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Introduction

This time Infosys is hiring for on-campus drive **2025 and it has two rounds for Selection Process :**

Round 1 - Online test

Round 2 - Technical & HR interview

Infosys Placement Papers Year 2025

Name of the Section	No. of questions
Reasoning Ability	15 Questions
Technical Ability(Qunats)	10 Questions
Verbal Ability	20 Questions
Pseudo Code	5 Questions
Numerical Puzzle	4 Questions
English Grammar	5 Questions
English Writing	1 Question

QUANTITATIVE APTITUDE

- **Number of Questions –** 10
- **Time Limit** – 35 mins
- **Difficulty -** Easy-Medium
- **Importance -** Moderate
- **Cut off** – 70 to 80%ile i.e. 6 to 8 Questions Correct (depends on college to college or drive to drive)

Topic	Approx Problems	Difficulty Level	Probability of Star Mark
Percentages	1	Medium	Low
Data Interpretation	1	Medium	High
Permutation and Combination	1	Medium	Low
Probability	1 – 2	Medium	Medium
Areas, Shapes, Perimeter	2	High	Low
Speed Time and Distance / Boats and Streams	1 – 2	Medium	Low
Time and Work	2	80%	Medium
Profit and Loss | Mixtures & Allegation	0 – 1	Medium	Low
Problem on Ages	1	Medium	Low
Divisibility	0 – 1	Low	Low

Number Decimal & Fractions	2	High	Medium
Series and Progression	2	High	High
LCM and HCF	2 – 3	Medium High	

LOGICAL REASONING

- **Number of Questions –** 15
- **Time Limit –** 25 mins
- **Difficulty -** Easy-Medium
- **Importance -** Moderate
- **Cut off –** 75 to 80%ile i.e. 9 to 11 Questions Correct (depends on college to college or drive to drive)

Reasoning Pattern	Questions	Difficulty	Chances
Arrangements	0 or 5	High	50%
Data Sufficiency	0 or 5	Medium	50%
Syllogisms	3	Medium	100%
Coding Decoding	0 or 3/5	Medium	50%
Number series	0 or 3	High	50%
Cryptarithmetic	0 or 2	Medium	30%
Clocks and Calendar	0 or 1	Medium	40%

ENGLISH

- **Number of Questions –** 20
- **Time Limit –** 20 mins
- **Difficulty -**Medium- Hard
- **Importance -** Moderate
- **Cut off –** 70 to 80%ile i.e. 27 to 31 Questions Correct (depends on college to college or drive to drive)

Test Details

Quantitative Ability – This section clearly indicates that Infosys is looking for candidates' with good Problem Solving and Analytical skills. 10 Questions and 35 Minutes to solve so expect time consuming, higher difficulty questions. The focus was more on Numbers and Advance concepts like Permutation and Combination, Probability.

Along with this there were one or two Cryptarithmetic Questions. These questions are usually time consuming to solve. Since there were options given for these questions it makes these questions solvable with-in the available time.

Reasoning Ability – Similar to older Infosys pattern we have seen questions from Data Arrangement, Data Interpretation, Data Sufficiency, Syllogism, Visual Reasoning and Puzzles. Earlier there were sets of 5 questions in each set and now it was reduced to 2 or 3 per question set and this makes it time consuming to solve. Apart from this we didn't notice any change in the difficulty level of the questions.

Verbal Ability – Infosys is probably the only company that stresses a lot on Verbal Ability and they continue to do the same by retaining the same old pattern for this section. 40 Questions testing almost all the areas of Verbal i.e. Grammar, Comprehension, Vocabulary and Critical Reasoning, 10 Questions each.

Expected Cut-Off:
Quantitative Ability – 6 to 7 Marks
Reasoning Ability – 10 to 11 Marks
Verbal Ability – 10 marks

Quantitative Ability

Easy Hits: TSD, Time & Work, Mixtures & Alligation
Difficult Hits: Numbers, Permutation & Combination, Probability

Easy Hits: DI, DS, Syllogism, Visual Reasoning,

Difficult Hits: Arrangements, Analytical Reasoning
Verbal Ability

Easy Hits: Sentence Correction, Fill in the Blanks, Error Spotting

Difficult Hits: Reading Comprehension, Critical Reasoning

Section 1: Series

1.1 Number Series

In number series questions, a set of numbers are given following a particular pattern. In the series, each following number is logically related to its immediate preceding number and thus forms a pattern. That pattern itself is called the numbers forming a particular sequence. The students are required to understand the pattern logic and find the missing term of the series using the same logic.

The series can be in three forms:

Throughout in Ascending Order
Throughout in Descending Order
In Ascending / Descending Order in alternate fashion.

If the series is throughout in ascending order, then generally the mathematical operators involved in forming the next numbers in the series are +, ×, (× and +) and (× and –)

Example 1: 2, 5, 8, 11, 14, _____(+ 3, + 3, + 3)

Example 2: 2, 4, 8, 16, 32, _____(× 2, × 2, × 2,)

Example 3: 2, 5, 11, 23, 47, _____(× 2 + 1, × 2 + 1, × 2 + 1,)

Example 4: 2, 3, 5, 9, 17, _____(× 2 – 1, × 2 – 1, × 2 – 1,)

If the series is throughout in descending order, then generally the mathematical operators involved in forming the next numbers in the series are '–' and '÷'

Example 1: 27, 23, 19, 15, 11, _____(–4, –4, –4,)

Example 2: 32, 16, 8, 4, _____(÷2, ÷2, ÷2,)

If the series is in ascending / descending order, then generally there are two series formed; one amongst the numbers are odd places and the second amongst the numbers at even places.

Example: 5, 6, 7, 8, 10, 11, 14, 15, _____, _____

PRACTICE EXERCISE

Direction: Insert the missing number in the following series.

1. 0, 6, 24, 60, 120, 210, ?

a).336 b).349 c).312 d).337

2. 11, 14, 19, 22, 27, 30, ?

a).39 b).34 c).36 d).35

3. 6, 12, 21, ? , 48

a).33 b).39 c).36 d).31

4. 18, 22, 30, ? ,78, 142

a).44 b).35 c).46 d).48

5. 73205, 6655, 605, 55, ?

a).9 b).5 c).13 d).11

6. 25, 100, ?, 1600,

6400 a).400 b).300

c).360 d).420

7. 125, ?, 343, 512, 729,

1000 a).216

b).215 c).256

d).225

8. 1 , 27 , 125 , 343 , ? , 1331

a).730 b).729 c).512 d). 772

9. 121, 144, 169, ?, 225

a).180 b).172 c).186 d). 196

10. ?, 2116, 2209, 2304, 2401, 2500

a).2124 b).1972 c).1521 d).2025

11. 12 12 18 45 180 1170 ?

a)12285 b)10530 c)11700 d)12870

12.444 467 513 582 674 789 ?

a)950 b)904 c)927 d)881

13.23 25 53 163 657 3291 ?

a)4096 b)2401 c)1764 d)19753

14. 4.5 18 2.25 1.6875 33.75

a)27 b)25.5 c)36 d)40

15.36 157 301 470 ? 891

a)646 b)695 c)639 d)None of these

Direction: In the following number series only one number is wrong. Find out the wrong number.

16. 3 6 16 47.5 154.5 558.5 2257

a)2257 b)47.5 c)154.5 d)558.5

17. 898 906 933 996 1122 1338 1681

a)906 b)933 c)1122 d)None of these

18. 7 56 442 3089 18532 92647 370586

a)442 b)92647 c)18532 d)3089

19. 8000 3200 1280 512 204.8 84.92 32.768

a)512 b)84.92 c)204.8 d)1280

20.4 55 576 4209 21280 64083 64204

a)4209 b)576 c)21280 d)64204

1.2 Letter Series

In this type of questions a series of small letters are given which follow a certain pattern. However, some letters are missing from the series.Students are required to minutely observe the pattern and insert the missing letters. These missing letters are given in a proper sequence as one of the alternatives.

PRACTICE EXERCISE

Direction: In each of the following questions various terms of a letter series are given with one term missing as shown by (?). Choose the missing term out of the given alternatives.

21. A, C, F, J, O, ?

a). Q b). U c). V d). T

22. B, L, E, O, H, R, ?

a). U b). J c).K d). M

23. A, T, C, R, F, O, J, ?

a). K b). J c).L d). M

24. AC, EG, BD, FH, IK, ?

a). IJ b).LM c).PS d). JL

25. CAB, FDE, IGH, ?

a). ILK b).JKW c).LJK d). LKJ

26. X, F, Y, G, , H

a) Z b) A c) B d) Y

27. B, B, A, D , F

a) B b) A c) Z d) C

28. LMD, MKG, NIJ, ...

a) PKM b) MGO c) LGM d) OGM

29. 2B, ..., 8E, 14H, 22L

a) 4C b) 4D c) 6E d) 9F

30.1 C V, 5 F U, 9 I T, , 17 O R

a) 11LS b) 14JS c) 15JS d) 13LS

Directions (31-3d): Study the following questions and answering the questions referring to the word sequence given below:

MEF THY JFG KSY NOE RXB

31. When first and second letter of each word is interchanged, then how many meaning full word will be formed?

a) Three b) Two c) One d) Five

32. If each Consonant is changed to previous letter in the alphabetical series and each vowel is changed to next letter in the alphabetical series, then how many word contains at most two vowel?

a) None b) One c) Two d) Three

33. If words are arranged according to the alphabetical series from left to right, which word is third from the right end?

a) MEF b) KSY c) JFG d) NOE

34. If each letter in the each word is arranged according to the alphabetical series from left to right, and then first and second letter are interchanged in each word then how many meaning full word will be formed?

a) One b) Two c) None d) More than three

Directions (35-38): These questions are based on the following alphabet series.
AAFBBFUUABFFAUCBBBFFFCCCCACAUUAABCCUFFCAUCCC

35. How many C's are there in above arrangement which is immediately followed by vowel?

a) Three b) Two c) One d) Four

36. If all the F's are deleted from the above arrangement then which of the following letter is 12th to right of 3rd from left?

a) B b) U c) C d) A

37. Which of the following letter is 4th to the left of 15th from left end?

a) F b) U c) C d) A

38. How many B's are there in above arrangement which is immediately preceded by vowel but not immediately followed by consonant?

a) Two b) One c) None d) Three

Directions (39-40): In each question below is given a group of letters followed by four combinations of digits/symbols numbered (a), b), c) and d). You have to find out which of the combinations correctly represents the group of letters based on the following coding system and mark the number of that

combination as your answer. If none of the four combinations correctly represents the group of letters, mark
e). 'None of these', as the answer

Letter	H	I	T	K	R	F	A	L	E	M	J	B	Q	U
Digits/Symbols	3	7	%	#	4	$	6	9	@	↑	2	5	©	8

1. If the first letter in the group is a vowel and the last letter is a consonant their codes are to be interchanged.
2. If the first letter in the group is a consonant and the last letter is a vowel are to be coded as the code for vowel.
3. If the first as well as the last letter is a vowel both are to be coded as the code for the first letter.

39. IRHMEJ

(a) 743↑@2
(b) 243↑@7
(c) 243↑@2
(d) 743↑@7
(e) None of these

40. ALFJHE

a) 69$23@ b) @9$23@ c) 69$236 d) @9$236

Section 2: Coding & Decoding

Questions of coding-decoding are designed to test the candidate's ability to understand the rule (Logic) used for the coding of a word and use the same logic to code the given word.

Types of Coding

Type - 1: One word coding:

Some common logics used for word to word coding are illustrated below:

	Word	Coding	Coding Name/Logic
1.	ORACLE	PSBDMF	**Forward Letter Coding:** Here, each letter in the word is moved one step forward to obtain the corresponding code letters.
2.	ORACLE	NQZBKD	**Backward Letter Coding :** Here, each letter in the word is moved one step backward to obtain the corresponding code letters.
3.	ORACLE	PQBBMD	**Forward / Backward Letter Coding:** Here, each letter in the word is moved forward/backward in alternate fashion to obtain the corresponding code letters.
4.	ORACLE	LIZXOV	**Positional Coding :** Here, each letter in the word is replaced by the same positioned letter from the other end in the English alphabet A - Z. e.g. in English alphabet, O is at 15th place from left and L is at 15th place from right.
5.	ORACLE	ELCARO	**Rearrangement of Letters :** Here, a word is coded by simple changing the order of letters of the word.

Type - 2: Multiword to Multiword Coding:

In this type of questions, generally two or three messages are given in the coded language and the code for a particular word is asked. To get the code of such word, any two messages are picked up bearing the same word and the common code word. The common code word will be the code for the required word from the message.

Type 3: Word to word coding related to terms *'is called / is / means'*

PRACTICE EXERCISE:

1. In a certain code 'COUNTERS' is written as 'SRETNUOC'. Then find out how 'CLEARING' is written in that code language?

a) CGLNEIAR b) GNIRCLEA c) GRINGACLE d) CLEANRIG e) GNIRAELC

2. In a certain code ‘STRATEGIC’ is written as ‘TSARTGECI’. Then find out how ‘STIPULATE’ is written in that code language?

a) USTIPALET b) PLATEUSTI c) TSPIUALET d) PULATESIT e) TIPSUATEL

3. If VXUPLVH is written as SURMISE, what is OHPRQ the code for?

a) LEMON b) OPENS c) MELON d) NAMED e) RKSUT

4. In a certain code language, the word ‘NEATLY’ is written as ‘WORDCQ’ and the word PRAISE is written as ‘CVGDPS’. How will the word ‘SUMMIT’ be written in that code language?

a) PSVRLK b) VSPKLR c) RLKPSV d) KLRVSP e) None of these

5. In a certain code, ‘GRANDEST’ is written as ‘NARGFHWY’. Then what is the code for ‘MOTHERLY’?

a) ORXMGUPD b)HTOMGUPD c)HTOMYLRE d)YLREHTOM e)None of these

6. In a certain code ‘CAMPHOR’ is written as ‘6$3#152’ and ‘SAKE’ is written as ‘@$98’. How is ‘MORSE’ written in that code language?

a) @96$2 b)352@8 c)533@8 d)3528@ e)None of these

7. If CARING is coded as MPDRGF, and SHARES is coded as XLPDUX, how could CASKET be possibly coded in the same code?

a) MPXBUN b) MXPGUN c) MPDDUX d) LMPGFR e) FGRDXP

Direction for 8:- In the below question a group of letters or word is given followed by some conditions. You have to find the code for the word based on the following letter coding system.

