. This book provides central information for studies and monitoring programmes on rare and endangered species and their habitats.

22. (a) Self-inductance is proportional to the number of turns per unit length. The original selfinductance (L) is given by

$$L = \frac{\mu_0 \pi(N)^{\frac{2}{r}}}{2}$$

On tripling \tilde{N} , the new selfinductance becomes L

$$=\frac{\mu_0\pi(3N)^{\frac{2}{r}}}{2}=9\times\frac{\mu_0\pi(N)^{\frac{2}{r}}}{2}=9L$$

23. (b) Dry ice, sometimes referred to as "cardice," is the solid form of carbon dioxide. It is used primarily as a cooling agent. Its advantages include lower temperature than that of water ice and not leaving any residue. It is useful for preserving frozen foods, ice cream, etc., where mechanical cooling is unavailable.

24. (b) Sodium bicarbonate (NaHCO $_3$) is also known as baking soda, bread soda, cooking soda, and bicarbonate of soda. It is primarily used in cooking (baking), as a leavening agent. It reacts with acidic components in batters, releasing carbon dioxide, which causes expansion of the batter and forms the characteristic texture and grain in pancakes, cakes, quick breads, etc.

25. (b) Aneroid barometer is an instrument for measuring pressure as a method that does not involve liquid. Invented in 1844 by French scientist Lucien Vidi, it uses a small, flexible metal box called an aneroid cell, which is made from an alloy of beryllium and copper.

26. (c) As scientist is related to laboratory.

Similarly, astronomer will be related to observatory.





Finally ? is replaced by HKM. 29. (d) $56 \xrightarrow{+16} 72 \xrightarrow{+18} 90 \xrightarrow{+20} 110$ \therefore The missing term is 110. 30. (b) $\stackrel{W}{23} \stackrel{Y}{25} \stackrel{A}{1} \stackrel{M}{13} \stackrel{N}{14} \stackrel{O}{15}$ $\xrightarrow{+2} \stackrel{+2}{1} \stackrel{+2}$

Finally, we find the odd word as MNO.

- 31. (b) 243 = 2 + 4 + 3 = 9 264 = 2 + 6 + 4 = 12 333 = 3 + 3 + 3 = 9 405 = 4 + 10 + 5 = 9Finally, the odd number is 264.
- 32. (c) 369 = 3 + 6 + 9 = 18 = Even
 - 257 = 2 + 5 + 7 = 14 = Even
 - 346 = 3 + 4 + 6 = 13 = odd

$$628 = 6 + 2 + 8 = 16 =$$
Even

Finally, the odd number is 346. 33. (b)

So, the missing term is IG

34. (b)



Finally, the missing term is DEF.

35. (a)

$$4 = (2)^{2} = 2$$

$$9 = (3)^{2} = 3$$

$$25 = (5)^{2} = 5$$

$$64 = (8)^{2} = 8$$

$$169 = (13)^{2} = 13$$

$$\therefore$$
 (21)² = 41

So the missing term is 441.

36. (c) Accord ing to statement, neither conclusion (I) nor conclusion (II) follow.

37. (c) According to question,

Sanjeev > Nirbhay >Arpit > Rahul > Sameer

Rahul got the fourth rank.

38. (a) According to dictionary, the sequence of the words are:

- (i) Forehead,
- (ii) Foremost,
- (iii) Forensic,
- (iv) Forest
- 39. (b) As,



Similarly



Hence, SACRIFICE will written in code language as FDJGJSDBT.

40. (c) $(17 - 8) = 9 \rightarrow (9)^2 \rightarrow 81$ $(16 - 11) = 5 \rightarrow (5)^2 \rightarrow 25$ 24 - ? = 100 $24 - ? = (10)^2$ 24 - ? = 10? = 24 - 10 = 14

Hence, the missing term is 14.

41. (c) If

s—	→×
V—	→ -
M	→ +
L—	÷

then,

Given expression = 343 L 7 S 6 V 94 M 11 = $343 \div 7 \times 6 - 94 + 11$ = $49 \times 6 - 94 + 11$ = 294 - 94 + 11= 305 - 94 = 21142. (b) r [q] p/r [q] p/ Eq [p]/r [q] p

Hence, the set of letters 'qqrpq' will complete the series.

