

X - GMT SAMPLE PAPER 3

Logical Reasoning

1. Select the related word/letter/number from the given alternatives.
12 : 20 :: ?
(a) 15 : 37 (b) 16 : 64 (c) 27 : 48 (d) 30 : 42
2. Find the odd number/letters/number pair from the given alternatives.
(a) Marigold (b) Lotus
(c) Tulip (d) Rose
3. Complete the given series.
1, 3, 8, 19, 42, 89, ?
(a) 108 (b) 184 (c) 167 (d) 97
4. In a certain code DEPUTATION is written as ONTADEPUTI. How is DERIVATION written in that code?
(a) ONVADERITI (b) ONDEVARITI
(c) ONVAEDIRTI (d) ONVADEIRIT
5. Keeping his back towards the rising sun, Reshma starts walking. After a few minutes, she turns left and keeps on walking. Then a little later she turns right and then left. In which direction is she going at the moment?
(a) East (b) South (c) North (d) West
6. Seema's younger brother Sohan is older than Seeta. Sweta is younger than Deepti but elder than Seema. Who is the eldest?
(a) Seeta (b) Deepti (c) Seema (d) Sweta
7. Mani is double the age of Prabhu. Ramona is half the age of Prabhu. If Mani is sixty, find out the age of Ramona.
(a) 20 (b) 15 (c) 10 (d) 24
8. Select the missing number from the given responses.



- (a) 24 (b) 12 (c) 18 (d) 19
9. How many triangles are there in the following figure?



- (a) 12 (b) 8 (c) 16 (d) 15

DIRECTION (Q. 10): In question below, two statements are given followed by two conclusions. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You are to decide which of the given conclusion, if any, follow from the given statements.

10. Statements :

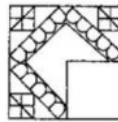
1. All students are doctors.
2. No doctor is leader.

Conclusions :

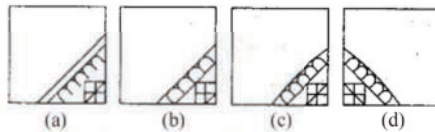
- I. All leaders are students.
 - II. Some doctors are students.
- (a) Only conclusion I follows
(b) Only conclusion II follows
(c) Both conclusions I and II follow
(d) Neither conclusion I nor II follows

11. Which answer figure will complete the pattern in the question figure?

Question figure :

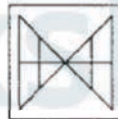


Answer figures :

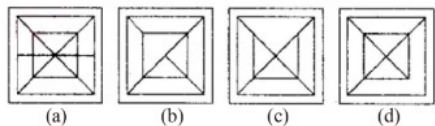


12. From the given answer figures, select the one in which the question figure is hidden/embedded.

Question figure :



Answer figures:



13. 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 in two matrices given below. 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, e.g., A can be represented by 01, 20, 42 etc. and H can be represented by 65, 57, 98 etc. Similarly, you have to identify the set for the word given in the question.

FAITH

Matrix-I

	0	1	2	3	4
0	F	A	N	O	I
1	I	O	F	A	N
2	A	N	O	I	F
3	O	F	I	N	A
4	N	I	A	F	O

Matrix-II

	5	6	7	8	9
5	S	E	H	B	T
6	H	S	E	T	B
7	B	T	S	E	H
8	E	H	T	B	S
9	T	S	E	H	B

- (a) 24, 31, 10, 59, 57 (b) 12, 20, 40, 68, 65
(c) 31, 34, 23, 76, 79 (d) 43, 42, 41, 78, 89
14. Select the missing number from the given responses.
3917, 3526, ____, 2857
(a) 3082 (b) 3174 (c) 3389 (d) 2682
15. 'A + B' means 'A is the sister of B'
'A - B' means 'A is the daughter of B'
'A × B' means 'A is the brother of B'
'A ÷ B' means 'A is the husband of B'
If $V + U \times Q - T \div R + P \times S$, then how is P related to V?
(a) Paternal uncle (b) Maternal aunt
(c) Maternal uncle (d) Paternal aunt
16. Among her children, Ganga's favourites are Ram and Rekha. Rekha is the mother of Sharat, who is loved most by his uncle Mithun. The head of the family is Ram Lal, who is succeeded by his sons Gopal and Mohan. Gopal and Ganga have been married for 35 years and have 3 children. What is the relation between Mithun and Mohan?
(a) Uncle (b) Son
(c) Brother (d) No relation
17. (i) A and B can speak Tamil and Malayalam.
(ii) C and D can speak English and Hindi.
(iii) B and D can speak Malayalam and Hindi.
(iv) A and C can speak Tamil and English.
One who speaks English, Hindi and Malayalam is
(a) A (b) B (c) C (d) D
18. A statement is given followed by two assumptions, (1) and (2). You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given assumptions can definitely be drawn from the given statement. Indicate your answer.
Statement : Theoretical education does not bring in economic advancement and it leads to a steady loss of confidence and money in the country.
Assumptions :
(1) There is close relationship between development of confidence and economic development
(2) Theoretical education makes priceless contribution for development of confidence.
(a) Only 1 is implicit
(b) Only 2 is implicit
(c) Both 1 and 2 are implicit
(d) Both 1 and 2 are not implicit
19. In a certain code language, 'how can you go' is written as 'ja da ka pa,' 'can you come here' is written as 'na ka sa ja' and 'come and go' is written as 'ra pa sa'. How is 'here' written in that code language ?