M	L	E	G	S	K	R	U	B	W	C	H	I	A	P

4	8	$	1	#	5	7	©	2	6	%	*	3	9	@

Find the code for 'BELGIUM'

a) 281$34% b)2$813©4 c)21$83©4 d) ©34128$ e)none of these

9. If in a code language, COULD is written as BNTKC and MARGIN is written as LZQFHM, how will MOULDING be written in that code?

a) CHMFINTK b)LNKTCHMF c)LNTKCHMF
d)NITKHCMF e)none of these

10. In a certain code, COMPUTER is written as RFUVQNPC How is MEDICINE written in the same code?

a) EOJDJEFM b)EOJDEJFM c)MFEJDJOE d)MFEDJJOE e)none of these

11. If in a certain code, TWENTY is written as 863985 and ELEVEN is written as 323039, how is TWELVE written in that code?

a) 863203 b)863584 c)863903 d)863063 e)none of these

12. If in a certain language if ENTRY is coded as 12345 and STEADY is coded as 931785, then state which the correct code for below word is 'NEATNESS' ?

a) 25196577 b)21732199 c)21362199 d)21823698 e)none of these

13. In a certain code, 15789 is written as AXBTC, 2346 is written as MPDU. How is 23549 written in that code?

a) MPXDT b)MPADC c)MPXCD d)MPXDC e)none of these

14. Here are some words translated from an artificial language
' Di onot means oak tree', 'Bly onot means oak leaf' AND 'Bly crin means maple leaf' Which word could mean" maple syrup"?

a)blymth b)hupponot c)patricrin d)crinweel e)none of these

15. In a certain code language '3a,2b,7c' means 'Truth is Eternal' ;'7c,9a,8b,3a' means 'Enmity is not Eternal' and '9a,4d,2b,6b' means 'Truth does not pernish '.Which of the following means 'enmity' in that language?

a) 3a b)7c c)8b d)9a e)none of these

16. If sand is coded as Brick, Brick as House, House as Temple, Temple as Palace then where do you worship?

a) Palace b)Temple c)Brick d)House e)none of these

17. In a certain coded language K is written as 11 and KEEP is written as 37.How will the word DRAFT be written in that coded language?

a) 45 b)49 c)46 d)48 e)none of these

18. If in code of alphabet AT=20, BAT=40 then CAT=?

a) 34 b)56 c)40 d)60 e)none of these

19. In a certain code 'a friend of mine 'is written as '4 9 1 6 "mine lots of metal' is written as '3 1 0 9 ' and' a piece of metal 'is written as '7 1 6 3 '? What is the code for 'piece '?

a) 2 b)3 c)1 d)7 e)none of these

20. In a certain case GIGANTIC is written as GIGTNACI. How is MIRACLES written in that code?

a) MIRLCAES b)RIMCALSE c)MIRACSE d)RIMLCAES e)none of these

Section 3: Blood Relation

Introduction

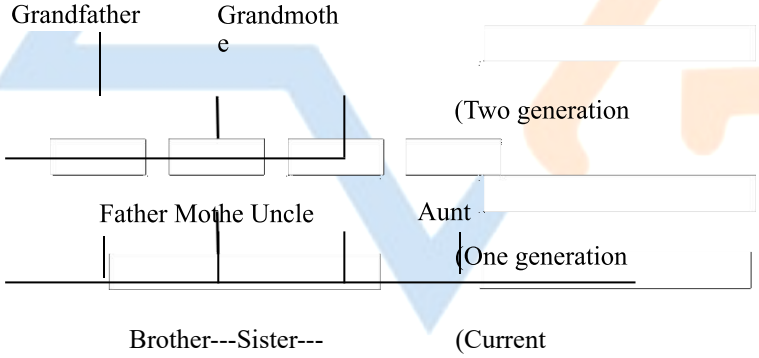
Questions from Blood Relation are frequently asked in almost all competitive examinations. For solving questions on blood relations, it requirescandidate's ability of analysing information showing blood relationship among members of a family. In the questions, a chain of relationship is given in the form of statements and on the basis of information in the form of statement, a candidate is required to establish the relation between any two members given in the statement. For establishing the relationship, it is very necessary that the candidate should be familiar of different relationship in a family.

The following chart will help to understand the relationship in a family:

Blood Relation Chart

Mother's or Father's son :	Brother
Mother's or Fathers' daughter :	Sister
Mother's or Fathers' brother :	Uncle
Mother's or Fathers' sister :	Aunt
Mother's or Fathers' mother :	Grand mother
Mother's or Fathers' father :	Grand father
Son's wife :	Daughter-in-law
Daughter's husband :	Son-in-law
Husband's or Wife's sister and Brother's wife :	Sister-in-law
Husband's or Wife's brother and Sister's husband:	Brother-in law
Brother's or Sister's or Cousin's son :	Nephew
Brother's or Sister's or Cousin's daughter:	Niece
Son or Daughter of two brothers or two sisters or one brother and one sister :	Cousins
Grandfather's or Grandmother's only son	Father
Grandfather's or Grandmother's only daughter-in-law	Mother

In Blood Relation questions, relation between two members is asked in three generations only, i.e. Son–Father–Grandfather. This hierarchical relationship can be understood by the following family tree.



PRACTICE EXERCISE

Direction: In a family, there are eight members. Four men Ram, Shyam, Mohan and Sohan and four women Sita Gita, Sangeeta and Meeta. Sangeeta has two married sons and one married daughter. Ram is Mohan's son-in-law. Gita is Shyam's sister. Sita is not Sohan's wife.

1. Who is Meeta?
(a) Sohan's sister (b) Sohan's sister in law (c) Sohan's wife (d) Mohan's daughter (e)None of these

2. Who are the two daughters-in-law of Mohan?

(a) Sita and Gita (b) Sita and Meeta (c) Geeta and Meeta
(d) Sangeeta and Sita (e) Sangeeta and Meeta

3. Which of the following is NOT a correct pair of husband and wife?

(a) Mohan and Sangeeta (b) Sohan and Meeta (c) Sita and Shyam (d) Gita and Ram (e) None of these

4. Who is Gita?

(a) Sohan's wife (b) Mohan's wife (c) Sohan's daughter (d) Mohan's daughter (e)None of these

5. Which of the following statements in not correct?

(a) Ram is Mohan's son in law (b) Sita is Shyam's wife (c) Gita is Sohan's sister
(d) None of these (e) All of these

Direction(6-8): In a family consisting of three generations, there are 8 members. Peter's granddaughter Alicia is an engineering student. Mike's mother Laura is a lawyer while his maternal aunt Katty is a banker. Carol's son David is a doctor while his son-in-law James runs a gym with his son?

6. What is Mike's profession?

(a) Gym (b) Student (c) Lawyer (d) Banker (e)None of these

7. How is Alicia related to David?

(a) Nephew (b) Niece (c) Cousin (d) Maternal uncle (e) Noneof these

8. How are Alicia and Mike related to each other?

(a) Cousins (b) Husband and wife (c) Siblings (d) Daughter in law (e)Either a or c

Direction(9-10): In a family of eight, four women P, Q, R and S and men T, U, V and W, the old couple has a married daughter and a married son. The son has a daughter and the daughter has a son.
R is Q's grandmother is T's son-in-law U is S's son

9. How is P related to W?
(a) Sister (b) Sister in low (c) Wife (d) Mother (e)None of these

10. Which of the following is not a valid couple?
(a) P and W (b) S and V (c) R and T (d) Q and U (e)None of these

Direction(11-13): Read the following information carefully to answer the questions given

below: 'L + K' means 'L is the father of K'.

'L–K' means 'L' is wife of K'.
'L × K' means 'L' is the brother of K'. 'L ÷ K' means 'L is the daughter of K'

11. If A ÷ B + C + D, which of the following is true?

(a) A is the father of D (b) B is the aunt of A (c) A is the aunt of D
(d) A is the mother of B (e) None of these

12. If A ×B ×C+D, then how is A related to D?

(a) Brother (b) Father (c) Son (d) Uncle (e)None of these

13. A×B+C×D+E. How is A related to E?

(a) Father (b) Grandfather (c) Grandfather's brother (d) Unrelated (e) None of these

Direction: Find the answer of the question with the help of given information.
P + Q means P is the daughter of Q. P × Q means P is the son of Q.
P – Q means P is the wife of Q.

14. If A × B – C, which of the following is true?
(a) A is the daughter of C (b) B is the son of C (c) A is the son of C
(d) B and C are husband wife pair (e) Both c and d

15. If A × B – C + D, how is D related to A?

(a) Mother (b) Sibling (c) Daughter (d) Wife (e)None of these

16. Deepak is brother of Ravi. Reena is sister of Atul. Ravi is son of Reena. How is Deepak related to Reena?

a) Son b) Brother c) Nephew d) Father e)Can't be determine

17. E is the son of A, D is the son of B, E is married to C, C is B's daughter. How is D related to E?
a) Brother b) Uncle c) Father-in-law d) Brother-in-law e)None

of these Directions (18-19): Read the following information and answer the questions

given below it:

A is the father of C But C is not his son.
E is the daughter of C, F is the spouse of A B is the brother of C, D is the son of B
G is the spouse of B, H is the father of G.

18. Who is the grandmother of D?

a) A b) C c) F d) H e)G

19. Who is the son of F?

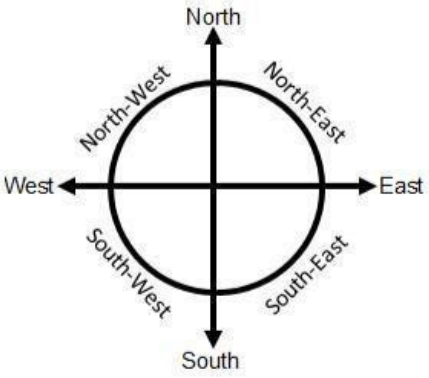
a) B b) C c) D d) E e)A

20. P is the son of Q while Q and R are the sisters to one another. T is the mother of R. If S is the son of T, which of the following statements is correct?

a) T is the brother of Q b) S is the cousin of P c) Q and S are sisters
d) S is the maternal uncle of P e)T is the sister of Q

Section 4: Directions

These questions are designed to test the candidate's ability to sense direction. For this, a candidate should have the knowledge of directions on the surface of a paper. Also it is necessary to sketch out the directions with the help of information provided. On a plane, directions are shown as below-



Right and left turning

There is a lot of confusion in students in right turning and left turning.
Right turning means turning in clockwise direction and left turning means turning in anticlockwise direction. See the figure below

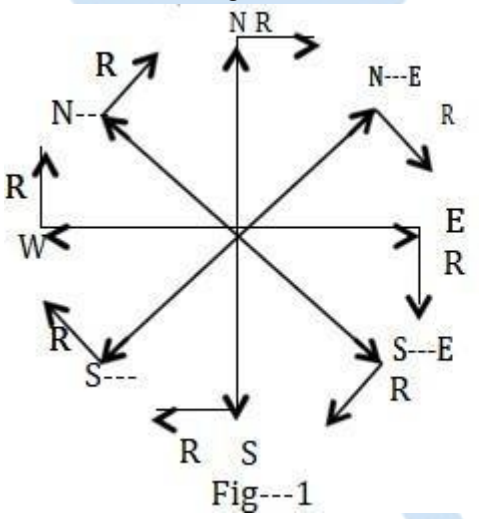


Fig---1

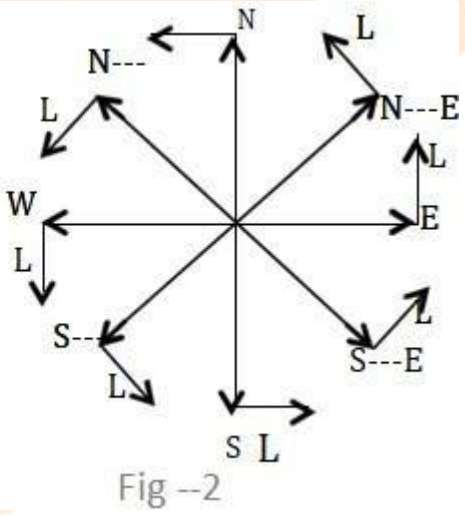


Fig --2

Practice Question:
Directions for Questions 1 to 4: Answer the questions independent of each other.

1. A watch in Huckleberry Finn's house reads 4·30. If the minute hand points towards the West, in which direction does the hour hand point?
   a) Northeast b) Southwest c) Northwest d) North

2. Hanuman, while looking for the Sanjeevani booty travels 3 km to the west, turns left and goes 3 km, turns right and goes 1 km, again turns right and goes 3 km. How far is he from the starting point?
   a) 7 km b) 6 km c) 5 km d) 4 km

3. Raveena walks 10 km south from her house, turns left and walks 25 km, again turn left and walks 40 km, then turns right and walks 5 km to reach her office. In which direction was the office from her house?
   a) Southwest b) Northwest c) East d) North

4.For the above question, what is the distance of her office from her home?
a) 30 b) 30 X $2^{1/2}$ c) 45 X 21/2 d) None of these

5. A road network has parallel and perpendicular roads, running north-south or east-west only. Junctions/Intersections on this road network are marked as A, B, C, D… All roads are at exactly half a kilometer distance from each other. The following is known about junctions A, B, C, H and X.
'A' is east of 'B' and west of 'C', 'H' is southwest of 'C' and southeast of B. 'B' is southwest of 'X'. Which junctions are the farthest south and the farthest east?
a) H, B b) H, C c) C, H d) B, H

6. The Suvarna Rekha river flows from west to east and on the way turns left and goes in a quarter circle around a Shiv temple, and then turns left in right-angles. In which directions is the river finally flowing?
a) North b) South c) East d) West

Directions for Questions 7 to 9: Read the situation given below to answer these questions.
j, k, l, m, n, o, p, q, and r are nine huts. 1 is 2 km east of k. j is 1 km north of k and q is 2 km south of j. p is 1 km west of q while m is 3 km east of p and o is 2 km north of p. r is situated just in middle of k and l while n is just in middle of q and m.
7. Distance between k and l is:
a) 2 km b) l km c) 5 km d) 1.5 km

8. Distance between k and r is:
a) 1.41 km b) 3 km c) 2 km d) 1 km

9. Distance between p and q is:
a) 4 km b) 2 km c) 1 km d) 3 km

Directions for Questions 10 to 14: Study the following information carefully to answer these questions.
All the streets of a city are either perpendicular or parallel to one another. The streets are all straight. Streets N, O, P, Q and R are parallel to one another. Streets S, T, U, V, W, X and Y are parallel to one another.
(i) Street N is 1 km east of Street O.
(ii) Street O is 1/2 km west of Street P.
(iii) Street Q is 1 km west of Street R.
(iv) Street S is 1/2 km south of Street T.
(v) Street U is 1 km north of Street V.
(vi) Street W is 1/2 km north of Street X.
(vii) Street W is 1 km south of Street Y.

