CONTENTS

VERBAL REASONING

TYPE ONE — NUMBER SEQUENCE

1. How many 8's are there in the following sequence which are preceded by 5 but not immediately followed by 3?

5 8 3 7 5 8 6 3 8 5 4 5 8 4 7 6 5 5 8 3 5 8 7 5 8 2 8 5

(*a*) 3 (*b*) 4 (*c*) 5
(*d*) 7 (*e*) 8

2. How many 6's are there in the following sequence which are followed by 3 and preceded by 8?

7 4 8 6 3 2 7 1 8 6 8 9 8 1 3 6 8 9 7 8 6 3 1 3 6 8 4 3 2 3 5

(*a*) 5 (*b*) 4 (*c*) 3
(*d*) 2 (*e*) 1

3. How many 8's are there in the following sequence which are preceded by 5 but not immediately followed by 3?

5 8 3 7 5 8 6 3 8 5 4 7 6 5 5 8 3 5 8 7 5 8 4 5 8 2 8 5

(*a*) 8 (*b*) 5 (*c*) 7
(*d*) 3 (*e*) 4

4. How many 6's are there in the following sequence which are immediately preceded by 8 but not immediately followed by 4?

4 7 5 6 3 7 8 6 9 1 6 8 4 7 3 4 8 6 3 9 6 7 8 6 4 7 3 5 8 6 1

(*a*) 3 (*b*) 4 (*c*) 5
(*d*) 2 (*e*) none of these

5. In the following sequence how many 3's are there which are preceded by 7 but not followed by 9?

2 4 7 3 9 6 5 7 3 8 5 4 3 6 7 3 5 4 1 9 3 8 7 3 9 6 4 5 2 3 9 7 3 5 4

(*a*) 2 (*b*) 4 (*c*) 3
(*d*) 1 (*e*) none of these

TYPE TWO — DIRECTION SENSE TEST

1. Sunita walks 3 kms. towards North, then turns to her left and walks 2 kms. She again turns left and walks 3 kms. At this point she turns to her right and walks for 3 kms. How many kms. and in what direction is she from the starting point?

(*a*) 5 kms : West (*b*) 3 kms : South (*c*) 2 kms : South
(*d*) 1 km : East (*e*) 4 kms : West

2. Mr. X went 15 metres to the North, then turned West and covered 10 metres. He again turned South and covered 5 metres, again he turned East and covered 10 metres. In which direction is he now from his house?
(a) North (b) South (c) East
(d) West (e) North-West

3. At my house I am facing East, then I turn left and walk 10 m. I again turn right and walk 5 m. Again I go 5 m to the South and from there walks 5 m to the West. In which direction am I from my house?
(a) East (b) West (c) North
(d) South (e) South-East

4. While facing East you turn to your left and walk 10 metres, then turn to your left and walk 10 metres and now you turn 45° towards your right and walk straight to cover 25 metres. Now in which direction are you from your starting point?
(a) North-East (b) South-West (c) South-East
(d) North-West (e) East

5. Roshan walked 10 metres to the East and then turned North and walked 15 metres, then he turned West and walked 12 metres. He again turned South and covered 15 metres. How far is he from the starting point?
(a) 1 metre (b) 2 metres (c) 3 metres
(d) 5 metres (e) None of these

6. If South-East becomes North, North-East becomes West and so-on. What will West become?
(a) North-East (b) South-East (c) South
(d) South-West (e) North-West

7. Facing towards South, Ram started walking and turned left after walking 30 m, he walked 25 metres and turned left and again walked 30 m. How far is he from the starting point and in which direction
(a) At the stating point (b) 25 metres : West
(c) 25 metres : East (d) 30 metres : East (e) none of these

8. I went 15 m North and then turned South, covered 5 m and then turned east and covered 10 m. In which direction am I from my house?
(a) East (b) West (c) North
(d) South (e) none of these

9. B is to the South-West of A; C is to the East of B and South-East of A, D is to the north of C in line wit BA. In which direction of A is D located?
(a) North (b) South (c) South-East
(d) North-East (e) none of these

10. A man walks 30 m towards South. He turns to his right and walks 30 m. Then turning to his left and walks 20 m. Again turning to his left and walks 30 m. How far is he from the starting point?
(a) 30 m (b) 20 m (c) 80 m
(d) 60 m (e) none of these