- (a) ja (b) na
(c) pa (d) Data inadequate

20. A man is facing west. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 270 degree in the anticlockwise direction. Find which direction he is facing now?
(a) South-West (b) West
(c) South (d) East-South
21. Pratap correctly remembers that his mother's birthday is before twenty third April but after nine tenth April, whereas his sister correctly remembers that their mother's birthday is not on or after twenty second April. On which day in April is definitely their mother's birthday?
(a) Twentieth
(b) Twenty-first
(c) Twentieth or twenty-first
(d) Cannot be determined
22. Among A, B, C, D and E each scored different marks in an examination. Only one person scored more than C. E scored more than A but less than D. D did not Score the highest marks. The one who scored the second lowest, scored 71 % marks. C scored 92% marks.
Who amongst the following is most likely to have scored 87% marks?
(a) A (b) B (c) D (d) E
23. P, Q, R, S, T, V, W and Z are travelling to three destinations Delhi, Chennai and Hyderabad in three different vehicles – Honda City, Swift D'Zire and Ford Ikon. There are three females among them one in each car. There are at least two persons in each car.
R is not travelling with Q and W. T, a male, is travelling with only Z and they are not travelling to Chennai. P is travelling in Honda City to Hyderabad. S is sister of P and travels by Ford Ikon. V and R travel together. W does not travel to Chennai.
Which of the following combinations represents the three female members?
(a) QSZ (b) WSZ
(c) PSZ (d) Cannot be determined
24. A certain number of persons are seated in a row. The row is arranged in a vertical manner and all are facing to north direction. Ramesh sits fourth from the left end of the row. There are two person sit between Ramesh and Sonam. Puja sits immediate right of Sonam. There are as many person sit between Puja and Sonam as sit between Rakesh and Pooja. Rakesh does not sit to the left of Ramesh.
How many person sits between Ramesh and Rakesh?
(a) 3 (b) None (c) 5 (d) 4

DIRECTION (Q. 25) : The question below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

25. Towards which direction is village J from village W ?
I. Village R is to the west of Village W and to the north of Village T.
II. Village Z is to the east of Village J and to the south of Village T.

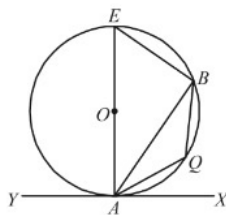
III. Village M is to the north-east of Village J and north of Village Z.

- (a) Only III
(b) Only II and III
(c) All I, II and III are required to answer the question
(d) None of these

Quantitative Aptitude & Data Interpretation

26. There are two taps A and B to fill up a water tank. The tank can be filled in 40 min, if both taps are on. The same tank can be filled in 60 min, if tap A alone is on. How much time will tap B alone take, to fill up the same tank?
(a) 64 min (b) 80 min (c) 96 min (d) 120 min
27. Distance between point P and Q is 480 km. A train starts from point P at 6:00 AM with 60 km/hr towards Q. Another train starts from point Q towards P at 7:00 AM with 80 km/hr. At what time the trains will meet?
(a) 9:40 AM (b) 10:30 AM
(c) 10:00 AM (d) 11:00 AM
28. Naresh purchased a TV set for ₹11,250 after getting discount of 10% on the labelled price. He spent ₹150 on transport and ₹800 on installation. At what price should it be sold so that the profit earned would be 15% if no discount was offered?
(a) ₹12,937.50 (b) ₹14,030
(c) ₹13,450 (d) ₹15,467.50
29. Arun invested a sum of money at a certain rate of simple interest for a period of four years. Had he invested the same sum at the same rate for a period of six years, the total interest earned by him would have been fifty per cent more than the earlier interest amount. What was the rate of interest per cent per annum?
(a) 4 (b) 8
(c) 5 (d) Cannot be determined
30. The sum of the circumference of a circle and the perimeter of a square is equal to 272 cm. The diameter of the circle is 56 cm. What is the sum of the areas of the circle and the square?
(a) 2464 sq cm (b) 2644 sq cm
(c) 3040 sq cm (d) Cannot be determined

31.



In the figure given above, YAX is a tangent to the circle with centre O. If $\angle BAX = 70^\circ$ and $\angle BAQ = 40^\circ$, then what is $\angle ABQ$ equal to?

- (a) 20° (b) 30° (c) 35° (d) 40°
32. Two persons contested an election of Parliament. The winning candidate secured 57% of the total votes polled and won by a majority of 42,000 votes. The number of total votes polled is

- (a) 4,00,000 (b) 5,00,000
(c) 6,00,000 (d) 3,00,000

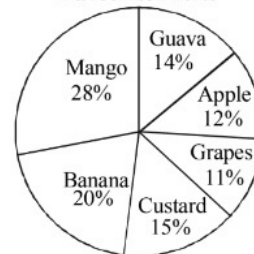
33. If $\sin x + \cos x = c$ then $\sin^6 x + \cos^6 x$ is equal to

- (a) $\frac{1+6c^2-3c^4}{16}$ (b) $\frac{1+6c^2-3c^4}{4}$
(c) $\frac{1+6c^2+3c^4}{16}$ (d) $\frac{1+6c^2+3c^4}{4}$

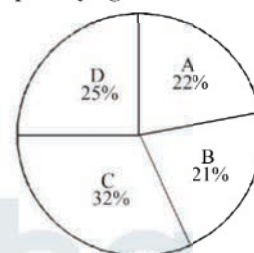
DIRECTIONS (Qs. 34-36): Study the following Pie-chart carefully and answer the questions given below:

A survey conducted on 5800 villagers staying in various villages and having various favourite fruits.

Favourite Fruits



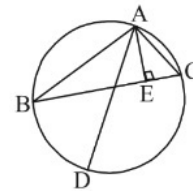
People staying in various villages



34. Mango is the favourite fruit of 50% of the people from village C. People having their favourite fruit as mango from village C form approximately what per cent of the people having their favorite fruit as mango from all the villages together?
(a) 48 (b) 53 (c) 61 (d) 57
35. 20% of the people from village D have banana as their favourite fruit and 12% of the people from the same village have guava as their favourite fruit. How many people from that village like other fruits?
(a) 764 (b) 896 (c) 874 (d) 986
36. How many people in all have custard as their favourite fruit?
(a) 850 (b) 864 (c) 870 (d) 812
37. If $a + b + c = 2s$, then $\frac{(s-a)^2 + (s-b)^2 + (s-c)^2 + s^2}{a^2 + b^2 + c^2}$ is equal to
(a) $a^2 + b^2 + c^2$ (b) 0
(c) 1 (d) 2
38. If an electricity bill is paid before due date, one gets a reduction of 4% on the amount of the bill. By paying the bill before due date a person got a reduction of ₹ 13. The amount of his electricity bill was
(a) ₹ 125 (b) ₹ 225 (c) ₹ 325 (d) ₹ 425