10. If W is parallel to U and W is 1/2 km south of V and 1 km north of T, then which two streets would be 1&1/2 km apart?
a) U and W b) V and S c) V and T d) W and V

11. Which of the following possibilities would make two streets coincide?
a) X is 1/2 km north of U b) P is 1 km west of Q c) Q is 1/2 km east of N d) R is 1/2 km east of O

12. If street R is between O and P, then distance between N and Q is:
a) 1/2 km b) l km c) 1.5 km d) 1.5-2 km .

13. If R is between O and P, then which of the following is false?
a) Q is 1.75 km west of N b) P is less than 1 km from Q
c) R is less than 1 km from N d) Q is less than 1 km from O

14. Which of the following is necessarily true (given the basic clues)?
a) R and O intersect b) Q is 2 km west of Oc) Q is at least 2 km west of N d) Y is 1.5 km north of X

15. Usain runs 100 m south from his house, turns left and runs 250 m, again turns left and runs 400 m, then turns right and runs 50 m to reach to the stadium. In which direction is the stadium from his house?
a) Southwest b) Northeast c) East d) North
16. If Southeast becomes east and Northwest becomes west and all the other directions are changed in the same direction. Then what will be the direction for north?
a) Northwest b) Southeast c) Southwest d) Northeast

17. At a crossing there was a direction pole, which was showing all the four directions in correct manner. But due to wind it turns in such a manner that now west pointer is showing South. A man went to the wrong direction thinking that he was traveling East. In what direction he was actually traveling?
a) South b) West c) North d) Can't say

18. A direction pole at a crossing, due to an accident turns in such a manner that now east pointer is showing southwest. A traveler went to wrong direction thinking that he was travelling south. In what direction was he actually traveling?
a) South-west b) West-north c) North-east d) East-south

19. Vandana walks 4 kms towards the north, turns right and walks 5 km. Then he turns towards south and walks 2 km. Again he takes a turn towards west walks 3 km and stops for a while. Then he further walks 2 km. What is her distance from the starting point?
a) 16 km b) 2 k c) 4 km d) 3 km

20. If Ram is in the West of Shyam and Kareem is in the North of Shyam, in what direction is Kareem with respect to Ram?
a) Northeast b) Southwest c) Northwest d) Southeast

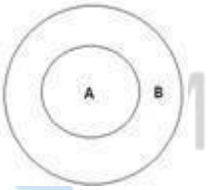
Section 5: Syllogism

The questions on syllogism are a regular feature in almost all the competitive exams. Generally three statements are given followed by four conclusions. Students are required to draw the conclusions from the statements itself. At the time of drawing the conclusion, you are requested to consider the statements to be true even if they appear to be at variance with commonly known facts.

Types of Statements

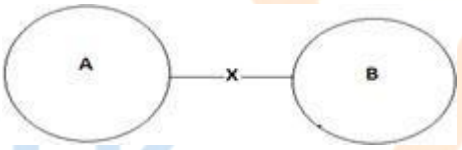
a) Universal Statements (All Type Statements)

1) Universal Affirmative/Positive
i.e. All A's are B's



Note: Converse All B's Are A's is a Possibility

2) Universal Negative : All A's are not B

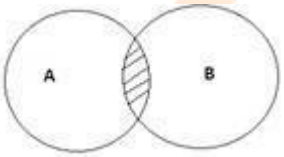


Converse All B's are not A

2) Particular Statements
3) Particular

Affirmative/Positive Some A's

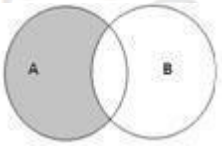
are B's



Converse : Some B's are A's

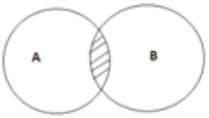
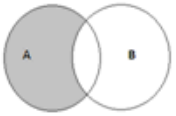
4) Particular Negative

Some A's Are Not B



Converse : Some B's are not A is a

possibility Learn the following tables with

Universal Affirmative	Particular Affirmative	Universal Negative	Particular Negative
Direct Statement: **All A's are B's**  (1) Definite Conclusion a) Some A's are B's b) Some B's are A's (i.e. these conclusions are sure conclusions without any doubt (2) Possible Conclusions a) Some B's are not A's is a possibility  b) B's are not A is a possibility. i.e. 	**Direct Statement :** **Some A's are B's**  1) Definite Conclusions a) Some B's are A's 2) Possible Conclusion a) Some A's are not B is a possibility b) Some B's are not a is a possibility c) All A's are B's is a possibility d) All B's is A is a possibility	**Direct Statement :** **All A's are not B**  1) Definite Conclusions a) All B's are not A b) Some A's are not B c) Some B's are not A Note : Since there is no relation between A&B ∴ No possibility are definite conclusions	**Direct Statement:** **Some A's are not B's**  1) Definite Conclusion None as nothing definite can be said from the diagram All are a possibility 2) Possible Conclusions a) Some A's are B's is a possibility b) Some B is A is a possibility c) Some B is not equal to A is a possibility d) All A is not equal to B is a possibility e) All B is not equal to A is a possibility f) All B is equal to A is a possibility  Note : Vice – Versa is not a possibility i.e. All A is equal to B as the direct statements itself states that some A is not equal to B".

Other names of all, some, All not & possibilities

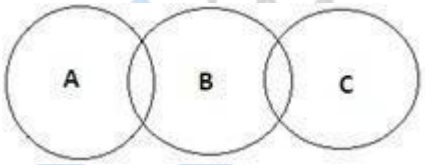
All	SOME	ALL NOT	POSSIBILITIES
1) Each 2) Every 3) Each and every 4) 100% (> 100%, i.e. any % above 100) 5) Almost 6) Almost 7) Always 8) None but 9) Only 10) Any*	1) Few 2) Generally 3) Frequently 4) most 5)1-99%, (any % between 1-99) 6) At least 7) Least	1) 0% (All A not B) 2) None (none A is B) 3) Can never	1) Can 2) Can be 3) May be 4) Might be 5) If 6) Cannot

Important Note:-

1. "Only A are B" means "All B's are A's" i.e. subject and predicate – change
2. "All A's are definitely" means "All A's are B's"
3. "None but A is B" means Only A is B which in turn means "All B's are A's"
4. A is B means all A is b)

In each question there are five options available, learn these by heart but not necessarily in the same order.
1) only answer 1 is true
2) only answer 2 is true
3) either 1 or 2 is true
4) neither 1 nor 2 is true
5) both 1 and 2 are true.
This sequence will be used in the below questions...so do not get confused if numbers 1,2,3,4,5 are used in place of answer.

EITHER OR CONCLUSIONS
(Quest.)
Some A's are
B's Some
B's are C's



Conclusions :

Case (1)
a) No A is C (F)
b) Some A's are C's (F) - (3)

Note : Here both statements are false as from the diagram nothing definite can be known about relation b/w A and C had the word possibility added to the statements then they would have been true.
Case (2)
a) No A is C is a possibility (T)
b) Some As are C's (F) - (1)

Case (3)
a) No A is C (F) (2)
b) Some A's are C's is a possibility (T)- (2)

Case (4)
a) No A is C is a possibility (T)
b) Some A's are C's " " (T) - (5)

Conditions of Either Or :
(1) Subject Predicate should be same in both statements
(2) Complimentary pairs i.e. one should be positive and one should be negative
(3) Maximum possibility i.e. maximum diagrams possibility should be covered
(4) Individually both false
(5) relation between subject and predicate should not be clear.
(6) Either or condition not applicable between All and no type sentences.
i.e. All A's are C's (F)
No A's are C's (F) – then it is (4) and not (3)

But If it is:
All A's are C's
Some A's are not C's (F) –the ans is
(3) OR
But if it is:

No A's are C's
Some A's are not C's- then ans is (4)
This is applicable between all & some statements

Note: No C is A can also be written as no A
is c) Similarly some A is C =some C is a)
So subject is equal to predicate.

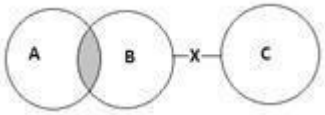
ANOTHER METHOD FOR SOLVING SYLLOGISMS : (Note : if method 1 is clear then you do not need this but never the less go through as it helps in clearing the concepts)

RULE METHOD (learn by heart these)
Rule 1.
All + are =
All Ex. All
A's are B's All
B's are C's

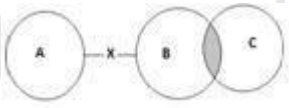
Rule 2.
Some + All =
some Ex. Some
A's Are B's All
B's Are C's
∴ Some A's are C's

Rule 3.
All + Some = no definite
conclusion Ex. All A's are B's
Some B's are C's
∴ Relationship between A and C is a possibility

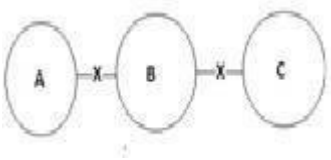
Rule 4.
Some + Some = No definite conclusion
Rule 5. Some + No = Some not (forward i.e. A to
c) Ex. Some A's are B's
No B's are C's
∴ Some A's are not C's



Rule 6.
No + Some = Some not (back words i.e. C to
A) Ex. No A's are B's
Some B's are C's
∴ Some C's are not A

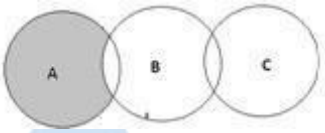


Rule 7.
No + No = no definite
conclusion Ex. No A's are B's
No B's are C's



∴ Relation between is a possibilities

Rule 8.
Some not + Some not = no definite conclusion
(NDC) Ex. Some A's are not B
Some B's are not C



Rule 9. All + Some not = N D C

Rule 10. Some + Some not = N

D C **Rule 11.** Not + Some not =

N D C

Practice Exercise:
Direction: In each of the following questions below are given two /three statements followed by the conclusion. You have to take the given statements to be true even if they seem at the variance from commonly known facts. Read all the conclusions and then decide which if the given conclusion logically follows from the given statements disregarding commonly known facts.

1. **Statements:**
I. Some brown are blue.
II. All blue is black.
III. Some black is yellow.
Conclusions:
I. Some brown are black
II. Some yellow is not black.

a). Only conclusion I follows b). Only conclusion II follows c). Either conclusion I or II follows
d). Neither conclusion I nor II follows e). Both conclusion I and II follow

2. Statements:
I. Some rats are cats.
II. All cats are bats.
III. No bat is a dog
Conclusions:
I. Some rats are definitely not dogs
II. No rat is dog
III. Not cat is a dog

a). Only I follows. b). Only II follows. c). Both I and II follow.
d). Both I and III follow. e). All I, II and III follow

3. Statements:
I. All pandas are rabbits.
II. No panda is tortoise.

III. No giraffe is rabbit.
Conclusions:
I. No panda is giraffe
II. At least some giraffes are pandas
III: At least some rabbits are not tortoises.
a) Only I follows b) Only II follows c) Only III follows
d) Both I and II follow. e) Both I and III follow.

4. Statements:
I. All tea is coffee.
II .All coffee is water.
III. No
water is milk.
No milk is
juice.
Conclusions:
I. At least some coffee are juices
II. Some
juices are not tea III:
No water is juice
a) Only I follows b) Only II follows c) Only III follows
d) All I, II and III follow. e) None follow

5. **Statements:**
I. Some brown are blue.
II. All blue is black.
III. Some black is yellow.
Conclusions:
I: Some brown are black
II: Some yellow is not
black III: All yellow is
black
a)Only I follows b)Only II follows c)Only III follows
d)Both I and II follow e)I and Either II or III follows

6. **Statements:**
I. All lamps are pots.
II. All pots are roses.
III. No rose is a flower
Conclusions:
I. All roses are pots
II. All lamps are roses
a) If only conclusion I follows. b) If only conclusion II follows. c) If either conclusion I or II follows.
d) If neither conclusion I nor II follows. e) If both conclusions I and II follow

7. Statements:
I. All flowers are nuts.
II. Some nuts are walls.
III. All chairs are walls
Conclusions:
I. Some nuts are chairs
II. At least some walls are flowers
a) If only conclusion I follows. b) If only conclusion II follows. c) If either conclusion I or II follows.
d) If neither conclusion I nor II follows. e) If both conclusions I and II follow

8. **Statements:**
I. Some marbles are cats.
II. All cats are pillows.
III. No pillow is a dog
Conclusions:

I. Some marbles are definitely not dogs
II. No marble is a dog
a) If only conclusion I follows. b) If only conclusion II follows. c) If either conclusion I or II follows.
d) If neither conclusion I nor II follows. e) If both conclusions I and II follow

9. **Statements:**
I. All lamps are pots.
II. All pots are roses.
III. No rose is a flower
Conclusions:
I. All roses are pots
II. All lamps are roses
a) If only conclusion I follows. b) If only conclusion II follows. c) If either conclusion I or II follows.
d) If neither conclusion I nor II follows. e) If both conclusions I and II follow

10. **Statements:**
I. All flowers are nuts.
II. Some nuts are walls.
III. All chairs are walls
Conclusions:
I. Some nuts are chairs
II. At least some walls are flowers
a) If only conclusion I follows. b) If only conclusion II follows. c) If either conclusion I or II follows.
d) If neither conclusion I nor II follows. e) If both conclusions I and II follow

11. **Statements:**
I. Some marbles are cats.
II. All cats are pillows.
III. No pillow is a dog
Conclusions:
I. Some marbles are definitely not dogs
II. No marble is a dog
a) If only conclusion I follows. b) If only conclusion II follows. c) If either conclusion I or II follows.
d) If neither conclusion I nor II follows. e) If both conclusions I and II follow

12. **Statements:**
I. Some marbles are cats.
II. All cats are pillows.
III. No pillow is a dog
Conclusions:
I. Some marbles are definitely not dogs
II. No marble is a dog
a) If only conclusion I follows. b) If only conclusion II follows. c) If either conclusion I or II follows.
d) If neither conclusion I nor II follows. e) If both conclusions I and II follow

13. **Statements:**
I. Some A are C
II. Some C are E
III. All E are F.
IV. Some F are G.
Conclusions:
I. Some A are F.
II. Some F are E
III. At least some E are G.