TYPE THREE — QUIZ PROBLEMS

1. Five boys Rakesh, Anil, Mahesh, Suresh and Manjit are sitting in a circle. Anil is sitting in between Rakesh and Suresh. To Manjit's right Suresh is seated. Who is seated to Mahesh's left?
(a) Anil (b) Suresh (c) Manjit
(d) Rakesh (e) Can't say

2. Five boys were climbing up a hill. Jayant was following Hari. Ram was ahead of Govind. Krishna was between Govind and Hari. They were climbing up in a row. Who was Second?
(a) Jayant (b) Hari (c) Ram
(d) Govind (e) Krishna

3. In a row of five persons, A is next to B. E on the right side of A, who has D on his left side. C and B do not sit together. Who are sitting on the two ends of the row?
(a) C, E (b) A, D (c) B, C
(d) C, A (e) C, D or C, E

4. In a row of six persons, D and C are immediate neighbours of E, B is a neighbour of A only. A is fourth from F. Who are on the two end points?
(a) F, B (b) B, D (c) C, A
(d) F, C (e) F, A

5. Six students are sitting in a row. K is sitting between V and R. V is sitting next to M. M is sitting next to B who is sitting on the extreme left and Q is sitting next to R. Who two are sitting adjacent to V?
(a) Q and K (b) R and Q (c) B and M
(d) K and R (e) M and K

TYPE FOUR — SHORTER-TALLER PROBLEMS

1. If Suresh is taller than Ashutosh, Raju is taller than Charu but shorter than Bala. Ashutosh is shorter than Charu and Charu is taller than Suresh, then who is the tallest?
   (*a*) Suresh (*b*) Ashutosh (*c*) Raju
   (*d*) Bala (*e*) Charu
2. If Ashok is taller than Suresh, Raju is taller than Ashok, Chandu is shorter than Suresh, then Chandu is
   (*a*) Taller than Ashok (*b*) As tall as Suresh
   (*c*) Taller than Suresh (*d*) Shorter than Ashok
   (*e*) As tall as Ashok
3. Mahesh is taller than Suresh, Anil is taller than Mahesh, Ramesh is taller than Anil. Puneet is tallest of all. If they stand according to their heights, who will exactly be in the middle?
   (*a*) Mahesh (*b*) Suresh (*c*) Ramesh
   (*d*) Anil (*e*) none of these
4. If Sirish is taller than Charu but shorter than Raju. Charu is just as tall as Dalip but taller than Ashok. Dalip is
   (*a*) Just as tall as Sirish (*b*) Shorter than Charu
   (*c*) Taller than Raju (*d*) Shorter than Ashok
   (*e*) Shorter than Sirish
5. Shishir is taller than Samir but not as tall as Prakash. Ashok is taller than Prabodh but not as tall as Samir. Who among them is the tallest?
   (*a*) Ashok (*b*) Shishir (*c*) Prabodh
   (*d*) Samir (*e*) Prakash

TYPE FIVE — WORD PROBLEMS

1. If the first and third letters of the word 'DISTRIBUTION' be changed and so also the second and fourth letters, fifth and seventh letters and so on. Which of the following letters would be the seventh letter from the left?
   (*a*) B (*b*) U (*c*) T
   (*d*) I (*e*) R
2. If it is possible to make a meaningful word with the third, fourth and eleventh letters of the word 'CONTROVERSIAL', write the first letter of the word. Write M is more than one word can be made, otherwise write X.

   (*a*) N (*b*) M (*c*) T
   (*d*) I (*e*) X
3. If the first and second letter in the word 'INORDINATE' were interchanged, so also the third and fourth, the fifth and the sixth and so on, which letter would be the eighth counting to your left?
   (*a*) A (*b*) D (*c*) N
   (*d*) O (*e*) R
4. If it is possible to make meaningful word with the third, fourth, fifth, seventh and the tenth letters of the word 'PERSONALITY'. Write the first letter of the word, otherwise write X.
   (*a*) O (*b*) T (*c*) S
   (*d*) R (*e*) X
5. If the first and the third letters in the word 'CONGREGATION' were interchanged, also the second and the fourth letters, the fifth and the seventh letters and so on. Which letter would be the eighth counting from left?
   (*a*) R (*b*) T (*c*) E
   (*d*) I (*e*) G

TYPE SIX — ALPHABET RELATED PROBLEMS

You may use the following alphabets to answer the questions given below :

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

1. Other than A which letter in the word 'APPLES' occupies the same position as it does in the alphabet?
   (*a*) E (*b*) P (*c*) L
   (*d*) S (*e*) none of these
2. Which letter in the word 'NOTORIOUS' occupies the same position as it does in the word 'CLEMENT'?
   (*a*) O (*b*) I (*c*) R
   (*d*) T (*e*) none of these
3. Which letter in the word 'CYBERNETICS' occupies the same position as it does in the alphabet?
   (*a*) T (*b*) C (*c*) E
   (*d*) I (*e*) none of these
4. How many pairs of the letters are there in the word 'HORIZON' which have as many letters between there in the words as in the alphabet?