39. The ratio in which a man must mix rice at ₹ 10.20 per kg and ₹ 14.40 per kg so as to make a mixture worth ₹ 12.60 per kg, is
(a) 3 : 4 (b) 4 : 3 (c) 2 : 5 (d) 18 : 24
40. A train starts from A at 6 AM and reaches B at 11 AM on the same day. Another train starts from B at 8 AM and reaches A at 3 PM on the same day. At what time the two trains will have crossed each other?
(a) 9 : 45 AM (b) 8 : 45 AM
(c) 10 : 30 AM (d) 7 : 45 AM
41. N and K together can complete a work in 240 days. K and G together can complete the same work in 72 days and N and G together can complete the same work in 80 days. In how many days K alone can complete the same work?
(a) 280 days (b) 240 days
(c) 360 days (d) 180 days
42. If the expression $(px^3 - 8x^2 - qx + 1)$ is completely divisible by the expression $(3x^2 - 4x + 1)$, then what will be the value of p and q respectively?
(a) $(21/4, 15/8)$ (b) (6, 1)
(c) $(33/4, 5/4)$ (d) (1, 6)
43. A copper wire is bent in the shape of a square of area 81 cm^2 . If the same wire is bent form of a semicircle, the radius (in cm) of the semicircle is
(Take $\pi = \frac{22}{7}$)
(a) 16 (b) 14 (c) 10 (d) 7
44. The volume (in m^3) of rain water that can be collected from 1.5 hectares of ground in a rainfall of 5 cm is
(a) 75 (b) 750 (c) 7500 (d) 75000
45. The integers 1, 2, ..., 40 are written on a blackboard. The following operation is then repeated 39 times; In each repetition, any two numbers, say a and b, currently on the blackboard are erased and a new number $a + b - 1$ is written. What will be the number left on the board at the end?
(a) 820 (b) 821 (c) 781 (d) 819
46. A certain number when successively divided by 3 and 5 leaves remainder 1 and 2. What is the remainder if the same number be divided by 15?
(a) 7 (b) 8 (c) 9 (d) 10
47. How many different words beginning with O and ending with E can be formed with the letters of the word ORDINATE, so that the words are beginning with O and ending with E?
(a) 8! (b) 6! (c) 7! (d) $7!/2!$
48. The alphabets of word ALLAHABAD are arranged at random. The probability that in the words so formed, all identical alphabets are found together, is
(a) $1/63$ (b) $16/17$
(c) $51/9!$ (d) None of these
49. A can is full of a mixture of two liquids A and B in the ratio of 7:5. When 9 litres of mixture are drawn off from the can and replaced by the same quantity of liquid B, the ratio of A and B in the can becomes 7:9. The capacity of the can initially was
(a) 10 litres (b) 21 litres
(c) 20 litres (d) 36 litres

50. In the given figure, ABC is a triangle in which, $AB = 10 \text{ cm}$, $AC = 6 \text{ cm}$ and altitude $AE = 4 \text{ cm}$. If AD is the diameter of the circum-circle, then what is the length (in cm) of circum-radius?



- (a) 3 (b) 7.5
(c) 12 (d) 15

Language Comprehension

DIRECTIONS (Qs. 51-54) : Read the passage and answer the questions based on the passage. You are required to select your answers from the given options.

The heat-wave deepened during the following few days while Jack and I lazed about in the house and yards, wearing ragged shirts and discarded garments, because the more presentable ones were being packed by Mother. She was obviously not strong enough to cycle down to Hemisphere, where Father and Jack had been one week-end, to see and rent a cottage in Ropley, near Alresford. From this prospective journey Jack had returned with half a dozen photographs taken with a plate-camera which he had made for himself, the aperture being a pinhole. This was only one of his many ingenious artefacts. I had studied the pictures, which included a church that leaned backwards, in the hope of finding the perpetually teasing certainty which we look for when about to take some adventurous step into the unknown. But Ropley remained unreal.

51. During the hot summer days the author and Jack
(a) were taking adventurous steps into the unknown
(b) went visiting several churches in Ropley
(c) were busy repairing a camera
(d) were passing their time idleness
52. They were planning
(a) to move out Ropley
(b) a trekking expedition to Alresford
(c) to do some photography
(d) to make some artefacts
53. The author and Jack were wearing ragged shirts and discarded garments because
(a) they were very poor
(b) it was summer
(c) all their good clothes were already packed
(d) they were lazing about
54. The plate camera
(a) was the only artefact made by Father and Jack
(b) was the only artefact Jack had made for himself
(c) was only one of Jack's many such artefacts
(d) was borrowed by Jack from his friend for taking half a dozen photographs.

DIRECTIONS (Qs. 55-57): Fill in the blanks with most appropriate word(s).

55. _____ the world, teams have been quick to use every means to improve their play.
(a) Surrounding (b) Beyond
(c) Across (d) Around
56. The top and bottom come _____ if you pull hard enough.
(a) down (b) apart (c) across (d) up
57. I want to shop _____ a little before I decide on this book.
(a) around (b) up (c) over (d) out

DIRECTIONS (Qs. 58-59): Out of the four alternatives, choose the one which best expresses the meaning of the given word.

58. Brevity
(a) Confused (b) Calmness
(c) Conciseness (d) Heaviness
59. Immaculate
(a) Spotless (b) Obscene (c) Insane (d) Weak

DIRECTIONS : (Qs. 60-61): Choose the word opposite in meaning to the given word.