a) Only I follows b) Only II follows c) Only I, II and III follow
d) All follow e) None follows

14. **Statements:**
I. All Banks are Parks
II. Some Parks are Pencils
III. No pencil is Monkey
IV. All Monkeys are Brinjals
Conclusions:
I. No Bank is Brinjal
II. No Monkey is Park
III. Some Banks are Brinjals
a) Only I follows b) Either III or I follows c) Only I and II follow d) All follow e) None follows

15. Statements:
I. Some pens are pencils.
II. Some pencils are erasers.
III. Some erasers are sharpeners. Some sharpeners are dusters.
Conclusions:
I. Some sharpeners are not pencils.
II. All dusters are pens.

a) only 1st follows b) only 2nd follows c) either 1st or 2nd
d) neither 1st nor 2nd e) both 1st and 2nd

16. **Statements:**
I. Some Cats are Rats.
II. All bats are tables.
III. All Rats are Bats.
Conclusion:
I. Some Cats are bats
II. All bats are rats
III. All tables are cats
IV. All bats are cats

a). Only I & II follow b). Only II follows c). Only I & IV follow d). None of these

17. **Statements:**
I. Some ships are boats.
II. All boats are submarines.
III. Some submarines are yatches.
Conclusion:
I. Some yatches are boats.
II. Some submarines are boats.
III. Some submarines are ships.
IV. Some yatches are ships

a). All follow b). Only II and III follow c). Only III follows d). Only IV follows

18. **Statements:**
I. All Carrots are birds.
II. Some telephones are Carrots.
III. All bedsheets are telephone.
Conclusion:

I. All bedsheet are birds
II. Some bedsheet are birds
III. Some birds are telephone
IV. All telephone are birds

a). Only I followsb). Only II follows c). Only I and III follow d). Only III follows

19. **Statements:**
I. Most CPUs are keyboards.
II. No keyboard is a Mouse.
III. All Mouses are CPU.
Conclusion:
I. Some keyboards are CPU
II. All CPU's are Mouse
III. No Mouse is a keyboard
IV. Some Mouse are keyboard

a). Only I followsb). Only II and III follow c). Only I and III follow d). Only II follows

20. **Statements:**
I. Samosas are Jalebi.
II. All Jalebis are Tikki.
III. All Tikkis are Barfi
Conclusion:
I. All Jalebis are Barfi
II. All Tikkis are Samosas
III. All Samosas are Barfi
IV. All Barfi are Jalebi

a). Only I and II follow b). Only I and III follow c). Only II and III follow d). All follow

Section 6: Puzzle

Analytical Reasoning problems are the most common problem types in all entrance exams containing *Logical Reasoning* section. The information that is provided is of two types:

Information relating an object with its property
Information that matches two properties of an object.

Using these clues, you are required to match all the objects with their corresponding properties. We will take a simple example to make things clear.

SOLVING TECHNIQUES

There are the two types of solving techniques that can be used to solve complex arrangement problems.

A. Consolidated Table Method

B. Matrix Method

THE CONSOLIDATED TABLE METHOD

In the Consolidated Table Method, we prepare a table where the second column lists down the objects, and the remaining columns have properties associated with the objects. The first column is to note down which property types are eliminated for the object that we are considering in that particular row.

The step by step method of solving a question set using the consolidated table method is as follows:First, prepare a table as per the rules explained above.

Read the conditions that are given and find out the information that relates a particular object with a property type. This is direct information and should be filled in the table in the appropriate row. Also, note this down as the eliminated property type against rows of all other objects.
After listing down all direct information, look for cells in the table that can be filled using the eliminated properties for any object. For example, if two out of three property types have been eliminated for a particular property of an object, then it follows that the object has the third property type.
After this, look for information that relates two or more property types with each other and look for places in the table where they can be accommodated.
Finally, a partially complete or a complete table will be obtained which has the objects aligned with their property types. In case of partially complete tables, use short forms of property types separated by '/' to accommodate multiple cases in the solution.
Use this table to answer the questions that follow. If the question has additional information, modify the table accordingly.

THE MATRIX METHOD

In the Matrix Method, we prepare a table with the first column as our object heading, and the remaining column headings as the various property types. Each row of the matrix corresponds to one object name. Ticks or crosses are put in the boxes other than in the first column depending on whether the object (the entry in the first column) has that property type or not.

The step-by-step method of solving a question set using the matrix method is as follows:

First, prepare a matrix table listing down the objects and the property types as the headings of all the columns. List the object names as the rows of the table.

Read the information to find out data that relates an object name directly to a property type. In such cases, put a tick against the property type column for that particular object name. Put crosses in all other rows for that particular column and also for all other sub columns of that property for that object.

To accommodate information that relates two or more property types with each other, look for rows in the matrix table that carry no ticks or crosses for the properties that are being considered.

A partial or a complete matrix table will be obtained after all the given information has been represented. Use this table to answer the questions that follow. Accommodate any additional information from the questions in the table to complete it if it is not.

PRACTICE QUESTIONS

Directions (1 - 2): There are four books of Hindi, English, accounts and Tax written by four different authors, Mishra, Kaul, Gupta and Mehta; not necessarily in that order. These books have been arranged in four different shelves numbered 1 to 4.
the book written by Gupta is in shelf
3. Mishra has written the English
book. Accounts book is in shelf 4.
Kaul has not written the Hindi book and the book written by him is in an odd numbered self.

1. Who has written the Accounts book?
(a) MIshra (b)Kaul (c) Gupta (d) Mehta (e) None of these

2. Who has written the Tax book?
(a) MIshra (b)Kaul (c) Gupta (d) Mehta (e) Cannot be determined

3. Four different coloured balls viz. red, green, yellow and blue are kept in four different boxes numbered 1, 2, 3 and 4, though not in that order. Yellow ball is kept in box number 3. The box number 2 is adjacent to the box number 4. Red ball is not kept in a box adjacent to yellow balls. The box numbered 3 is in between box number 1 and box number 2. The red ball is in the box numbered ?

(a) 1 (b) 2 (c) 3 (d) 4 (e) cannot be determined.

Directions (4 - 5): Read the following information and answer the questions following them:

Four people were seated around a square table playing carrom board. The carpenter sat on Ramu's left and Mahesh sat opposite cook. Raghu is not the tailor and does not have knowledge of carpenting. The carpenter sat opposite vishnu.

4. Who among the following is cobbler?

(a) Ramu (b) Vishnu (c) Mahesh (d) Raghu (e) None of these

5. Who among the following is cook?

(a) Ramu (b) Vishnu (c) Mahesh (d) Raghu (e) None of these

6. Two of Anthony, Bernard and Charles are fighting each other.
a. The shorter of Anthony and Bernard is the older of the two fighters
b. The younger of Bernard and Charles is the shorter of the two fighters
c. The taller of Anthony and Charles is the younger of the
two fighters. Who is not fighting?

a)Anthony b)Bernard c)Charles d)can't be determine

7. One of the words listed below is my secret word.
AIM DUE MOD OAT TIE
With this list in front of you, if I were to tell you any one letter of my secret word, then you would be able to tell me the number of vowels in my secret word. Which word is my secret word?
a)AIM b)DUE c)OAT d)TIE e)can't be determine

8. Zita, her brother, her daughter and her son are tennis players. As a game of doubles is about to begin:
a. Zita's brother is directly across the net from her daughter.
b. Her son is diagonally across the net from the worst player's sibling.
c. The best player and the worst player are on the same side of the net. Who is the best player?
a)Zita b)Zita's son c)Zita's Brother d)Zita's Daughtere)None of these

Direction (9-13):
Five millionaires – Mr. Lim, Mr. Peters, Mr. Yao, Mr. Kumar and Mr. Cartwright – are the owners of five paintings, one each by the artists Cezanne, Picasso, Gauguin, Vermeer and Rembrandt. Each millionaire owns one of the above paintings. The costs of the paintings (in million USD) are, in some order, 4, 6, 12, 13 and 21. All five millionaires bought their respective painting from one of the following cities:Reykjavik, London, Delhi, Paris and Johannesburg. No two millionaires bought their painting from the same city or of the same price.
The following information is known.
a). Neither Mr. Lim nor Mr. Kumar bought their paintings from Reykjavik. They bought their paintings from Paris and Johannesburg, in any order.
b). Mr. Yao bought the painting by Picasso.
c). Mr. Peters bought the painting worth 12 million USD from Delhi.
d). The sum of the costs of the paintings bought by Mr. Lim and Mr. Yao is less than the cost of the painting bought by Mr. Kumar. Mr. Kumar does not own the most expensive painting.
e). The most expensive painting is by Gauguin, and was bought from London.
f). The second most expensive painting is by Cezanne, and was bought from Johannesburg.

9. From where did Mr. Yao buy his painting?
a) Paris b) London c) Reykjavik d) Delhi e) Johannesburg

10. What are the costs (in million USD) of the paintings owned by Mr. Lim and Mr. Yao? (The order is not important).
a) 4 & 6 b) 4 & 13 c) 6 & 13 d) 4 & 12 e) 6 & 12

11. Who owns the painting by Cezanne?
a) Mr. Lim b) Mr. Peters c) Mr. Yao d) Mr. Kumar e) Mr. Cartwright

12.Which of these millionaires is a possible owner of the painting by Rembrandt?
a) Mr. Peters b) Mr. Yao c) Mr. Kumar d) Mr. Cartwright e) None of these

13. What is the total cost (in million USD) of the paintings owned by Mr. Lim, Mr. Yao and Mr. Cartwright?
a) 22 b) 23 c) 31 d) 40 e) Cannot be determined
14. Abigail, Bridget and Claudia often eat dinner out.
a. Each orders either coffee or tea after dinner
b. If Abigail orders coffee, then Bridget orders the drink that Claudia orders.
c. If Bridget orders coffee, then Abigail orders the drink that Bridget orders.

Who do you know always orders the same drink after dinner?
a)Abigail b)Bridget c)Claudia d)Can't be determine

15. A

B

C
D

E F

G
H
I

Each of the digits 1,2,3,4,5,6,7,8 and 9 is:

a. Represented by a different letter in the figure above
b. Positioned in the figure above so that each of A+B+C, C+D+E, E+F+G and G+H+I is equal to 13.

Which digit does E represent?

a)2 b)7 c)1 d)9 e)4

Directions for Questions 16 to 19: Rajeev planted some plants in his lawn but in certain fixed pattern:
i. In most of the row s there are neither Roses nor Marigolds.
ii. There are two more row s of Orchids than Tulips and two more row s of Roses than Orchids.
iii. There are four more row s of Roses than Tulips.
iv. There aren't as many row s of Lilly as Fireball.
v. There is one less Marigold row than Rose.
vi. There is just one row of Tulips.
Vii. The maximum number of rows he planted is six.

16. How many rows of rose did he planted
a) Two b) Five c) Four d) Cannot be determined

17. Which of the above information is redundant and can he dispensed with?
a) (i) b) ii c) (i) and (iii) both d) All are necessary

18. What is the sum of the rows of Orchids and Marigold he planted?
a) Three b) Nine c) Seven d) Cannot be determined
19. How many rows of fireball did he plant?
a) Two b) Six c) Two or Six d) Data inadequate

20. Lee, Dale and Terry are related to each other.

i. Among the three are Lee's legal spouse, Dale's sibling and Terry's sister in law
ii. Lee's legal spouse and Dale's sibling are of the same sex

Who do you know is a married man?
a) Lee b)Dale c)Terry d)Can't be determine

21. Shadow went to an Island where the natives lie and the visitors speak truth. Shadow saw a salesman and wanted to know whether he was a native or a visitor. He did not pose a question directly but asked him indirectly instead. Shadow saw a woman and asked the salesman,"Is that a NATIVE or VISITOR?" .For which the salesman replied," She is a visitor". Is the salesman a Native or a Visitor?

Ans :Since Shadow himself saw him/her as a woman and asked the salesman. The Salesman replied ,"SHE " by which he speaks truth and is a Visitor. Salesman is a Visitor.

Section 7: Visual Reasoning

Non-verbal section consists a number of types of questions on different heads.

Non-Verbal Series

In this type of questions a series of figures (generally 5 figures) is given which proceeds following a certain rule. This series is known as problem figures which is followed by another series of five figures known as answer figures. Students are required to select one figure from the series of answer figure which follows the logic of problem figures and represents the next figure in the series.

Ex.

(a) (b) (c) (d) (e)

Solution: (a) In alternate steps 'T' and arrow interchange places while the third one is replaced by a newone.

Non-Verbal Analogy

This section of non-verbal reasoning has been designed to test the ability of a candidate to understand the relationship between two figures, which follow a certain rule, and apply the same rule to select a figure from answer figure which establishes the same relationship with the figure asked in the question.

Ex.

(a) (b) (c) (d) (e)

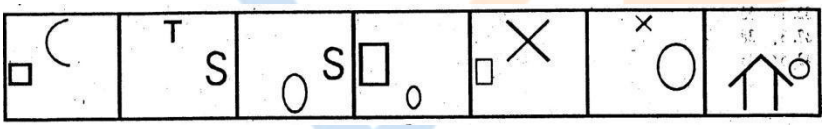
Solution: (b) From fig II to I: The whole figure rotates by 90° CW. One-and – a-half petals are lost from ACW side and half a petal are added to its CW side

Non-Verbal Classification

(i) Series based classification

Direction: In each of the following questions, a series begins with the unnumbered figure on the extreme left. One and only one of the five-numbered figures does not fit into the series. The two unnumbered figures, one each on the extreme left and extreme right fit into the series. You have to take as many aspects into account as possible of the figures in the series and find out the one and only one of the five-numbered figures which does not fit into the series. The number of that figure is your answer.

16.



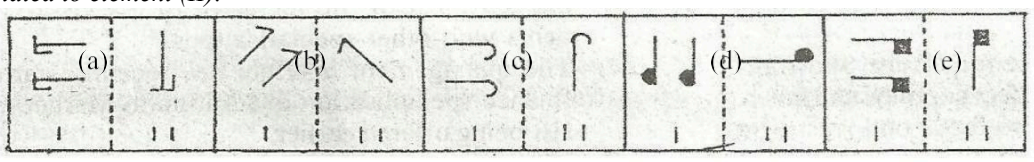
(a) (b) (c) (d) (e)

Solution: *(a) In each step, the bigger element gets reduced in size and retained. The other one shifts two sides and changes its shape*

(ii) Analogy based Classification

Direction: *In each of the following questions, in four out of five pairs of figures, element(I) is related to element (II) in same particular way. Determine pair of figures which the element (I) is not so related to element (II).*

Ex.