(a) one (b) two (c) three
(d) more than three (e) none of these

5. How many pairs of letters are there in the word 'APPLE' which have as many letters between them in the word as in the alphabet?
(a) one (b) two (c) three
(d) four (e) none of these

6. The difference between the positions of Z (counted from the left) in the word 'EMPHASIZE' and in the alphabet is
(a) 12 (b) 14 (c) 17
(d) 18 (e) none of these

7. Two letters in the word 'ROUBLE' have as many letters between them in the word as in the alphabet. Which one of the two comes earlier in the alphabet?
(a) L (b) O (c) E
(d) R (e) B

8. Two letters in the word 'DREAM' have as many letters between them in the word as in the alphabet. Write the one of the two which appear earlier in the alphabet?
(a) D (b) R (c) E
(d) A (e) M

9. How many pairs of letters are there in the word 'IDEAL' which have as many letters between them in the word as in the alphabet?
(a) No pair (b) one (c) two
(d) three (e) none of these

10. How many pairs of letters are there in the word 'STRAIGHT' which have as many letters between them in the word as in the alphabet?
(a) No pair (b) one (c) two
(d) three (e) none of these

TYPE SEVEN — PROBLEMS ON RANKS

1. Kapil ranked thirteen from the top and twenty six from the bottom among those who have passed in the annual examination in a class. If six students have failed in the annual examination, how many students appeared?
(a) 45 (b) 38 (c) 44
(d) 50 (e) none of these

2. John ranked 21st in a class of fifty one students. What is his rank from the end?

(a) 30th (b) 32nd (c) 20th
(d) 31st (e) 21st

3. Meena is eleventh from either end of a row of girls. How many girls are there in that row?
(a) 19 (b) 20 (c) 21
(d) 22 (e) 23

4. Raghav ranked 8th from the top and 28th from the bottom in a class. How many students are there in a class?
(a) 36 (b) 34 (c) 33
(d) 37 (e) none of these

5. Ram and Sham are ranked 13th and 14th respectively in a class of 23. What are their ranks from the last respectively?
(a) 10th; 11th (b) 11th; 12th (c) 11th; 10th
(d) 9th;10th (e) none of these

6. If you count 21 letters of English alphabet from the end and 20 letters from the beginning, which letter will exactly appear in the middle of the sequence thus formed?
(a) N (b) L (c) K
(d) M (e) none of these

7. In a class Ajay is 15th in rank from the top and 21st from the bottom. How many students are there in the class?
(a) 34 (b) 35 (c) 36
(d) 37 (e) none of these

TYPE EIGHT — CLASSIFICATION (ODD MAN OUT)

1. (a) Pen (b) Calculator (c) Pencil
(d) Ink (e) Eraser

2. (a) Snake (b) Lizard (c) Turtle
(d) Whale (e) Crocodile

3. (a) Carrot (b) Radish (c) Potato
(d) Sweet Potato (e) Beet

4. (a) Lake (b) Pond (c) Pool
(d) Tank (e) Brook

5. (a) Parrot (b) Koel (c) Vulture
(d) Swan (e) Sparrow

6. (a) Mercury (b) Moon (c) Jupiter
(d) Venus (e) Pluto

7. (a) Bean (b) Grapes (c) Carrot
(d) Banana (e) Tomato

8. (a) Club (b) Brush (c) Crayon
(d) Pen (e) Pencil

9. (a) Silver (b) Iron (c) Gold
(d) Zinc (e) Tin

10. (a) Ring (b) Ornament (c) Necklace
(d) Bangle (e) Bracelet

11. (a) Faster (b) Bigger (c) Greater
(d) Larger (e) Taller

12. (a) Himachal Pradesh (b) Haryana (c) Jammu & Kashmir
(d) Chandigarh (e) Punjab