43. (a)



$$\therefore AC^{2} = AB^{2} + BC^{2}$$
$$= (24)^{2} + (7)^{2}$$
$$= (576 + 49) = 625$$

 \therefore AC = 25 m

44. (b) Nisha's father's brother-inlaw is the brother of Neha.

So Nisha's father is uncle of Neha. Therefore, Nisha is niece of Neha.



46. (d) Arithmetic and Algebra are the types of Mathematics.

So, the best relationship among them.



47. (c) According to question, A piece of paper is folded and punched, when opened shown as—



The triangles are given below : \triangle AGF; \triangle AGB; \triangle AFB; \triangle BGH; \triangle BHD; \triangle CJB; \triangle CJD; \triangle CBD; \triangle BID; \triangle BEC; \triangle BFI; \triangle BFE; \triangle EIF; \triangle EID; \triangle EDF; \triangle DGF; \triangle DGB; \triangle DBF; \triangle DHI; \triangle HAE; \triangle AHB; \triangle FDA; \triangle BDA; \triangle HDE; \triangle AEB; \triangle ADE; \triangle ADC; \triangle BDE; \triangle AEC;

Thus, there are 29 triangles.

49. (b) The number of people who like cri cket and tennis both can be represented by the numbers common to the triangle and the circle. Such numbers are 17 and 15.

 \therefore Required answer = (17 + 15) = 32

50. (b)
$$M = 56, (67), 78, 89$$

 $O = (13), 20, 31, 42, 57, 68, 79$
 $D = 75, (86), 97$
 $E = 01, 12, 23(34)$
 $S = 66, (77), 88, 99$
 $T = 11, 22, (33), 44$

For 'MODEST' the set of the word is 67, 13, 86, 34, 77, 33.

51. (a) We know that $1 + 2 + 3 + \dots n = \frac{n(n+1)}{2}$ \therefore The value of $(1 + 2 + 3 + \dots)$ $+140) - (1 + 2 + \dots 90)$ $=\frac{140(140+1)}{2}-\frac{90(90+1)}{2}$ $=\frac{140\times141}{2}-\frac{90\ .01}{2}$ $= 70 \times 141 - 45 \times 91$ = 9870 - 4095 = 577552. (a) Total revenues = $80 \times 9 = 720$ Revenues of first 5 years from beginning = $75 \times 5 = 375$ Revenues of 5 years from last $= 87 \times 5 = 435$ Fifth year's revenue =(375+435-720)=(810-720)=90 lakh 53. (a) Let the number of candidates of selected and unselected be 3 x and x. No. of applied candidates = 3x + x = 4xAccording to question, $\frac{4x-60}{x-30} = \frac{5}{1}$ \Rightarrow 5x - 150 = 4x - 60 \Rightarrow x = (150 - 60) = 90 Hence, number of applied candidates = 3x - 30 $= 3 \times 90 - 30$ =(270-30)=24054. (a) Manjeet's one hour's work = 1 18 Jaya is 100% more efficient. Jaya will complete whole work in 9 hours Jaya's 1 hour's work = $\frac{1}{9}$ Both's 1 hour's work = $\frac{1}{18} + \frac{1}{9}$ $=\left(\frac{1+2}{18}\right)=\frac{3}{18}=\frac{1}{6}$ Time taken to complete work by both $=\frac{1}{1/6}=6$ hours.