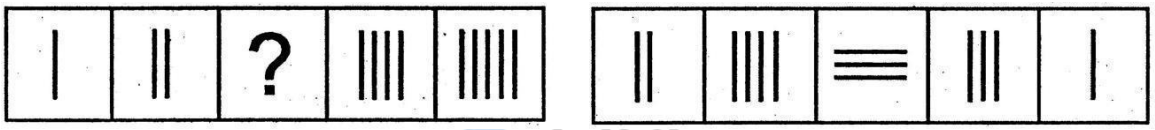


Solution: (d) *The whole figure rotated by 90° ACW while one similar element is lost.*

PRACTICE EXERCISE

Direction (Q.1-9): In each of these questions there are two sets of figures. The figures on the left are Problem Figures (four figures and one question-marked space) and those on the right are Answer Figures indicated by number a, b, c, d and e. A series is established if one of the five Answer Figures is placed at the "question- marked space". Problem Figures form a series if they change from left to fight according to some rule. The number of the Answer Figure which should be placed in the question-marked space, is the answer. All the five figures, ie four problem figures and one Answer Figure placed in the question-marked space should be considered as forming the series.

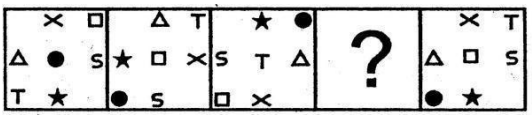
Study the following questions.

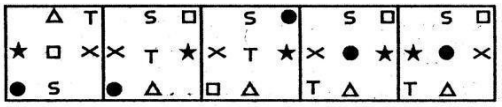


(e) If we place the answer Figure (d) in the question marked space it makes a series which indicates that one vertical line is added in each figure. So the answer is (d), Note that if we go by only one aspect of 'number of lines', Answer Figure (c) may also fit in. So you have to consider all different aspects. Now solve the following questions.

Problem Figures **Answer Figure**

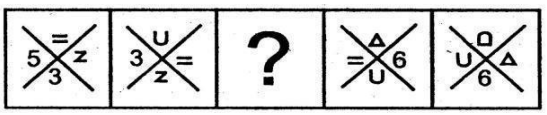
1.

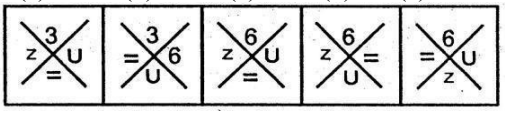




(a) (b) (c) (d) (e)

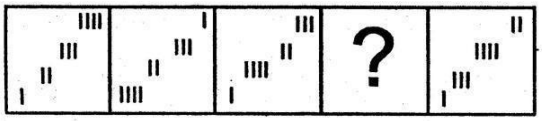
2.

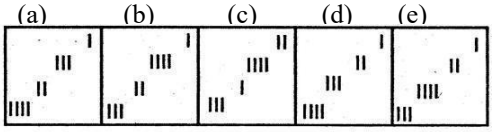




(a) (b) (c) (d) (e)

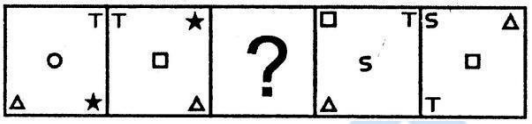
3.

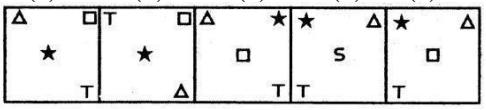




(a) (b) (c) (d) (e)

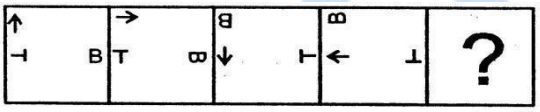
4.

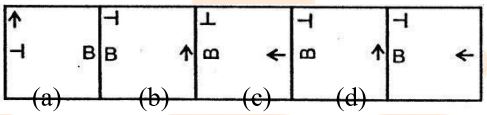




(a) (b) (c) (d) (e)

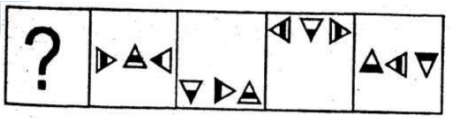
5.

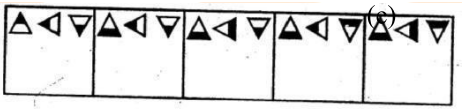




(a) (b) (c) (d) (e)

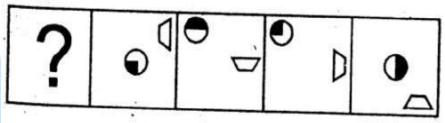
6.

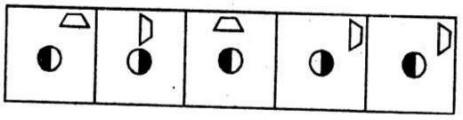




(a) (b) (c) (d) (e)

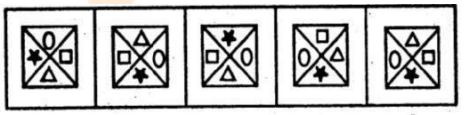
7.





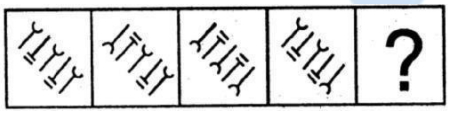
(a) (b) (c) (d) (e)

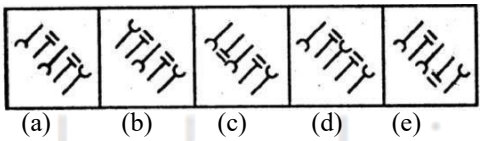
8.



(a) (b) (c) (d) (e)

9.

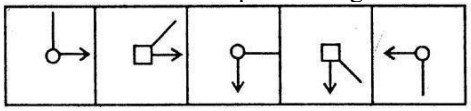


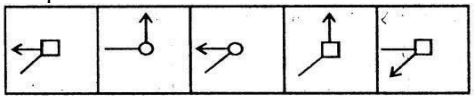


(a) (b) (c) (d) (e)

Direction (Q.10 29): In each of the questions given belows which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were to be continued?

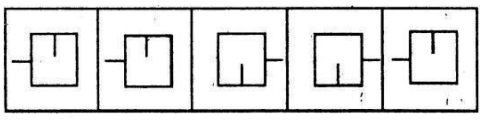
10.

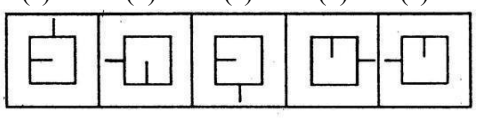




(a) (b) (c) (d) (e)

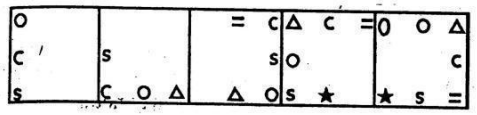
11.

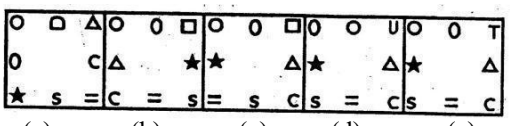




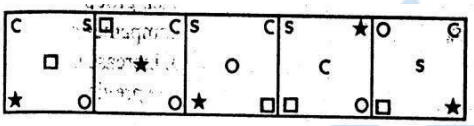
(a) (b) (c) (d) (e)

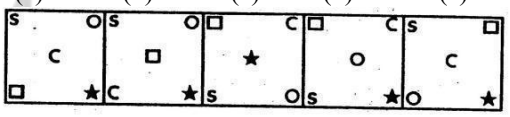
Directions: In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued?

12. 

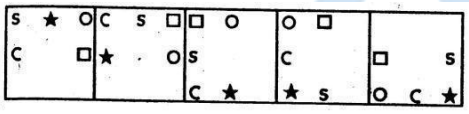


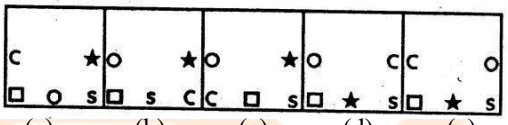
(a) (b) (c) (d) (e)

13. 

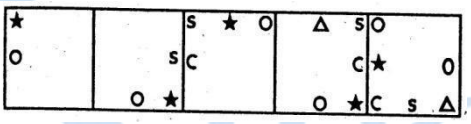


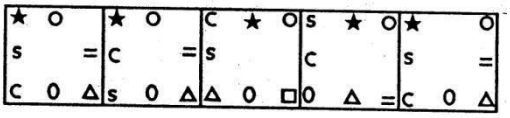
(a) (b) (c) (d) (e)

14. 

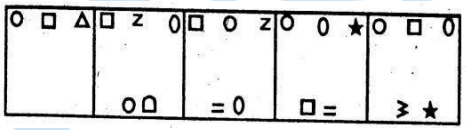


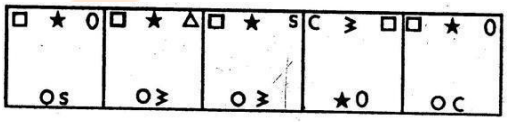
(a) (b) (c) (d) (e)

15. 



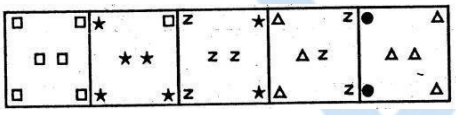
(a) (b) (c) (d) (e)

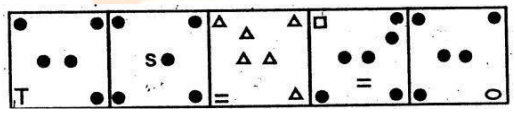
16. 



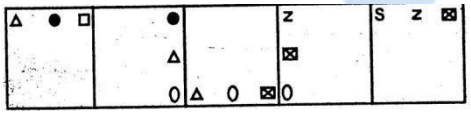
(a) (b) (c) (d) (e)

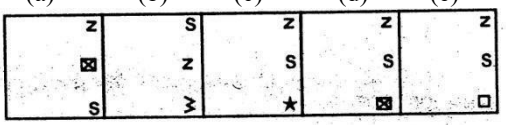
Problem Figure Answer Figure

17. 

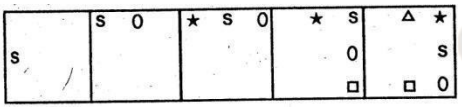


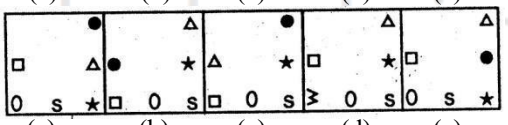
(a) (b) (c) (d) (e)

18. 



(a) (b) (c) (d) (e)

19. 



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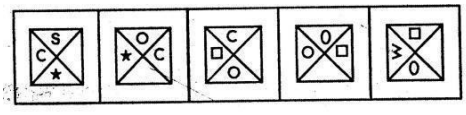
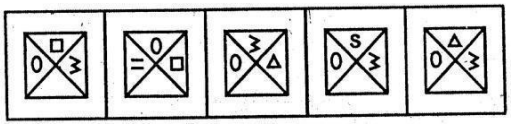
20. 



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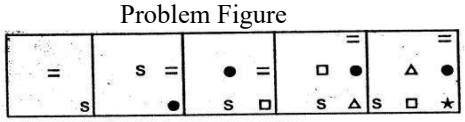
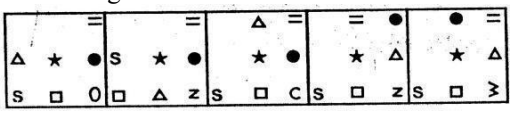
Problem Figure | Answer Figure

21. 



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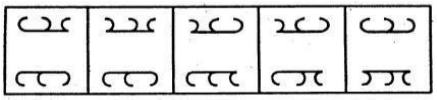
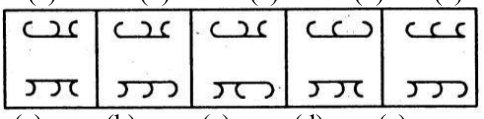
22. 



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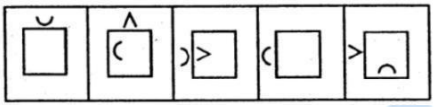
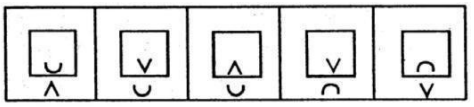
23. 



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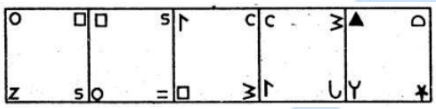
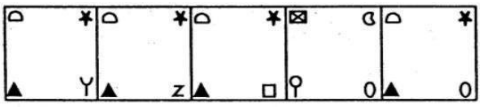
24. 



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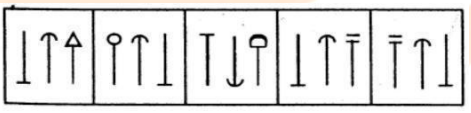

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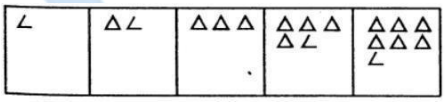
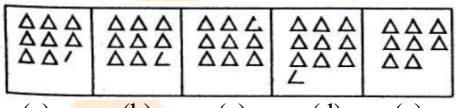
26. 



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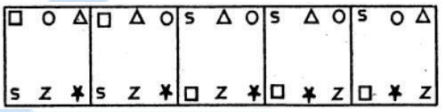
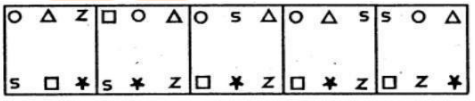
27. 



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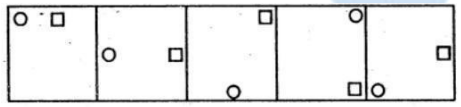
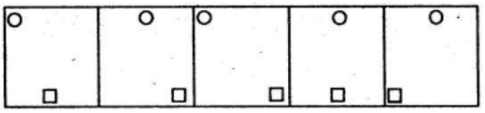
29. 