13. (a) Panther (b) Lion (c) Whale
(d) Fox (e) Crocodile

14. (a) April (b) May (c) July
(d) September (e) November

15. (a) Wheat (b) Paddy (c) Jowar
(d) Maize (e) Mustard

16. (a) Ear (b) Eye (c) Nose
(d) Throat (e) Tongue

17. (a) Mist (b) Cloud (c) Rain
(d) Vapour (e) Fog

18. (a) Driving (b) Sailing (c) Diving
(d) Fishing (e) Swimming

19. (a) Banana (b) Mango (c) Guava
(d) Ginger (e) Lemon

20. (a) Shop (b) Pencil (c) Canvas
(d) Paint (e) Brush

21. (a) Engineer (b) Advocate (c) Doctor
(d) Court (e) Journalist

22. (a) He-goat (b) He-buffalo (c) Cow
(d) Bull (e) Horse

23. (a) Cave (b) Shanty (c) Hut
(d) Nest (e) Palace

24. (a) Plateau (b) Star (c) Mountain
(d) Forest (e) Ocean

25. (a) Butter (b) Curd (c) Ice-cream
(d) Cheese (e) Juice

TYPE NINE — ANALOGY (RELATIONSHIP)

1. Boat : Oar : : Bicycle : ?
(a) Road (b) Wheel (c) Seat
(d) Paddle (e) Chain

2. War : Death : : Smoke : ?
(a) Chimney (b) Fire (c) Coal
(d) Health (e) Pollution

3. Grapes : Wine : : Wheat : ?
(a) Grain (b) Flour (c) Bread
(d) Field (e) Maize

4. Newspaper : Editor : : Film : ?
(a) Actor (b) Producer (c) Audience
(d) Director (e) Story-writer

5. Poster : Wall : : Photograph : ?
(a) Frame (b) Camera (c) Object
(d) people (e) Beauty

6. Ear : Hear : : Eye ?
(a) Man (b) See (c) Smell
(d) Head (e) none of these

7. Nose : Breath : : Mouth : ?
(a) Water (b) Food (c) Man
(d) Depth (e) Eat

8. Drop : Ocean : : Star : ?
(a) Earth (b) Sky (c) Twinkle
(d) Sun (e) none of these

9. Cobbler : Shoe : : Carpenter : ?
(a) Furniture (b) Gold (c) Wood
(d) Iron (e) none of these

10. Meat : Vegetarian : : Liquor : ?
(a) Insane (b) Tee-to-taller (c) Introvert
(d) Foolish (e) Irrational

11. 'Child' is related to 'father' in the same way as 'Book' is related to .....
(a) Author (b) Publisher (c) Editor
(d) Library (e) Pages

12. 'Gun' is related to 'Bullet' in the same way as 'Chimney' is related to .....
(a) House (b) Ground (c) Rood
(d) Smoke (e) Ceramics

13. 'Shoe' is related to 'Wear' in the same way as 'Ball' is related to .....
(a) Round (b) Sport (c) Play
(d) Hockey (e) none of these

14. 'Mat' is related to 'floor' in the same way as 'Pillow' is related to .....
(a) Quilt (b) Sheet (c) Cover
(d) Bed (e) none of these

15. 'Match' is related to 'Win' in the same way as 'Examination' is related to .....
(a) Write (b) Appear (c) Success
(d) Attempt (e) Prepare