60. Quash
(a) Cancel (b) Revoke (c) Persist (d) Permit
61. Remonstrate
(a) Protest (b) Argue
(c) Commend (d) Disagree

DIRECTIONS (Qs. 62-63): Choose the alternative which best expresses the meaning of the Idiom/Phrase given in the questions below:

62. Beat a hasty retreat -
(a) Beat someone harshly
(b) To pack things quickly
(c) To make a hasty withdrawal
(d) To make an exhaustive search
63. A pig in a poke -
(a) A never ending problem
(b) Something acquired without inspection which may therefore be worthless
(c) Someone who is quarrelsome
(d) Someone who interferes in others personal matters

DIRECTIONS (Qs. 64-65): In the following questions, some parts of the sentences have errors and some have none. Find out which part of a sentence has an error. If a sentence is free from error, mark (d) as Answer your.

64. The N.C.C. commandant along with his cadets /
(a)
are going to Delhi /
(b)
to participate in the Republic Day Parade. / No error.
(c) (d)
65. He did not succeed / to get the job
(a) (b)
though he tried his level best / No error.
(c) (d)

DIRECTIONS (Qs. 66-68) : Read the given passage carefully and select the best answer to each question out of the four given alternatives.

He was a vendor of sweets. He had his own peculiar method of advertising and doing business. He never depended upon others for help and worked hard all alone. I speak of Murali- the man who sold sweets. His customers were children, the future citizens of the world. At the stroke of nine in the morning, Murali would stand in front of the school with his tray of sweets. Till about eleven, the sale would be brisk. After that he moved off to other places. Even when the sweets became sticky in the heat, his business never slackened. There was depression in his business when the holidays came.

66. Who was Murali?
(a) a businessman (b) a vendor of sweets
(c) a job seeker (d) a student
67. Who were his customers?
(a) the children (b) the adults
(c) the office goers (d) the housewives
68. What time would he go to the school?
(a) at 10 in the morning
(b) at 8 in the morning
(c) at 3 in the afternoon
(d) at 9 in the morning

DIRECTIONS (Qs. 69-71): Read the following passage carefully and choose the most appropriate answer to each question out of the four alternatives.

Expedition mountaineering could be viewed as slow and heavy, where climbers may use porters, pack animals, glacier airplanes, cooks, multiple carries between camps, usage of fixed lines, etc. Expedition mountaineers still employ the skill sets of the alpine mountaineer, except they have to deal with even higher altitudes, expanded time scale, longer routes, foreign logistics, more severe weather, and additional skills unique to expeditionary climbing. The prevalence of expedition-style climbing in the Himalaya is largely a function of the nature of the mountains in the region. Because Himalayan base camps can take days or weeks to trek to, and Himalayan mountains can take weeks or perhaps even months to climb, a large number of personal and amount of supplies are necessary. This is why expedition-style climbing is frequently used on large and isolated peaks in the Himalaya in, Europe and North America there is less of a need for expedition-style climbing on most medium-sized mountains. These mountains can often be easily accessed by car or air, are at a lower altitude and can be climbed in a shorter time scale.

69. Which of the following is true?
(a) Expeditionary climbing is popular in the Americas,
(b) Most medium-sized peaks in Europe are accessed by car or air.
(c) Himalayan base camp treks can be completed in a day or two.
(d) European and North American mountains require expanded time scale for climbing

70. What necessitates the huge amount of supplies and large number of personnel in Himalayan expeditions?
- foreign logistics
 - low altitudes
 - expanded time scale
 - severe weather condition
71. Which of the following style of mountaineering is considered to be slow and heavy?
- sports mountaineering
 - expedition mountaineering
 - alpine mountaineering
 - Himalayan mountaineering
74. How is the trade fair an effective way of promoting products?
- It brings together the maximum number of manufacturers, suppliers and buyers in a single place
 - It brings together the maximum number of buyers to a single place.
 - It is conducted by The Trade Fair Authority of India.
 - It has seminars, conferences and film shows on the various products.
75. Under the same roof means:
- In an open area
 - In a big building
 - at one place
 - at different places

DIRECTIONS (Qs. 72 -75) : Read the following passage and answer the questions.

Trade fairs are among the most memorable events that take place periodically with the purpose of promoting sales, launching new products, bringing together manufacturers of a particular line of products and educating the public. They are held at all levels-International, national, state and district. The most prominent among them are the India International Trade Fair, World Book Fair, Information Technology Fair, Electronic Trade and Technology Fair, Textile Fair, Auto Expo, State Level Book fairs, District Level Exhibitions etc. India Trade Promotion Organisation (ITPO), which was incorporated in 1992 by the merger of Trade Development Authority (TDA) with the Trade Fair Authority of India (TFAI) has been playing a commendable role in this respect. It can be said without a doubt that sales promotion is the most important purpose of these fairs. Bringing together the largest possible number of manufacturers, suppliers, existing and potential buyers under the same roof helps to promote the products in an effective way. All these people come together on a single platform for a fixed period of time. This offers a unique opportunity to manufacturers and suppliers to display their best products and services and the buyers get a chance to see a wide range of products and services.

Conferences, seminars, live product demonstrations and presentations are regular features of these fairs and exhibitions. Besides these, colourful cultural programmes are also important features of such fairs. These fairs give a good opportunity to the artists to showcase their skills and talent at such specially organized programmes.