(a) (b) (c) (d) (e)

Section 8: Cyptarithmatic

1. Marbles are to be distributed. Ann gets 1,Mary gets 2, Rose gets 3 and Lisa gets 4. John Brown gets as much as his sister. Tim Smith gets 2 times as much as his sister. Neil Johnson gets 3 times as much as his sister. Sam Paul gets 4 times as much as his sister. Find the surnames of Ann, Mary, Rose and Lisa ?
a) 32 b)30 c)28 d)None of these

2. Three football teams are there. Given below is the group table. Fill in the x's P - Played
W -
Wo
n L
-
Lost
D -
Dr
a w
F - Goals For
A - Goals
Against P
W L D F
A
A 2 2 x x x 1
B 2 x x 1 2 4
C 2 x x x 3 7

3. Rahul took a part in cycling game where 1/5 ahead of him and 5/6 behind him excluding him. Then total number of participants are
a) 20 b)29 c)31 d)none of these

4. Joe's age, Joe's sister's age and Joe's fathers age sums up to a century. When son is as old as his father, Joe's sister will be twice as old as now. When Joe is as old as his father then his father is twice as old as when his sister was as old as her father.Age of her father ?
a)40 b)50 c)60 d)None of these

5. A family X went for a vacation. Unfortunately it rained for 13 days when they were there.

But whenever it rained in the mornings, they had clear afternoons and vice versa. In all they enjoyed 11 mornings and 12 afternoons. How many days did they stay there totally?
a)18 b)13 c)23 d)none of these

6. Find out which option is correct according to the given statement.
If dolly works hard then she can get A grade

1. If dolly does not work hard then she can get A grade
2. If dolly gets an A grade then she must have worked hard
3. If dolly does not gets an A grade then she must not have worked hard
4. Dolly wishes to get A grade

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

7. Mr. T has a wrong weighing pan. One arm is lengthier than other. 1 kilogram on left balances 8 melons on right, 1 kilogram on right balances 2 melons on left. If all melons are equal in weight, what is the weight of a single melon.
a) 100 b)200 c)150 d)None of these

8. HERE = COMES – SHE, (Assume s = 8) Find value of R + H + O
a) 14 b)12 c)10 d)can't be determine

9. A person is 80 years old in 490 and only 70 years old in 500 in which year is he born?
a) 400 b) 550 c) 570 d) 440

10. Lucia is a wonderful grandmother and her age is between 50 and 70. Each of her sons have as many sons as they have brothers. Their combined ages give Lucia's present age.what is the age?
a) 64 b)60 c)80 d)85

11. Find the total number of rectangles (include squares also as rectangles) in a 8 * 8 standard chessboard?

a) 64 b)144 c)1296 d)1728

12. In an Island the natives lie and visitors speak truth. A man wants to know whether a salesman beside him in a bar is a native or visitor. He asked him to ask a woman beside him whether she is a native or visitor. He replied "she says she is a visitor". Then he knew that the salesman is a native or visitor. salesman is in which category , native or visitor?
a) Native b)Visitior c)can't be determine d)data insufficient

13. If ravi binded his book and the binder cut the pages of the book , ravi decided to mark the pages by himself own
, what he found that number of three appears 61 times find of number of pages?
a)200 b)300 c)450 d)None of these
14. Find the unit digit of productofthe prime numberup to 50 .
a) 1 b)9 c)7 d)0

15. HOW +MUCH = POWER Then P+ O + W+ E+ R =
a) 10 b)12 c)14 d)none of these

16. Find the
digits X,Y,Z X X
X X
Y Y Y Y +
Z Z Z Z

Y X X X Z
----
a)9,1,8 b)8,1,9 c)1,8,9 d)9,8,1

17. Given a collection of 36 points P in the plane and a point equidistant from all points in P, which of the following are necessarily true?
A. The points in P lie on a circle.
B. The distance between any pair of points in P is larger than the distance between X and a point in P
a) A and B b) Neither A nor B c) B only d) A only

18 A, B, C are the husbands and D, E, F are their wives not in that order. They are playing the Golf following these conditions. D, E, F and B scores are as follows 106,102,100 and 94.A and C scores are 98 and 96 not in that order as their names are not displayed. Two couples get the same score. B wife beat the A wife list out the wives names and the scores they got.
a)A,C(102,100 b)B,C(106,100) c)A,B(102,106) d)can't be determine

19. A family I know has several children. Each boy in this family has as many sisters as brothers but each girl has twice as many brothers as sisters. How many brothers and sisters are there?
a) 5boy,4girl b)4boy,3girl c)7boy,6girl d)None of these

20. A research lab in Chennai requires 100 mice and 75 sterilized cages for a certain set of laboratory experiments . To identify the mice, the lab has prepared labels with numbers 1 to 100 , by combining tags numbered 0 to 9. The SPCA requires that the tags be made of toxin-free material and that the temperature of the cages be maintained at 27 degree Celsius. Also , not more than 2 mice can be caged together and each cage must be at least 2 sq.ft in area. The 5 experiments to be conducted by lab are to be thoroughly documented and performed only after a round of approval by authorities. The approval procedure takes around 48 hours. How many times is the tag numbered '4' used by the lab in numbering these mice?
a) 9 b)19 c) 20 d) 21

Section 9: Data Sufficiency

Directions: Each of the questions given below consists of a statement and /or a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statement(s) is/ are sufficient to answer the given question. Read both the statements and

Give answer a) if the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.

Give answer b) if the data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.

Give answer c) if the data either in Statement I or in Statement II alone are sufficient to answer the question. Give answer d) if the data even in both Statements I and II together are not sufficient to answer the question. Give answer e) if the data in both Statements I and II together are necessary to answer the questions.

1. What is the two digit number?
I. The sum of the two digits is 8. The ratio of the two digits is 1:3
II. The product of the two digits of a number is 12. The quotient of two digits is 3

2. What is the sum which earned interest?
I. The total simple interest was ` 7000 after years.
II. The total of sum and simple interest was double of the sum after 5 years.

3. What is Reena's present age?
I. Reena's present age is 5 times her son's present age
II. Reena's age two years hence will be three times her daughter's age at that time.

4. What is the area of the circle?
   I. The circumference of the circle is 308 m.
   II. II. The radius of the circle is 28 m

5. What is the speed of the train?
   I. 280 m long train crosses a signal pole in 18 seconds
   II. 280 m long train crosses a platform in 45 seconds

6. Is Kareena the wife of Saif?

   I. Kareena is a female person and Saif is a male person
   II. Kareena is the daughter of Saif

7. What is the two digit number?
   I. The difference between the two digits is 9
   II. The sum of the digits is equal to the difference between the two digits

8. What is the difference between the digits of a two – digit number?
I. The sum of the digits of that number is 8
II. One fifth of that number is 15 less than half of 44

9. By selling a product with 20% profit, how much profit was earned?

I. The difference between cost and selling price is ` 40

II. The selling price is 120% of the cost price.

10. What would have been the selling price per kg of rice?

I. 50 kg of rice was purchased for 3350 and 150 was spent on transport.

II. Profit earned was 5%

11. What is the percent profit earned by selling the product? I. The profit earned was50 II. Had it been sold for 310, the profit would be 70

12. What was the cost price of the suitcase purchased by Richard?

I. Richard got 20% concession on the labeled price.

II. Richard sold the suitcase for 2000 with 25% profit on the labeled price.

13. By selling a product for 100, how much profit was earned?

I. 20% profit would have been earned if it were sold for 90.

II. The profit was one-third of the purchase price.

14. How much profit did Anand make by selling a bed?

I. He bought the bed with 40% discount on the labeled price.

II. He sold it with 20% profit on the labeled price.

15. What is the rate of simple interest?

I. The total interest earned was 4000

II. The sum was invested for 4 years

16. What will be the compounded amount?

I. 200 were borrowed for 192 months at 6% compounded annually.

II. 200 were borrowed for 16 years at 6%

17. What was the rate of interest on a sum of money?

I. The sum fetched a total of 2522 as compound interest at the end of 3 years.

II. The difference between the simple interest and the compound interest at the end of 2 years at the same rate was 40.

18. What is Sonia's present age?

I. Sonia's present age is five times Deepak's present age.

II. Five years ago her age was 25 times Deepak's age at that

19. Divya is twice as old as Shruti. What is the difference in their ages?

I. Five years hence, the ratio of their ages would be 9:5

II. Ten years back, the ratio of their ages was 3:1

20. Rahul, Anurag and Vivek started a business together. In what proportion would the annual profit be distributed among them?

I. Rahul got one – fourth of the profit.

II. Rahul and Vivek contributed 75% of the total investment.

Directions (21-22): Each Question Given Below has a problem and two statements numbered I and II giving certain Information. You have to decide if the information given in the statements is sufficient for answering the problem.
Indicate your answer as

(i) if data in statement I alone are sufficient to answer the question;

(ii) if data in statement II alone are sufficient to answer the question;
(iii) if data either in I or II alone are sufficient to answer the question;
(iv) if the data even in both the statements together are not sufficient to answer the question;
(v) if the data in both the statements are needed.

21. Is Anil taller than Sachin?
I. Dinesh is of the same height as Arun and Sachin.
II. Sachin is not shorter than Dinesh.
a)i b) iii c) ii d) v e) iv

22. In a certain code language, '13' means 'stop smoking' and '59' means 'injurious habit'. What is the meaning of '9' and '5' respectively in that code?
I. '157' means 'stop bad habit'
II. '839' means 'smoking is injurious'.
a)ii b) iii c) v d) iv e) i

Directions (23- 25): In the following problem, there is one question and three statements I, II and III below the question. You have to decide whether the data given in the statements is sufficient to answer the question. Read all the statements carefully and find out the probable pair which can be sufficient to answer the question.

23. Five persons --- A, B, C, D and E are sitting in a row. Who is sitting in the middle?
I. B is in between E and C.
II. B is to the right of E.
III. D is in between A and E.
a)I and II together b) II and III together c) I and III together
d) I, II and III together e)Data insufficient.

24. Four Subjects --- Physics, Chemistry, Mathematics and Biology were taught in four Consecutive periods of one hour each starting from 8.00 a.m. At what time was the Chemistry period scheduled?
I. Mathematics period ended at 10.00 am which was preceded by Biology.
II. Physics was scheduled in the last period.
III. Mathematics period was immediately followed by Chemistry.
a)Only I b) Only I or II c) Only II
d) II and III together e) I and II together or I and III together

25. How many sons does Sharma have?
I. Saurav and Aditya are brothers of Sonali.
II. Ayesha is sister of Sharmila and Aditya.
III. Ayesha and Sonali are daughters of Sharma.
a) I and II only. b) II and III together. c) I, II and III together
d) I, II, III together are not sufficient e) I and III together

Direction(26-35): Opera Ltd. Co. wants to recruit computer operators for its branch in various place. Following criteria are laid down for selection:
I. Be a graduate with at least 66% marks.
II. Have passed a PG degree/Diploma in computer applications with at least 70% marks.
III. Have cleared the computer skill test with at least 56% marks.
IV. Be not less than 24 years and not more than 30 years of age as on 1.9.2012

However, If a candidate satisfies all these conditions except:-

(I) and (II) above, but has secured at least 70% marks in computer skill test, the case is to be referred to the PO-Admin of the company.
(II) and (IV) above, but has a working experience of at least two years in information technology, the case is to be referred to the GM-president of the company.

In each of the following questions details of one candidate are given as regards his/her candidature. You have to read the information provided and decide. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 1.9.2012
Given Answer:-
(a) If the candidate is to be selected.
(b) If the case is to be referred to the PO-Admin.
(c) If the case is to be referred to the GM-President.
(d) If the data provided are inadequate to take a decision.
(e) If the candidate is not to be selected.

26. Mohnish has passed B.Sc.(Botany) with 60% marks and has done a PG diploma in computer Applications. His date of birth is 14th August 1990. He has cleared the computer skill test with 58% marks.
27. Anita Sharma passed BCA examination in 2007 at age of 22 years with 89% marks. After working for two years she enrolled for post-graduation in computer Applications. She has secured 56% marks in computer skill test.

28. Raj Bhushan has passed BCA as well as MCA with 73% marks. He has cleared the computer skill test with 70% marks. His date of birth is 5th August 1979.

29. Amit Kumar has passed BA with 70% marks and PG diploma in computer Applications with 75% marks. He has secured 70% marks in computers skill test. His date of birth is 8.2.1987.

30. SukumarSen passed PGDCA examination in 2007 at the age of 28 years with 76% marks. After working for five years in Information Technology he enrolled for PG degree in Computer Applications last year. He has secured 80% marks in graduation as well as in computer skill test.

31. RiyaPrakash has obtained engineering degree in Computer Science with 66% marks and MCA with 65% marks. She has secured 82% marks in computer skill test. She has completed 26 years of age.

32. PawanMethew has done B.Sc. (Physics) and PG diploma in computer Application with 69% marks and 65% marks respectively. He has secured 76% in computer skill test. His date of birth is 10.03.1988.

33. Radha Verma has obtained post-graduation degree in computer applications from a reputed institute. She has cleared the computer skill test with 56% marks. She completed 27 years of age.

34. Mukul Verma is a science graduate with 61% marks. He has done MCA with 70% marks and 5 years of experience in the area of IT. He has secured 65% marks in computer skill test. His date of birth is 01.01.1982.

35. Fatima Shekh has passed B.Sc. (Honours) and MCA with 73% and 78% marks respectively. She has cleared the Computer skill test with 79% marks. Her date of birth is 16.06.1986.

36. A man fixed an appointment to meet the manager, Manager asked him to come two days after the day before the day after tomorrow. Today is Friday. When will the manager expect him? (repeated from previous papers)
a)Monday b)Sunday c)Wednesday d)Tuesday e)can't be determine

37. Consider two tumblers, the first containing one litre of coffee. Suppose you take one spoon of water out of the first tumbler and pour it into the second tumbler. After moving you take one spoon of the mixture from the second tumbler and pour it back into the first tumbler . Which one of the following statement holds now?
a) There is less coffee in the first tumbler than water in the second tumbler.
b) There is more coffee in the firs tumbler than water in the second tumbler
c) There is as much coffee in the first tumbler as there is water in the second tumbler

d) None of the statements holds true.

38. Alok and Bhanu play the following coins in a circle game. 99 coins are arranged in a circle with each coin touching two other coin. Two of the coins are special and the rest are ordinary. Alok starts and the players take turns removing an ordinary coin of their choice from the circle and bringing the other coins closer until they again form a (smaller) circle. The goal is to bring the special coins adjacent to each other and the first player to do so wins the game. Initially the special coins are separated by two ordinary coins O1 and O2. Which of the following is true ?

a) In order to win, Alok should remove O1 on his first turn.
b) In order to win, Alok should remove one of the coins different from O1 and O2 on his first turn.
c) In order to win, Alok should remove O2 on his first turn.
d) Alok has no winning strategy.