16. Plant : Botany : : Bird : ?
(a) Zoology (b) Ornithology (c) Anthropology
(d) Geology (e) Geo-biology

17. T.B. : Lungs : : Cataract : ?
(a) Ear (b) Eye (c) Skin
(d) Nose (e) Throat

18. Sand : Seed : : Spend : ?
(a) Spent (b) Speak (c) Expensive
(d) Speed (e) none of these

19. Ocean : Pacific : : Island : ?
(a) Victoria (b) Borneo (c) Greenland
(d) Makalu (e) Iceland

20. Leader : Follower : : Captain : ?
(a) Soldiers (b) Game (c) Ship
(d) Army (e) none of these

21. Mother : Daughter : : Aunt : ?
(a) Cousin (b) Brother (c) Sister
(d) Nephew (e) Niece

22. Import : Export : : Expenditure : ?
(a) Revenue (b) Debt (c) Tax
(d) Deficit (e) Exchange

23. Shoe : Shining : : Pant : ?
(a) Stitching (b) Wearing (c) Keeping
(d) Buying (e) Washing

24. Paddy : Field : : Steel : ?
(a) Factory (b) Iron (c) Ore
(d) Wagon (e) Mine

25. Book : Library : : Flower : ?
(a) Petal (b) Stall (c) Garland
(d) Decoration (e) Odour

TYPE TEN — CODING & DE-CODING TEST

Category 1

1. If 42572 stands for WORLD, then 7252 stands for .....
(a) DOLR (b) ROLD (c) LORD (d) OLRD

2. If 87654 stands for GREAT, then 754 stands for .....
(a) GET (b) TEA (c) EAT (d) RAT

3. If WORSE stands for 98765, then SORE stands for .....
(a) 7568 (b) 5768 (c) 5678 (d) 6875

4. If 768123 stands for PRINCE, then 1823 stands for .....
(a) CINE (b) PINE (c) NICE (d) RICE

5. If POWER stands for 972514, then ROW stands for .....
(a) 472 (b) 427 (c) 425 (d) 497

6. If 312534 stands for RECORD then 353 stands for .....
(a) ROD (b) COR (c) ROC (d) ROR

7. If GROWTH stands for 579312, then THROW stands for .....
(a) 12793 (b) 21793 (c) 21973 (d) 21379

8. If INDEED stands for 123443, then NEED stands for .....
(a) 4423 (b) 2434 (c) 2344 (d) 2443

9. If SLIGHT stands for 426875, then GIST stands for .....
(a) 6845 (b) 8645 (c) 4568 (d) 4586

10. If 75310 stands for SWEAT, then 710 stands for .....
(a) SET (b) SAT (c) EAT (d) TEA

11. If HOME = 2541, SHOP = 8256, WORK = 9573, what is SMOKE?
(a) 85431 (b) 84531 (c) 83451 (d) 84351

12. If RACE = 4793, FACT = 1795, FORCE = 16493, what is REACT?
(a) 43759 (b) 43975 (c) 43795 (d) 59734

13. If EARTH = 12347, TRACE = 43251, FARCE = 92351, what is FACT?
(a) 9254 (b) 9523 (c) 9245 (d) 9425

14. If PLOT = 5321, TAKE = 1790, PINK = 5469, what is PLATE?
(a) 35710 (b) 53710 (c) 53701 (d) 53071

15. If BREAD = 72416, AIRY = 1392, YIELD = 24356, what is 6941652?
(a) DREADLY (b) DRAEDLY (c) DREAMLY (d) READAMLY

Category 2

1. In a certain code EXPLAINING is written as 'PXEALNIGNI', how is 'PRODUCED' written in that code?
(a) ORPDUDEC (b) ROPUDECD
(c) ORPUDECD (d) DORPDECU

2. In a certain code 'GOODNESS' is coded as HNPCODTR, how is 'GREATNESS' written as in that code?
(a) HQFZUODTR (b) HQFZUMFRT
(c) HQFZSMFRT (d) FSDBSQDTR

3. In a certain code 'MONKEY' is written as XDJMNL, how is 'TIGER' written in that code?
(a) SHFDQ (b) QDFHS
(c) SDFHS (d) QDHJS

4. In a certain code 'DIVISION' is written as DVISIOIN, how is 'STATES' written in that code?
(a) SATETS (b) STAETS
(c) SATTES (d) SAETTS

5. In a certain code 'COURSE' is written as 'FRXUVH', then how would 'RACE' be written in that code?
(a) HFDU (b) UCFH
(c) UDFH (d) UDHF

6. In a certain code 'ROAD' is written as 'URDG'. How is 'SWAN' written in that code?
(a) VXDQ (b) VZDQ
(c) UXDQ (d) VZCQ

7. In a certain code 'MILLION' is written as 'IMLLOIN'. How is 'HILTON' written in that code?
(a) IHTLON (b) IHLOTN
(c) IHTLNO (d) HILTNO

8. In a certain code 'CERTAIN' is coded as 'XVIGZRM'. How is 'MUNDANE' coded in that code?

(a) NFMWZMV (b) VMZWMEN
(c) NFMWZMX (d) NFMXZMV

9. In a certain code 'SEQUENCE' is coded as 'HVJFVMXV'. How is 'CHILDREN' coded in that code?
(a) XSRMWIVM (b) SXROMIVM
(c) DSROWIUN (d) MVIWORSX