= (t - 3) hours. Distance between A and B be x Both distances would be equal. Then, 30t = 36 (t - 3) \Rightarrow 30 t = 36t - 108 \Rightarrow (36 - 30)t = 108 \Rightarrow 6t = 108 $\therefore \quad t = \frac{108}{6} = 18 \text{ hours}$ Distance between A and B $= 30 \times 18 = 540$ km. 56. (c) Letx quintal of wheat was sold at 13% and (12 x) quintal was sold 243% Let wheat price of x quintal = 100x and $(12 - x) \times 100$. According to question, $\frac{100x \times 13}{100} + \frac{(12 - x) \times 100 \times 23}{100}$ $=\frac{12\times100\,\times17}{100}$ $13x + 23(12 - x) = 12 \times 17$ \Rightarrow 13x + 276 - 23x = 204 \Rightarrow $\Rightarrow 276 - 204 = 23x - 13x$ \Rightarrow 72 = 10x \therefore x = $\frac{72}{10}$ = 7.2 quintal Sold at 23% = 12 - 7.2= 4.8 guintal \therefore 1 quintal = 100 kg So, 4.8 quintal $= 4.8 \times 100 = 480$ kg. 57. (d) Let number bex Percentage error $=\frac{\left(\frac{13}{6}x - \frac{6}{13}\right) \times 100\%}{13/6x}$ 169x - 36x $=\frac{\overline{78}}{13x/6} \times 100\%$ $=\frac{133\times6\times100}{78\times13}\%$ $=\frac{133\times100}{169}\% = 78.7\%$ 58. (d) Let the sum be P $P \times 3 \times 14$ 100

55. (d) Let first car takest hours, then

time taken by second car

$$= \frac{1}{2} \times 10,000 \left[\left(\frac{1+10}{100}\right)^2 -1 \right]$$

$$= \frac{1}{2} \times 10000 \left[\frac{11}{10} \times \frac{11}{10} -1 \right]$$

$$\Rightarrow \frac{P \times 42}{100} = \frac{1}{2} \times 100[21]$$

$$P = \overline{\$} \frac{105000}{42} = \frac{5000}{2}$$

$$= \overline{\$} 2500$$
59. (d) Discount = MP - SP
$$= \overline{\$} (1250 - 1000) = \overline{\$} 250$$
Discount = $\frac{250 \times 100}{1250} = 20\%$
60. (c) Volume of cone = Volume of cylinder

$$\frac{1}{3} \pi R^2 h_1 = \pi r^2 h_2$$

$$\Rightarrow \frac{1}{3} \times \frac{22}{7} \times (7)^2 h_1$$

$$= \frac{22}{7} \times (7)^2 \times 9 \quad [\because R = r]$$

$$\Rightarrow \frac{1}{3} h_1 = 9$$

$$\therefore h_1 = 9 \times 3 = 27 \text{ cm}$$
61. (c) Interior angles of a regular dodecagon

$$= \frac{(2n-4) \times 90}{n} \quad \text{where } n = 12$$

$$= \frac{(2 \times 12 - 4) \times 90}{12}$$

$$= \frac{20 \times 90}{12} = 5 \times 30 = 150^{\circ}$$
So, interior angle is 150°.
62. (a) Area of circle = $\pi r^2 = \frac{22}{7} \left(\frac{28}{2}\right)^2$

$$= \frac{22}{7} \times 14 \times 14$$

$$= 22 \times 2 \times 14$$

$$= 44 \times 14 = 616 \text{ cm}$$
63. (c) (x + 8) (6 - 3)
$$= x(6 - 3x) + 8(6 - 3)$$

22

7

64. (d) We know that, $(x+y)^2 = x^2 + y^2 + 2xy$ $(10)^2 = 68 + 2xy$ 100 - 68 = 2xy \Rightarrow 32 = 2xy \Rightarrow $xy = \frac{32}{2} = 16$ ÷. Hence, the value of xy is 16. 65. (a) Let two digit number be 10 +y. According to question, In Case-I(i) x + y = 17In Case-II 10x + y + 9 = 10y + x9x - 9y = -9x - y = -1.....(ii) Solving eq. (i) and (ii), we get x = 8, y = 9and Hence, the number $= 10 \times 8 + 9 = 89$ 66. (b) $\frac{x^2}{y^2} + \frac{y^2}{zx} + \frac{z^2}{xy} = 3$ $\Rightarrow \quad \frac{x^3 + y^3 + \frac{3}{2}}{xyz} = 3$ $\Rightarrow x^3 + y^3 + z^3 = 3xyz$ $\Rightarrow x + y + z = 0$ $\therefore \quad (x+y+z)^3 = 0$ 67. (b) Distance covered by first person till 2 p.m. $= (10 \times 2) \text{ km} = 20 \text{ km}.$ Distance covered by him till 4 pm. = (20 + 20) km = 40 km.He will rest form 4 p.m. to 5 p.m. Time taken by second person in covering 40 km. $=\frac{40}{15}$ hours = 2 hours $+ \frac{10}{15} \times 60$ minutes = 2 hours and 40 minutes \therefore Required time = 4:40 p.m. 68. (c) Let the C.P. of each articl∉ the \therefore C.P. of x articles = $\mathbf{\xi}$ x Their S.P. =₹ 60 According to the question,