Section10: Clock

Important Formulas - Clock

1. **Minute Spaces**

The face or dial of clock is a circle whose circumference is divided into 60 equal parts, named minute spaces.

2. **Hour hand and minute hand**

A clock has two hands. The smaller hand is called the hour hand or short hand and the larger one is called minute hand or long hand.

3. In 60 minutes, minute hand gains 55 minute spaces over the hour hand.

(In 60 minutes, hour hand will move 5 minute spaces while the minute hand will move 60 minute spaces. In effect the space gain of minute hand with respect to hour hand will be 60 - 5 = 55 minutes.)

4. Both the hands of a clock coincide once in every hour.

5. The hands of a clock are in the same straight line when they are coincident or opposite to each other.

6. When the two hands of a clock are at right angles, they are 15 minute spaces apart.

7. When the hands of a clock are in opposite directions, they are 30 minute spaces apart.

8. Angle traced by hour hand in 12 hrs = 360°

9. Angle traced by minute hand in 60 min. = 360°.

10. If a watch or a clock indicates 9.15, when the correct time is 9, it is said to be 15 minutes too fast.

11. If a watch or a clock indicates 8.45, when the correct time is 9, it is said to be 15 minutes too slow.

12. The hands of a clock will be in straight line but opposite in direction, 22 times in a day.

13. The hands of a clock coincide 22 times in a day.

14. The hands of a clock are straight 44 times in a day.

15. The hands of a clock are at right angles 44 times in a day.

16. The two hands of a clock will be together between H and (H+1)
o' clock at (60H/11) minutes past H o' clock.
17. The two hands of a clock will be in the same straight line but not together between H and (H+1)
o' clock at (5H−30)*12/11
minutes past H, when H>6
(5H+30)*12/11 minutes past H, when H<6
18. Angle between hands of a clock
When the minute hand is behind the hour hand, the angle between the two hands at M minutes past H 'o clock
=30(H−M/5)+M/2 degree
When the minute hand is ahead of the hour hand, the angle between the two hands at M minutes past H 'o clock =30(M/5−H)−M/2 degree

19. The two hands of the clock will be at right angles between H and (H+1) o' clock at (5H±15)*12/11 minutes past H 'o clock
20. If the minute hand of a clock overtakes the hour hand at intervals of MM minutes of correct time, the clock gains or loses in a day by (720/11−M)(60×24/M) minutes.
21. Between H and (H+1) o' clock, the two hands of a clock are M minutes apart at (5H±M)*12/11 minutes past H 'o clock

Practice Question:

1. An accurate clock shows 8 o'clock in the morning. Through how many degrees will the hour hand rotate when the clock shows 2 o'clock in the afternoon?
a) 144 b)15 c) 168 d)180

2. A clock is started at noon. By 10 minutes past 5, the hour hand has turned through:
a) 145 degrees b) 150 degree c)155 degrees d)160 degrees

3. The angle between the minute hand and the other hour hand of a clock when the time is 8:30 is
a) 80 degrees b) 75 degree c) 60 degrees d) 105 degrees

4. What is the angle made by minute angle in 16 minutes?
a) 8^0 b)32^0 c)96^0 d) 48^0

5. What is the difference between angles made by minute hand and hour hand in 24 minutes?
a) 185^0 b)120^0 c)180^0 d) 132^0

6. How often the hands of clock at right angle every day?
a) 11 times b)22 times c)44 times d)55 times

7. A clock strikes 5 takes 16 seconds. In order to strike 10 at the same rate, the time taken is
a) 24 seconds b)30 seconds c)36 seconds d)32 seconds

8. What is the angle between the minute hand and hour hand at 20 minutes past 4 O' clock?
a) 5^0 b)10^0 c)180^0 d) 15^0

9. At what time between 4 and 5'O clock are the two hands of the clock coincide?
a) 4.21 9/11 b)4.20 c)4.23 7/11 d)4.22

10. Find the time between 8 and 9'O Clock when the two hands of a clock are in the same straight line.
a) 8.41 9/11 b)8.43 7/11 c)8.47 3/11 d)8.44 3/11

11. At what time between 4 and 5 are the hands 2 minutes spaces apart?
a) 4 19 7/11 and 4.22 b)4.21 7/11 and 4.24
c) 4. 19 7/11 and 4.24 d) 4.18 9/11 and 4.24 2/11

12. When do the two hands of a clock of just after 3 pm make 30 º angles between them?
a) 3:15:00 b)3:10:54 c)3:01:59 d) 3:20:21

13. A clock strikes ones at 1 O'clock, twice at 2 O'clock and so on. What is the total number of striking in a day
a) 12 b) 156 c) 78 d) 24

14. Three cuckoo clocks are such that the cuckoos chime after every 9 minutes, 15 minutes and 35 minutes respectively. If the 3 clocks chime simultaneously at 3 p.m, what time will they chime together again?
a) 8 :15 p.m b)9:15 p.m c)10.30 p.m d) 10.00 p.m

15. The minute hand of a clock overtakes the hour hand at intervals of 65 minutes of correct time. How much in a day does the clock gain or lose?

a) 11 11/143 minutes b)10 10/143 minutes c)12 11/143 minutes d) 9 11/143 minutes

16. A watch was set correct at 12'O clock. It loses 10 minutes per hour. What will be the angle between the two hands of the clock after 1 hour?
a) 75º b) 85º c) 90º d) 105º

17. A clock is set right at 7:10 am on Thursday, which gains 12 minutes in a day. On Sunday if this watch is showing 3: 50 pm. What is the correct time?
a) 2:50 pm b) 3:10 pm c) 3:30 pm d)4:30 pm

18. A clock is set right at Tuesday 10 a.m . The clock gains 10 min in 24 hours What will be the correct time on the following Thursday, when the watch indicates 8 p.m.?
a) 8.36 p.m. b) 8.40 p.m. c)7.36 p.m. d) 7.52 p.m

19. A clock was correct at 2 p.m, but then it began to lose 30 minutes each hour. It now shows 6 pm, but it stopped 3 hours ago. What is the correct time now?
a) 8.30 pm. b)12 midnight c)11 p.m. d)None of these

20. The reflex angle between the hands of a clock at 10.25 is
a) 197 ½ b) 167 ½c) 157 ½d)187 ½

Section11: Calendar

Concept of Calendar

We know that

Any non-leap year contains 365 days = 52 weeks +

1 day And leap-year contains 366 days = 52 weeks +

2 days

This 1-day and 2 days extra added to any year create changes in the calendar and this is the reason why calendar of N^{th} year will not be same as $N+1^{th}$ year.

Before we proceed ahead, we should be very clear about two things:

i. Which years are leap years?

It takes the earth about 365.2422 days to go around the sun, but a normal calendar year is only 365 days. The extra fraction of a day added up four times makes four years (or, four revolution of earth around sun) 1460.9688 days, but four calendar years would only be 1460 days. That 0.9688 is almost a whole day, so every four years we add an extra day to our calendar, February 29. We call that year leap year. To make things easier, leap years are always divisible by four: 2004 and 2008 will both be leap years.

For hundreds of years, people used a calendar called the Julian calendar that followed this rule, adding a leap year every four years. However, because 0.9688 isn't *exactly* a whole day, the Julian calendar slowly began to disagree with the real seasons. In 1582, Pope Gregory fixed this problem by ordering everyone to use a new set of rules.

These rules are named the Gregorian calendar, after him. They work like this:

The Gregorian Calendar

Rule	**Examples**
Every fourth year is a leap year.	2004, 2008, and 2012 are leap years.
However, every centenary year is *not* a leap year. In case of centuries, every four hundred years, there's a leap year after all.	1900 and 2100 are not leap years. 2000 and 2400 are leap years.

In layman terms, all the century years divisible by 400 will be leap years and all the non-century years divisible by 4 will be leap years. So, leap year next to 2096 AD is 2104 AD and not 2100 Ad)

Because 2000, 4000, 6000, etc. are leap years and 1000, 3000, 5000, etc. are not, the number of leap days in each millennium alternates between 242 and 243, with the first, third, etc. millennia (i.e., 1-1000, 2001-3000, etc.) having 242 leap days, and the second, fourth, etc. (i.e., 1001-2000, 3001-4000, etc.) having 243 leap days.

ii. How the days of consecutive years change?

Due to any non-leap year, calendar of next year go ahead by 1 day and due to any leap year, calendar of next year goes ahead by 2 days, but this change in calendar will be there only before 29th February.

It can be seen through the example given below:

	1991	1992	1993
1st January	Sunday	Monday	Wednesday
28th February	Tuesday	Wednesday	Friday
1st March	Wednesday	Friday	Saturday

In the above example, we have assumed that 1st January of 1991 is Sunday. 1991 and 1993 are non- leap years and 1992 is a leap year.

If now we try to find out the symmetricity of calendars, we can see this in the following way:

i. For any leap-year

Let us see, for example, the case of 1972.

Year	1972	1973	1974	1975	1976
Excess days	2	1	1	1	2

Since no. of excess days are 7, so the days of the year 1972 and year 1977 will be same from 1st of January and 28th of February.

ii. For any (leap-year+1) year

Year	1973	1974	1975	1976	1977	1978
Excess days	1	1	1	2	1	1

Since no. of excess days are 7, so calendar of year 1973 and 1979 will be same for whole year.

iii. For any (leap-year+2) year

Year	1974	1975	1976	1977	1978	1979
Excess days	1	1	2	1	1	1

Since excess days are 7, so calendar of year 1974 and 1980 will be same till 28th of February.

iv. For any (leap-year+3) year

Year	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Excess days	1	2	1	1	1	2	1	1	1	2	1

Nature of year	No. of years after which 1st January will be same
Leap year	5
Leap year + 1	6
Leap year + 2	6
Leap year + 3	11

Since no. of excess days are 14, so calendar of year 1975 and 1986 will be same for whole year. This whole mechanism can be summed up in following way:

So, if 1st January of 1972 and 1st January of 1977 will be on same day.

If 1st January of 1973 and 1st January of 1979 will be on same day and so on.

Exception – No century year, which is not a leap year, should be included in this calculation.

e.g.1. Sum of dates of last Monday of previous month and 1st Thursday of next month is 38. If both the dates are of the same year, then which month is the current month?

Solution- Sum of dates of last Monday of previous month and 1st Thursday of next month is 38 is possible only if last Monday is 31st and 1st Thursday is 7th.(Since if we take 30+8 = 38, then 30 can be last Monday of any month but 8th can not be the 1st Thursday of any month)

So, 31st of last month is a Monday. Hence 7th of current month - 14th of current month –21st of current month -28th of current month will be a Monday.

Now, if current month is a month with 30 days, then 5th of next month will be a Monday, so 7th of next month cannot be a Thursday.

If current month is a month with 31 days, then 4th of next month will be a Monday, so 7th of next month will be a Thursday.

Finally we can conclude that previous month and current month, both are having 31 days. Since both the dates are of the same year, so current month is August.

Finding day of a date by using a reference date:

Let us see this with the help of an example: If 9th Dec of 1972 is Sunday, then which day it will be on 14th December 1998?

Process: - There are several processes to do this calculation: 1. Year method, 2. Days method, 3. Actual calculation method

1. Year Method – We use the above given table to find out about any of the years. 9.12.1972 – Sunday

1.1.1973 – Tuesday (It is a Leap year + 1 year)

So, 1.1.1979 – Tuesday, (It is a Leap year + 3 year) So, 1.1.1990- Tuesday, (It is a Leap year + 2 year) So, 1.1.1996 – Tuesday

Now, we can find out all the next years one-by-one. 1.1.1997 – Thursday

1.1.1998 – Friday – 31.12.1998 – 24.12.1998 – 17.12.1998

So, 14.12.1998 – Tuesday

2. Days method – We use the no. of excess days every year to find out the no. of days calendar will move ahead by. 1.1.1973 – Tuesday

Due to 1973, calendar will go ahead by 1 day, similarly due to 1974 – 1 day, due to 1975 – 1 day and due to 1976- 2 days.

So, in four years, calendar will go ahead by 5 days.

Using unitary method, in four years, calendar will move ahead by 5 days.

So, in 24 years calendar will move ahead by 30 days. Hence calendar will move ahead by 2 days. So, 1.1.1997 will be two days ahead of Tuesday i.e. Thursday.

Now, it is calculation as given in Year Method.

3. Actual Calculation method- With the help of this method, we can find the actual day of any date of 20th century. To use this method effectively, we need to remember the Month Codes of all the months.

Let us learn this method by finding the date of 15th August 1947 –

At 1st, add the Date + Month code of August + Last two digits of year +

(Where [x] represents the greatest integer value of x.)

So, corresponding to 15th August 1947 – 15 + 3 + 47 + 11 = 76

Now, divide this value by 7 to find out the remainder.

If the remainder is 0 □ then it is a Saturday If the remainder is 1 then it is a Sunday If the remainder is 2

□ then it is a Monday If the remainder is 3 then it is a Tuesday

If the remainder is 4 □ then it is a Wednesday If the remainder is 5 then it is a Thursday If the remainder is 6

then it is a Friday

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Leap Year	0	3	4	0	2	5	0	3	6	1	4	6
Non-leap year	1	4	4	0	2	5	0	3	6	1	4	6

Here, remainder is 6, so 15th August 1947 was a Friday.(It should have been 'Free'day) List of Month Code:

Practice Question:

1. How many years have 29 days in February from 2001 to 2100.

a) 26 b)25 c)23 d)24

2. 2012 January 1st is Sunday, then which day is the Indian Independence day of the same year.