72. ITPO stands for:
- Indian Trade and Promotion Order
 - India Trade Promotion Organisation
 - India Trade Promotion Authority
 - India Traders and Products and Organisation
73. What are some of the regular features of such trade fairs?
- Programmes for launching new products and showcasing skills and talent
 - Conferences, seminars, live product demonstrations and meetings
 - Programmes for launching new products and bringing together manufacturers
 - Conferences, seminars, live product demonstrations and presentations
76. Who among the following had founded the Theosophical Society in the United States of America?
- Swami Dayanand Saraswati
 - Madam Blavatsky
 - Madam Cama
 - Lala Hardayal
77. 'Freon' used as refrigerants is chemically known as
- chlorinated hydrocarbon
 - fluorinated hydrocarbon
 - chlorofluoro hydrocarbon
 - fluorinated aromatic compound
78. The humidity of air measured in percentage is called
- absolute humidity
 - specific humidity
 - relative humidity
 - All of these above
79. In which of the following years was the first Railway line between Bombay and Thane laid?
- 1853
 - 1854
 - 1856
 - 1858
80. Which one of the following was the original name of Tansen, the famous musician in the court of Akbar?
- Mahananda Pande
 - Lal Kalwant
 - Baz Bahadur
 - Ramtanu Pande
81. Who of the following constitutes a Finance Commission for a State in India?
- The President of India
 - The Governor of the State
 - The Union Finance Minister
 - The Union Cabinet
82. Who drafted the Constitution of Muslim League, 'The Green Book'?
- Rahamat Ali
 - Muhammad Iqbal
 - Muhammad Ali Jinnah
 - Maulana Muhammad Ali Jauhar
83. The 'Arthashastra' is a treatise on which one of the following?
- Economics
 - Environment
 - Political Philosophy
 - Religion in Administration
84. Who among the following was the Viceroy of India at the time of the formation of Indian National Congress?
- Lord Mayo
 - Lord Ripon
 - Lord Dufferin
 - Lord Lansdowne

General Awareness

85. As which one of the following, does carbon occur in its purest form in nature?
 (a) Carbon black (b) Graphite
 (c) Diamond (d) Coal
86. Whose philosophy is called the Advaita?
 (a) Ramanujacharya (b) Shankaracharya
 (c) Nagarjuna (d) Vasumitra
87. Special Drawing Rights [SDRs] relate to
 (a) the World Bank
 (b) the Reserve Bank of India
 (c) the World Trade Organisation
 (d) the International Monetary Fund
88. The income elasticity of demand for inferior goods is
 (a) less than one (b) less than zero
 (c) equal to one (d) greater than one
89. Which schedule of the Constitution of India contains the three lists that divide powers between the Union and the states?
 (a) Fifth (b) Sixth (c) Seventh (d) Eighth
90. In which part of the Constitution, details of citizenship are mentioned?
 (a) I (b) II (c) III (d) IV
91. 'And Then One Day : A Memoir' is an autobiography of
 (a) Kamal Hasan (b) Shahrukh Khan
 (c) Naseeruddin Shah (d) Karan Johar
92. Movement of cell against concentration gradient is called
 (a) osmosis (b) active transport
 (c) diffusion (d) passive transport
93. Prokaryotic cells lack
 (a) nucleolus
 (b) nuclear membrane
 (c) membrane bound by organelles
 (d) All of these above
94. Plants that grow in saline water are called
 (a) halophytes (b) hydrophytes
 (c) mesophytes (d) thallophytes
95. Which one of the following does not contain Silver?
 (a) German Silver (b) Horn Silver
 (c) Ruby Silver (d) Lunar Caustic
96. The soils which are rich in Calcium are known as
 (a) Pedocals (b) Pedalfers
 (c) Podzols (d) Laterites
97. FASTags has been recently in the news. It is related to which of the following fields?
 (a) Air Transport
 (b) Road Transport
 (c) Space Science
 (d) Indirect Tax (GST)
98. Which scheme has recently been launched by FSSAI on the occasion of World Food Day?
 (a) Food Quality Scheme
 (b) Health and Food Relation Scheme
 (c) Food Supply Gram
 (d) Food Safety Mitra
99. Recently, who has been appointed as the new Director-General of the National Security Guard (NSG)?
 (a) Anup Kumar Singh (b) Rakesh Kumar Singh
 (c) Harinder Singh (d) MM Narwane
100. Recently, who has been conferred with the Most Eminent senior citizen award?
 (a) Prem Singh
 (b) Chhaju Ram Sharma
 (c) K. Parasaran
 (d) Vinod Zutshi

Hints & Solutions

1. (d) $12 : 20 :: 30 : 42$
 $(3 \times 4) \quad (4 \times 5) \quad (5 \times 6) \quad (6 \times 7)$
2. (b) Lotus grows in the water but rest grow on the land.
3. (b) Each of the numbers is doubled and 1, 2, 3, 4, 5, 6 is added in turn, so $89 \times 2 + 6 = 184$.

4. (a)

	1	2	3	4
	DEPU	TA	TI	ON

Coded $\longrightarrow$

ON	TA	DEPU	TI
4	2	1	3

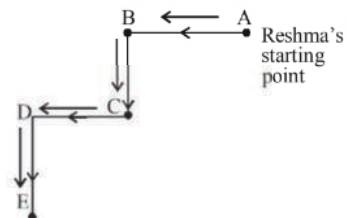
Similarly,

	1	2	3	4
	DERI	VA	TI	ON

Coded $\longrightarrow$

ON	VA	DERI	TI
4	2	1	3

5. (b)



Now, Reshma is going to south direction

6. (b) Seema > Sohan > Seeta ... (i)
 Deepti > Sweta > Seema ... (ii)
 Combining (i) and (ii) we get
 Deepti > Sweta > Seema > Sohan > Seeta
7. (b) Mani's Age = 60 years
 Prabhu's Age = $60/2 = 30$ years
 Romana's Age = $30/2 = 15$ years

8. (d) $3 + 4 + 3 = 10$
 $4 + 6 + 4 = 14$
 $8 + 6 + 6 = 20$
 $8 + 3 + 8 = 19$

9. (a) 10. (b) 11. (c) 12. (a) 13. (c)

14. (b) $\begin{array}{ccccccc} 3917 & & 3526 & & \boxed{3174} & & 2857 \\ & \uparrow & & \uparrow & & \uparrow & \\ & -391 & & -352 & & -317 & \end{array}$

Subtract first 3 digit from no. to get next no

15. (c) $V + U \times Q - T \div R + P \times S$
 V is the sister of U , U is the brother of Q , Q is the daughter of T , T is the husband of R , R is the sister of P , P is the brother of S
 Here, P is the brother of R , who is mother of V . Hence, P is the maternal uncle of V .
16. (d) Mohan is son of Ram Lal and uncle of Ram and Rekha. Mithun is uncle of Sharat who is son of Rekha. Rekha is niece of Mohan. Therefore, Mithun is brother of Rekha's husband.