$$\frac{60-x}{x} = \frac{20}{100} = \frac{1}{5}$$

 $\Rightarrow 300 - 5x = x$ $\Rightarrow 6x = 300$ $\Rightarrow x = \frac{300}{6} = 50$ 69. (d) According to the question, Sum of the present ages of mother, father and son $= (3 \times 35 + 3 + 5)$ years = (105 + 15) years = 120 years Again, Sum of the present ages of mother and father $= (2 \times 46 + 2 \times 3)$ years = (92 + 6) years = 98 years :. Son's present age = (120 - 98) years = 22 years 70. (c) $\frac{A}{3} = \frac{B}{2} = \frac{C}{5} = k$ \Rightarrow A = 3k; B = 2k; C = 5k :. $(C + A)^2 : (A + B)^2 : (B + C)^2$ $= (5k + 3k)^2 : (3k + 2k)^2 : (2k + 5k)^2$ $= (8k)^2 : (5k)^2 : (7k)^2$ = 64 : 25 : 4971. (d) Decimal equivalent of each fraction : $\frac{5}{113} = 0.044$; $\frac{7}{120} = 0.058$ $\frac{13}{145} = 0.089$; $\frac{17}{160} = 0.106$ Clearly, $\frac{17}{160}$ is the largest fraction. 72. (c) Number of diagonals in a nsided polygon $=\frac{n(n-3)}{2}$ $=\frac{8(8-3)}{2}=\frac{8\times 5}{2}=20$ 73. (c) Profit in Y7=₹(1600 – 1240) thousand crores =₹ 360 thousand crores. Tax in Y7 $= \overline{\mathbf{x}} \left(\frac{360 \times 33}{100} \right)$ thousand crores = ₹ 118.8 thousand crores 74. (c) Profit in Y2 = ₹ (1100 – 850) thousand crores = ₹ 250 thousand crores

Profit after tax $= \mathbf{R} \left(250 - \frac{250 \times 22}{100} \right)$ thousand crores = ₹ (250 – 55) thousand crores = ₹ 195 thousand crores Profit in Y6 = ₹ (1500 – 1200) thousand crores = ₹ 300 thousand crores Profit after tax = ₹ $\left(300 - \frac{300 \times 30}{100}\right)$ thousand crores = ₹ (300 – 90) thousand crores = ₹ 210 thousand crores Profit in Y8 = ₹ (1850 – 1400) thousand cores = ₹ 450 thousand crores Profit after tax $= \underbrace{\notin} \left(450 - \frac{450 \times 15}{100} \right) \text{ thousand crores}$ = (450 - 67.5) thousand crores = ₹ 332.5 thousand crores Clearly, Y8 > Y6 > Y275. (c) Profit of Year Y1 = ₹ (800 – 600) thousand crores = ₹ 200 thousand crores Profit of Year Y2 = ₹ (1100 – 850) thousand crores = ₹ 250 thousand crores Profit of Year Y3 = ₹ (1200 – 900) thousand crores = ₹ 300 thousand crores Profit of Year Y4 =₹ (1200 – 950) thousand crores = ₹ 250 thousand crores Profit of Year Y5 = ₹ (1350 – 1050) thousand crores = ₹ 300 thousand crores Profit of Year Y6 = ₹ (1500 – 1200) thousand crores = ₹ 300 thousand crores Profit of Year Y7 = ₹ (1600 – 1240) thousand crores = ₹ 360 thousand crores Profit of Year Y8 = ₹ (1850 – 1400) thousand crores = ₹ 450 thousand crores