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

3. Which year has the same calendar as 1700?

a) 1705 b)1706 c)1707 d)1708

4. If Arun's birthday is on May 25 which is Monday and his sister's birthday is on July 13. Which day of the week is his sister's birthday?

a) Monday b) Wednesday c) Thursday d) Friday

5. March 1st is Wednesday. Which month of the same year starts with the same day?

a) October b) November c) December d) None of these

6. The calendar for the year 2007 will be the same for the year:

a) 2014 b)2016 c)2017 d)2018

7. Which of the following is not a leap year?

a) 700 b)800 c)1200 d)2000

8. On 8th Dec, 2007 Saturday falls. What day of the week was it on 8th Dec, 2006?

a) Sunday b)Thursday c)Tuesday d)Friday

9. Today is Sunday. After 1344 days it will be

a) Sunday b)Monday c)Saturday d)Tuesday

10. What was the day of the week on 2nd july 1984?

a) Wednesday b) Tuesday c) Monday d) Thursday

11. On What dates of April,2001 did Wednesday fall?

a) 1st, 8th, 15th, 22nd, 29th b) 2nd, 9th, 16th, 23rd, 30th
c) 3rd, 10th, 17th, 24th d) 4th, 11th, 18th, 25th

12. What was day of the week on 21-September-1987?

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

13. If 17 nov 1992 is Monday then 17 nov 2017 is:

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

14. How many leap year in first 200years?

a) 50 b)49 c)48 d)can be determine

15. If 1st janurary 2016 is Friday then 31dec 2016 is?

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

16. If 21st march 1986 is Friday then which day comes 53 times In that year?

a) Friday b)Wednesday c)Thursday d)Monday

17. If today is Friday then which day comes 20 day before?

a) Tuesday b)Thursday c)Saturday d)Sunday

18. If today is Sunday then which day comes after 121 days?
a) Tuesday b)Thursday c)Saturday d)Sunday

19. Find the day of the week on 26th january 2012?
a) Tuesday b)Thursday c)Saturday d)Sunday

20. Father of Nation Mahatma Gandhi died on 30th January 1948. What was the day on which he died?
a) Friday b)Wednesday c)Thursday d)Monday

Section 12: Arrangement

Introduction:

The questions on seating arrangement are regular feature of almost every competitive examination. In these questions, you have to arrange a group of persons fulfilling certain conditions. This is also written as sitting arrangement or sitting arrangement reasoning at some places. Here we can classify these problems into 4 types:

1. Linear Arrangement: Here the arrangement of the persons is linear i.e. you have to arrange them in a line. Here generally a single row of arrangement is formed.
2. Double row arrangement: In these questions, there will be two groups of persons. You have to arrange one group in one row and the other group in other row. The persons in these rows normally face each other
3. Circular arrangement: In the circular seating arrangement questions, you have to arrange the persons around a circular table etc. fulfilling certain conditions.
4. Rectangular arrangement: These arrangements are almost similar to the circular arrangements; the only difference is that the persons are sitting around a rectangular table.

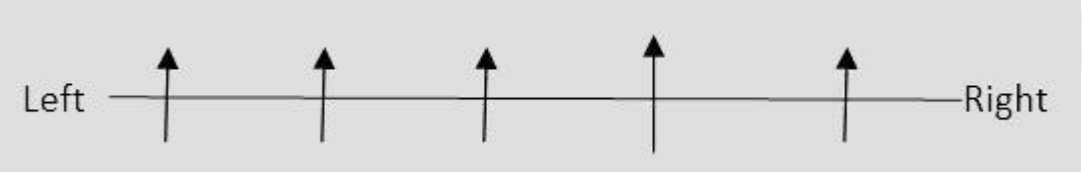
Seating arrangement tricks to solve the problems:

Questions on seating arrangement are generally asked in blocks of 4 – 5 questions. You are given some information and then there will 4 -5 questions based on the information. These questions have two types of information:

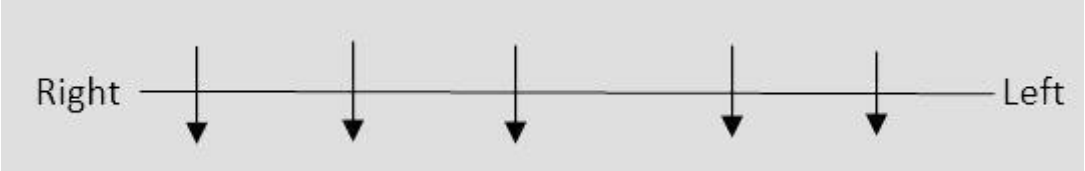
1. Direct information: This is the information which is clearly mentioned in the statement of the question. This is the information which you will use when you start solving the questions.
2. Indirect information: After filling the direct information you will look for the connection between different parts of the information. These connections form the indirect information.

While arranging the persons, the direction to which the persons are facing is very important.

Let us take the case of linear arrangements. Here if it is stated that there are five persons sitting facing North then the arrangement will be like

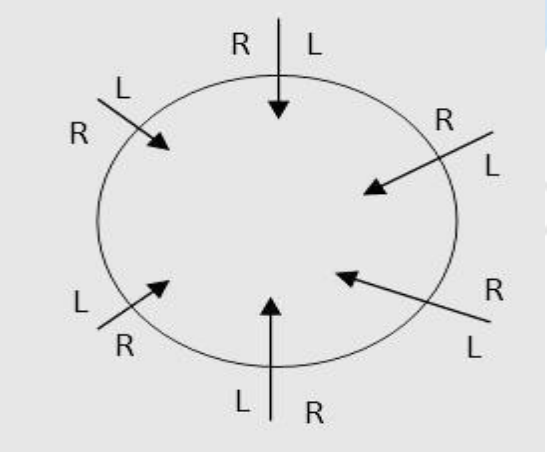


On the other hand if these persons are sitting facing South then the arrangement will be like

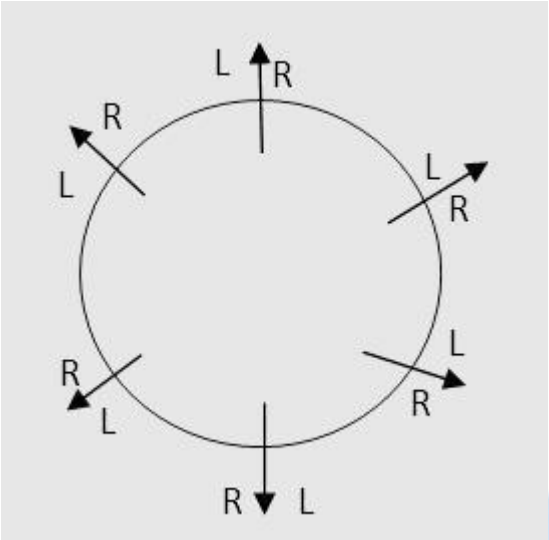


Similarly if the arrangement is a double row arrangement, then one group of people will be facing north and the second will face south and the directions will be taken as similar to the above figures.

In case of circular arrangements questions, or rectangular arrangement, the persons may be facing the centre of the circle or they may be looking away from the center. If they are looking towards the centre, then the right hand side will be in the anticlockwise direction and left hand side will be in the clockwise direction as shown below:



If the persons are looking away from the centre then the right hand side will be in the clockwise direction and left hand side will be in the anti clockwise direction as shown below:



The same concept of directions follows if the persons are sitting around a rectangular table.
Next, while solving the questions related to linear arrangements or double row arrangements, the information regarding the position of the persons is very important. If it is written that A is sitting next to B, then it means that A and B are sitting together. B may be to the right or left of A. Further if it is given that B is sitting to the right/left of A, then it does not mean that B is sitting immediate right/left of A. There may be some other persons sitting between A and B. If B is sitting immediate right/left of A then it will be mentioned in the statement of the question.

Practice Exercise:

4. Among A, B, C, D and E each one has scored different marks in an examination, B scored more than C and E and less than A and D. C's marks are not the lowest marks?
a) D b) C c) B d) Data inadequate e) None of these

7. In a group of six children, Q is taller than P but not as tall as L. M is taller than N and O, but not as tall as P. Who is the shortest among them?
a) N b) O c) M d) Data inadequate e) None of these

8. Among five students M is heavier than K and T. B is lighter than T and P. K is not the lightest. Who among them is the lightest?
a) K b) B c) T d) Data inadequate e) None of these

Directions (14 - 17): Read the following information to answer these questions.

Consider a group comprising of 4 students - Reena, Beena, Meena and Neena, who stand in a row. Reena and Beena stand in sixth and seventh positions respectively from the left. Meena and Neena stand in the fourth and fifth positions respectively from the right. When Beena and Meena exchange their positions, then Beena will be fifteenth from the left.

14. Originally, Neena's position from the left is
a) 5 b) 13 c) 1 d) 16 e) None of these

15. Reena's position from the right is
a) 6 b) 13 c) 14 d) 18 e) None of these

16. If neena and Reena also exchange their positions between themselves, then after the exchange, Neena's position from the left will be
a) 6 b) 10 c) 12 d) None of these e) All the above

17. After exchange of positions between Beena and Meena, Meena's positions from the right is
a) 5 b) 10 c) 12 d) None of these e) All the above

4. Nisha is taller than Suja. Nina is taller than Nisha. Nila is taller than Nina. Misha is the tallest of all. If they stand according to their height, who will be in the middle?
(a) Nihsa (b) Nina (c) Suja (d) Nila (e) None of these

9. In a group of six children, Q is taller than P but not as tall as L. M is taller than N and O, but not as tall as P. Who is the shortest among them?
(a) N (b) O (c) M (d) Data inadequate (e) None of these

10. In a group of six children T, K, V, O, M and W, T is fatter than M but not as fat as W. K is not the fattest nor is W whereas V is the thinnest. Who is the fattest among them all?
(a) O (b) T (c) M (d) Data inadequate (e) None of these

Direction (11-15): Study **the following information carefully and answer the given question:**

Eight colleagues A, B, C, D, E, F, G and H are sitting around a circular table facing the center but not necessarily in the same order. Each one of them holds a different post Manager, Company Secretary, Chairman, President, Vice President, Group Leader, Financial Advisor and Managing Director A sits third to the right of the Managing Director. Only two people sit between the Managing Director and H. The Vice President and company Secretary are immediate neighbours. Neither A nor H is a Vice President or a company Secretary. The Vice President is not an immediate neighbour of the Managing Director. The Manager sits second to the left of E. E is not an immediate neighbour of H. The Manager is an immediate neighbour of both the group leader and the financial advisor. The Financial Advisor sits third to the right of B.B is not the vice President. C sits on the immediate right of the Chairman. A is not the Chairman. F is not an immediate neighbour of A. G is not an immediate neighbour of the Manager.

11. Who amongst the following sits third to the left of E?

a) Manager b) G c) A d) Financial Advisor e) B

12. Four of the following Five are alike in a certain way based on the given arrangement and thus form a group. Which is the one that does not belong to that group?

a) F-Chairman b) G- President c) D-Manager d) A-Financial Advisor e) B-Managing Director

13. Who among the following is the President of the Company?

a) A b) C c) H d) G e) D

14. Which of the post does B hold in the company?

a) Chairman b) Manager c) Company Secretary d) Vice President e) Financial Advisor

15. Who is sitting exactly between the Managing Director and H?

a) H and the Chairman b) B and G c) The Chairman and C

d) F and C e) E and the group leader

Directions(16-20): Study the following information carefully and answer the questions given below: K, L, M, P, Q, R, S and T are sitting around a square table in such a way that four of them sit at four corners of the square while four sit in the middle of each of the four sides. The ones who sit at the four corners face outside while those who sit in the middle of the sides face the centre of the table. P sits third to the right of S. S faces the centre. Q sits third to the left of M. M does not sit in the middle of the sides. Only one person sits between Q and R. R is not an immediate neighbor of M. T face the centre. K is not an immediate neighbor of R.

16. What is position of M with respect to L?

a) Third to the right b) M and L sit diagonally opposite to each other
c) Second to the right d) Second to the left e) Fifth to the right

17. Who sits exactly between Q and R?

a) T b) P c) K d) M e) S and K

18. Which of the following pairs represents the persons seated in the middle of the sides who face each other?

a) S, Q b) K, L c) M, P d) R, T e) T, Q

19. Who amongst the following sit between R and K when counted in anti-clockwise direction from K?

a) No one sits between R and K as R and K are immediate neighbors of each other
b) S, P and L c) P and Q d) L and R e) M, S and T

20. If K is made to face the opposite direction, who would sit to his immediate right?

a) R b) Q c) P d) T e) S

1.a	2.d	3.a	4.c	5.b	6.a	7.a	8.b	9.d	10.d
11.a	12.c	13.d	14.a	15.d	16.d	17.d	18.c	19.b	20.a
21.b	22.c	23.a	24.d	25.c	26.a	27.c	28.d	29.a	30.d
31.b	32.d	33.d	34.a	35.d	36.c	37.a	38.c	39.b	40.c

Answer

: Series:

Coding-Decoding:

1.e	2.c	3.a	4.b	5.b	6.b	7.a	8.b	9.c	10.a
11.a	12.c	13.d	14.c	15.d	16.a	17.b	18.d	19.d	20.d

Blood Relation:

1.c	2.b	3.e	4.d	5.d	6.a	7.e	8.e	9.c	10.d
11.c	12.d	13.c	14.e	15.b	16.a	17.d	18.c	19.a	20.d

Direction:

1.a	2.d	3.b	4.b	5.b	6.a	7.a	8.c	9.c	10.a
11.d	12.d	13.b	14.b	15.b	16.a	17.c	18.c	19.b	20.a

Syllogism:

1.a	2.d	3.e	4.e	5.a	6.b	7.d	8.a	9.b	10.d
11.a	12.a	13.b	14.b	15.d	16.d	17.b	18.d	19.c	20.b

Puzzle:

1.c	2.b	3.d	4.d	5.b	6.c	7.d	8.b	9.c	10.a
11.d	12.a	13.c	14.a	15.e	16.b	17.b	18.c	19.b	20.b

Visual Reasoning:

1.d	2.c	3.e	4.a	5.b	6.b	7.a	8.e	9.e	10.a
11.e	12.e	13.b	14.d	15.b	16.c	17.a	18.c	19.b	20.e
21.d	22.e	23.b	24.e	25.a	26.c	27.b	28.e	29.c	

Cyptarithmetic:

1.a	2.	3.c	4.b	5.a	6.c	7.b	8.a	9.c	10.a
11.c	12.a	13.b	14.d	15.b	16.a	17.d	18.a	19.b	20.b

Data Sufficiency:

1.d	2.e	3.d	4.c	5.e	6.b	7.a	8.b	9.a	10.e
11.e	12.e	13.c	14.d	15.d	16.c	17.e	18.e	19.c	20.e
21.a	22.b	23.d	24.e	25.c					

Clock

1.d	2.a	3.b	4.c	5.d	6.c	7.c	8.b	9.a	10.b
11c	.12.b	13.b	14.b	15.b	16.b	17.b	18.a	19.d	20.a

Calendar:

1.d	2.b	3.b	4.a	5.b	6.d	7.a	8.d	9.a	10.c
11.d	12.b	13.b	14.c	15.c	16.b	17.b	18.a	19.b	20.a

Arrangement:

1.e	2.d	3.b	4.c	5.b	6.a	7.c	8.b	9.d	10.a
11.d	12.e	13.a	14.c	15.e	16.d	17.b	18.e	19.c	20.b