17. (d)

Persons	LANGUAGES			
	Tamil	Malayalam	English	Hindi
A	✓	✓	✓	×
B	✓	✓	×	✓
C	✓	×	✓	✓
D	×	✓	✓	✓

D can speak English, Hindi, and Malayalam.

18. (d) Neither (a) nor (b) is implicit in the statement. The statement does not indicate that confidence and economic development are related.

19. (b) how ∇ can you $\square$ go $\Rightarrow$ ∇ ja da ∇ ka $\square$ pa
 ∇ can you $\bigcirc$ come here $\Rightarrow$ na ∇ ka $\bigcirc$ sa ∇ ja
 $\bigcirc$ come and $\square$ go $\Rightarrow$ ra $\square$ pa $\bigcirc$ sa

Codes are:

how $\Rightarrow$ da come $\Rightarrow$ sa
 can $\Rightarrow$ ja or ka here $\Rightarrow$ na
 you $\Rightarrow$ ja or ka and $\Rightarrow$ ra
 go $\Rightarrow$ pa
 The code for here is 'na'.

20. (a)

The man firstly faces the direction OA. On moving 45 degree clockwise [Please check carefully always if clockwise or anticlockwise], he faces the direction OB. Now again he moved 180 degree clockwise, now he will be facing OC. From here he moved 270 degree anticlockwise, Finally he is facing OD, which is South west.

21. (c) According to Pratap his mother's birthday may be on 20th, 21st or 22nd April.

According to Pratap's sister their mother's birthday may be from 1st April to 21st April.

Common Dates $\Rightarrow$ 20th and 21st

- Sol. $B > C > D > E > A$

92% 71%

22. (c) D is most likely to have scored 87% marks.

- Sol. Given information can be tabulated as follows :

	Cars			Destination			Travelling with		Gender M/F
	HC	SD	FI	D	C	H	Yes	No	
P	✓					✓			
Q									R
R							V	QW	
S			✓						F
T					×		only Z		M
V							R		
W					×			R	
Z					×		only T		

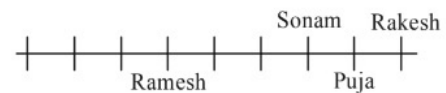
From above table we can conclude the following result

Group	Car	Destination
$T^+ Z^-$	SD	Delhi
$S^- R^+ V^+$	FI	Chennai
$P^+ QW$	HC	Hyderabad

+ indicates male and - indicates for female

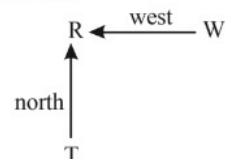
23. (d)

Sol.

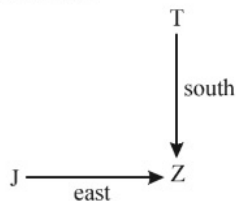


24. (d)

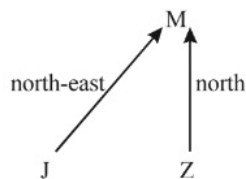
25. (d) From statement I



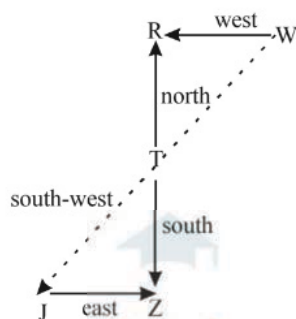
From statement II



From statement III



From statement I and II



Hence, village J is to the south-west of Village W.
So, only I and II are required to answer the question.

26. (d) Work done by tap B in 1 min

$$= \frac{1}{40} - \frac{1}{60} = \frac{3-2}{120} = \frac{1}{120}$$

Total time taken by the tap B to fill the tank is 120 min.

27. (c)

28. (d) Cost price of TV when discount is not offered

$$= 11250 \times \frac{100}{90} = ₹12500$$

Total cost of TV after transport and installation
= 12500 + 800 + 150 = ₹13450

To earn 15% profit, he must sell at

$$13450 \times \frac{115}{100} = ₹15467.50$$

29. (d)

30. (c) Circumference of the circle = $\pi \times$ diameter

$$= \frac{22}{7} \times 56 = 176 \text{ cm}$$

$\therefore$ Perimeter of the square = (272 - 176) = 96 cm

$$\therefore \text{Side of the square} = \left(\frac{96}{4}\right) = 24 \text{ cm}$$

$\therefore$ Area of the square

$$= (24 \times 24) = 576 \text{ sq cm}$$

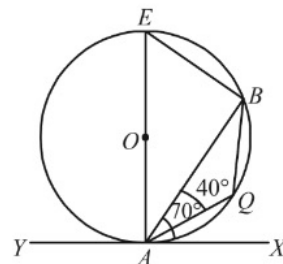
$\therefore$ Area of the circle = πr^2

$$= \frac{22}{7} \times 28 \times 28 = 2464 \text{ sq cm.}$$

$\therefore$ Required sum

$$= (576 + 2464) \text{ sq cm} = 3040 \text{ sq cm}$$

31. (b) Given, $\angle BAX = 70^\circ$ and $\angle BAQ = 40^\circ$



$$\angle QAX = 70^\circ - 40^\circ = 30^\circ$$

$$\therefore \angle EAX = 90^\circ$$

$$\Rightarrow \angle EAB = 90^\circ - 70^\circ = 20^\circ$$

Since, AQBE is a cyclic quadrilateral.

$$\therefore \angle EAQ + \angle EBQ = 180^\circ$$

$$\Rightarrow \angle EBQ = 180^\circ - 60^\circ = 120^\circ$$

$$\text{But } \angle EBA = 90^\circ$$

$$\therefore \angle ABQ = 120^\circ - 90^\circ = 30^\circ$$

32. (d)

33. (b) $\sin x + \cos x = c$ (i)

Squaring both sides.

$$\Rightarrow \sin^2 x + \cos^2 x + 2 \sin x \cos x = c^2$$

$$\Rightarrow \sin x \cos x = \frac{c^2 - 1}{2} \quad \dots\text{(ii)}$$

Now, cubing eqn (i) both sides

$$\Rightarrow \sin^3 x + \cos^3 x + 3 \sin x \cos x (\sin x + \cos x) = c^3$$

$$\Rightarrow \sin^3 x + \cos^3 x + 3 \cdot \frac{(c^2 - 1)}{2} \times c = c^3$$

$$\Rightarrow \sin^3 x + \cos^3 x = c^3 - \frac{3}{2} (c^2 - 1) c$$

$$\Rightarrow \sin^3 x + \cos^3 x = c^3 - \frac{3c^3 + 3c}{2}$$

$$\sin^3 x + \cos^3 x = \frac{3c - c^3}{2} \quad \dots\text{(iii)}$$

On squaring both sides.

$$\Rightarrow \sin^6 x + \cos^6 x + 2 \sin^3 x \cos^3 x = \frac{(3c - c^3)^2}{4}$$

$$\Rightarrow \sin^6 x + \cos^6 x + 2 \left\{ \frac{(c^2 - 1)}{2} \right\}^3 = \frac{9c^2 + c^6 - 6c^4}{4}$$

$$\Rightarrow \sin^6 x + \cos^6 x = \frac{9c^2 + c^6 - 6c^4 - 1 + 3c^2(c^2 - 1)}{4}$$

$$\sin^6 x + \cos^6 x = \frac{1 + 6c^2 - 3c^4}{4}$$

34. (d) No. of persons from village C
 = 32% of 5800 = 1856
 From village C 50% of 1856 = 928 persons favourite fruit is mango.
 28% of 5800 = 1624 people's favourite fruit is mango

$$\therefore \text{Required \%} = \frac{928}{1624} \times 100 \approx 57\%$$

35. (d) People in village D = 25% of 5800 = 1450

$$\therefore \text{Required no. of people} \\ = \{100 - (20 + 12)\}\% \text{ of } 1450 \\ = 68\% \text{ of } 1450 = 986$$

36. (c) Required no. = 15% of 5800 = 870

37. (c) Expression

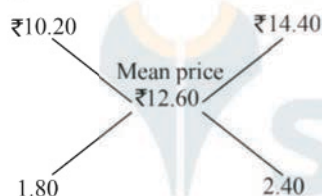
$$\begin{aligned} &= \frac{(s-a)^2 + (s-b)^2 + (s-c)^2 + s^2}{a^2 + b^2 + c^2} \\ &= \frac{s^2 - 2sa + a^2 + s^2 + b^2 - 2sb + s^2 - 2sc + c^2 + s^2}{a^2 + b^2 + c^2} \\ &= \frac{4s^2 + a^2 + b^2 + c^2 - 2s(a+b+c)}{a^2 + b^2 + c^2} \\ &= \frac{4s^2 + a^2 + b^2 + c^2 - 4s^2}{a^2 + b^2 + c^2} = 1 \end{aligned}$$

38. (c) Let the amount of the bill be ₹ x.

$$\therefore \frac{4x}{100} = 13 \Rightarrow x = \frac{1300}{4} = ₹ 325$$

39. (a) By the rule of alligation:

Cost of 1 kg rice of 1st kind Cost of 1 kg rice of 2nd kind



$$\therefore \text{Required ratio} = 1.80 : 2.40 = 3 : 4.$$

40. (a) Let the distance between A to B is d km.

Time of travel of first train = 11 - 6 = 5 hr.

Time of travel of second train = 3 p.m. - 8 a.m.
 = 7 hr.

$$\text{then Speed of first train} = \frac{d}{5} \text{ km/hr.}$$

$$\text{Speed of second train} = \frac{d}{7} \text{ km/hr.}$$

Now, again we suppose that two train meet after t hr. from 8 a.m.

$$\text{then, } \frac{d}{5}(2+t) + \frac{d}{7}(t) = d$$

$$\frac{2+t}{5} + \frac{t}{7} = 1 \Rightarrow \frac{12t+14}{35} = 1 \Rightarrow 12t = 35 - 14$$

$$t = \frac{21}{12} = \frac{7}{4} = 1 \text{ hr. } 45 \text{ min.}$$

Hence, time when two train meets

$$= 8 + (1 \text{ hr } 45 \text{ min}) = 9:45 \text{ am.}$$

$$41. (c) (N + K)'s \quad 1 \text{ days' work} = \frac{1}{240}$$

$$(K + G)'s \quad 1 \text{ days' work} = \frac{1}{72}$$

$$(N + G)'s \quad 1 \text{ days' work} = \frac{1}{80}$$

On adding, 2(N + K + G)'s 1 days work

$$= \frac{1}{240} + \frac{1}{72} + \frac{1}{80} = \frac{3+10+9}{720} = \frac{22}{720}$$

$$\therefore (N + K + G)'s \quad 1 \text{ days work} = \frac{11}{720}$$

$$\begin{aligned} \therefore K's \quad 1 \text{ day work} &= \frac{11}{720} - \frac{1}{80} \\ &= \frac{11-9}{720} = \frac{2}{720} = \frac{1}{360} \end{aligned}$$

Hence, K alone can complete whole work in 360 days.

42. (c) Let $p(x) = px^3 - 8x^2 - qx + 1$

Since, $(3x^2 - 4x + 1)$ is factor of $p(x)$, so $p(a) = 0$

$$\therefore 3x^2 - 4x + 1 = 0$$

$$3x^2 - 3x - x + 1 = 0$$

$$3x(x-1) - 1(x-1) = 0$$

$$(3x-1)(x-1) = 0$$

$$\therefore x = \frac{1}{3}, 1$$

$$\therefore p(x) = \frac{1}{3}, 1$$

i.e.,

$$p\left(\frac{1}{3}\right) = px^3 - 8x^2 - qx + 1$$

$$\Rightarrow p\left(\frac{1}{3}\right)^3 - 8\left(\frac{1}{3}\right)^2 - q \times \frac{1}{3} + 1$$

$$\Rightarrow \frac{p}{27} - \frac{8}{9} - \frac{q}{3} + 1$$

$$\Rightarrow p - 24 - 9q + 27$$

$$\Rightarrow p - 9q = -3 \quad \dots(i)$$

$$p(1) = px^3 - 8x^2 - qx + 1$$

$$\Rightarrow p(1)^3 - 8(1)^2 - q \times 1 + 1$$

$$\Rightarrow p - 8 - q + 1$$

$$\Rightarrow p - q = 7 \quad \dots(ii)$$

From Eq. (i) and (ii),

$$p = \frac{33}{4}, q = \frac{5}{4}$$

43. (d) Side of a square = $\sqrt{81} = 9$ cm

$$\therefore \text{Length of the wire} = 4 \times 9 = 36 \text{ cm.}$$

$\therefore$ Perimeter of semi-circle = Length of wire

where r = radius

$$\Rightarrow (\pi + 2)r = 36$$

$$\Rightarrow \left(\frac{22}{7} + 2\right)r = 36 \Rightarrow \frac{36}{7}r = 36 \Rightarrow r = \frac{36 \times 7}{36} = 7 \text{ cm.}$$

44. (b) 1 hectare = 10000 sq. metre
 $\therefore$ Area of the ground = 15000 sq. metre

$$\therefore \text{Required volume} = 15000 \times \frac{5}{100} = 750 \text{ m}^3$$

45. (c) $1 + 2 + 3 + \dots + 40 = \frac{40 \times 41}{2} = 820$

Since at each time any two numbers a and b are erased and a single new number $(a + b - 1)$ is written. Hence, each one is subtracted and this process is repeated 39 times. Therefore, number left on the board at the end = $820 - 39 = 781$.

46. (a) Use Shortcut Approach-11

47. (b) $6!$ ways, O fixed 1st and E fixed in last.

48. (a) (AAAA), (LL), HBD

$$P = \frac{5!}{9!} = \frac{5! \times 4! \times 2!}{9!} = \frac{24 \times 2}{9 \times 8 \times 7 \times 6} = \frac{1}{63}$$

49. (b) Suppose, the can initially contains $7x$ and $5x$ of volume of a mixtures of A and B of volume respectively.

ATQ

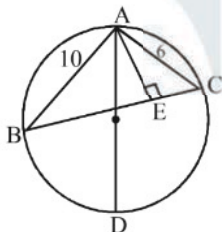
$$\frac{7x - \frac{21}{4}}{5x - \frac{15}{4} + 9} = \frac{7}{9} \Rightarrow \frac{28x - 21}{20x + 21} = \frac{7}{9}$$

$$\Rightarrow 252x - 189 = 140x + 147$$

$$\Rightarrow 112x = 336 \Rightarrow x = 3$$

So, the can contained 21 litres of A initially.

50. (b)



From question $AB = 10$ cm, $AC = 6$ cm and $AE = 4$ cm

$$\text{Now, Area of } \triangle ABC = \frac{1}{2} \times AE \times BC = \frac{1}{2} \times 4 \times BC = 2 \times BC$$

$$\text{By formula, circum radius } R = \frac{abc}{4 \times \text{Area of triangle}} = \frac{10 \times 6 \times BC}{4 \times 2 \times BC} = 7.5 \text{ cm}$$

51. (d) During the hot summer days author and Jack were lazing around the house and yards.

52. (b) They were planning for some adventurous trip to an unknown place.

53. (c) Their mother had already packed all the good clothes for their upcoming trip.

54. (c) The plate camera was one of the ingenious artefacts made by Jack.

55. (c) 56. (b) 57. (a) 58. (c) 59. (a) 60. (d)

61. (c) 62. (c) 63. (b)

64. (b) When we use I.c. Along with, together and with, the verb agrees according to first subject. Hence, **is going to Delhi** should be used.

65. (b) Here, **in getting (gerund) the job** should be used.

66. (b) Murali was a vendor of sweets.

67. (a) Murali's main customers were children.

68. (d) At the stroke of nine in the morning, Murali would stand in front of the school with his tray of sweets.

69. (b) Most medium sized peaks in the Europe are accessed by car or air. Expeditionary climbing is popular in Himalayas. Himalayan base camp treks take days or even weeks to trek to. European and North American mountains can be climbed in short time scale.

70. (c) Since, Himalayan mountains takes weeks or months to climb, large amount of personnel and food supplies is necessary.

71. (b) Expedition mountaineering can be considered as slow (Because it takes few weeks to months to climb the mountain) and heavy (because of the additional food supplies required to be carried while climbing).

72. (b) It is clearly mentioned in the passage.

73. (d) It is clearly mentioned in the first sentence of the last paragraph of the passage.

74. (a) It can be inferred from the first-half of the second-last paragraph of the passage.

75. (c) 76. (b) 77. (c) 78. (c) 79. (a) 80. (d)

81. (b) 82. (c) 83. (c) 84. (c) 85. (c) 86. (b)

87. (d) 88. (b) 89. (c) 90. (b) 91. (c) 92. (b)

93. (d) 94. (a) 95. (a) 96. (a)

97. (b) The government has announced that FASTags will be mandatory for all vehicles at all National Highways from December 1. These devices will make passing through tolls considerably smoother since drivers will no longer have to carry cash or stop to make a transaction.

98. (d) Union Minister for Health and Family Welfare has launched Food Safety Mitra Scheme to engage motivated individuals with food safety ecosystem at ground level.

99. (a) Senior IPS officer of Gujarat Cadre Anup Kumar Singh has been appointed as the Director-General of the National Security Guard (NSG).

100. (c) Vice President of India has presented 'Most Eminent Senior Citizen Award' to former Attorney General, Shri K. Parasaran for his exceptional contribution to the field of law and justice.