10. In a certain code 'RATIONAL' is written as 'RTANIOLA'. How would 'TRIBAL' be written in that code?
(a) TRIALB (b) TIRALB
(c) TIRLBA (d) TIRABL

11. In a certain code language 'TELEPHONE' is written as 'ENOHPELET'. How is 'ALIGATOR' written in that code?
(a) ROTAGILE (b) ROTAGILA
(c) ROTEGILA (d) ROTAGIAL

12. In a certain code 'PROSE' is written as 'PROQE'. How is 'LIGHT' written in that code?
(a) LIGFT (b) LLDFE
(c) JIEHR (d) LGGFT

13. In a certain code 'FORGET' is written as 'DPPHCU'. How would 'DOCTOR' be written in that code?
(a) BPAUMS (b) BPAUPS
(c) EMDRPP (d) BPARPP

14. In a certain code 'EASE' is written as 'GUCG'. How is 'CUT' be written in that code?
(a) UVD (b) DVU
(c) VWE (d) EWV

15. In a certain code language 'OPTION' is coded as 'UKXFQM', then 'CHOICE' is coded in that language as
(a) HLRKDF (b) ICKFED
(c) WMKLAF (d) ICSFED

16. In a certain code 'LOYAL' is coded as 'JOWAJ', then 'PRONE' is coded as
(a) ORMNC (b) NRMND
(c) QRPNE (d) NRMNC

17. In a certain code 'CLOCK' is written as 'KCOLC'. How is 'STEPS' written in that code?
(a) SPEST (b) SPSET
(c) SEPTS (d) SPETS

18. In a certain code 'PRAMOD' is written as 'SODJRA'. How is 'KESHAV' written in that code?
(a) NBUEDS (b) BDVECS
(c) NBVFDS (d) NBVEDS

19. In a certain code 'SYSTEM' is written as 'SYSMET'. How is 'FRACTION' written in that code?
(a) CARFNOIT (b) CARFTION
(c) NOITFRAC (d) FRACNOIT

Category 3

1. If '–' means '×'; '×' means '+'; '+' means '÷' and '÷' means '–', then the value of 14 – 10 × 4 ÷ 16 + 8 is
(a) 22½ (b) 194 (c) 121 (d) 142

2. If '×' means '÷'; '–' means '×'; '÷' means '+' and '+' means '–', then the value of 5 – 8 + 4 × 8 + 6 is
(a) –5 (b) 5½ (c) 17½ (d) 34½

3. If '–' means 'x'; 'x' means '+'; '+' means '÷' and '÷' means '–', then the value of 10 – 8 × 16 + 8 ÷ 4 is
(a) 78 (b) –116 (c) 88 (d) 22

4. If '+' means '×'; '–' means '+'; '×' means '÷' and '÷' means '–', then the value of (18 + 10 × 20) – 8 ÷ 6 is
(a) 17 (b) 25 (c) 35 (d) 11

5. If '+' means '×'; '–' means '+'; '×' means '÷' and '÷' means '–', then the value of 9 × 4 + 2 – 5 × 10 ÷ 3 is
(a) 2 (b) $-2\frac{1}{10}$ (c) 3 (d) 5¼

6. If '>' means '÷'; '$\vee$' means '×', '<' means '+', '$\wedge$' means '–', then the value of 8 $\vee$ 4 $\wedge$ 6 > 2 < 3 is
(a) 20 (b) 26 (c) 32 (d) 40

7. If * means 'of'; * * means '–'; '×' means '÷'; '÷' means '+' and '$\wedge$' means '×', the value of 2 * 2 * * 2 × 2 ÷ 2 $\wedge$ 2 is equal to
(a) 7 (b) 0 (c) 12 (d) 14

8. If '×' means '÷'; '÷' means '×'; '+' means '–' and '–' means '+', then the value of 10 × 10 ÷ 10 + 10 – 10 is
(a) $\frac{1}{10}$ (b) 10 (c) 11 (d) 90

9. If A means '+'; B means '–'; C means '×', what is the value of (10 C 4) A (4 C 4) B 6 ?
(a) 64 (b) 50 (c) 56 (d) 60

10. If '+' means '÷'; '÷' means '×'; '×' means '–' and '–' means '+', then the value of 14 + 7 × 2 – 5 ÷ 4 is
(a) 0 (b) 20 (c) 10 (d) 13

Category 4

1. If 'air' is called 'water'; 'water' is called 'green'; 'green' is called 'dust'; 'dust' is called 'yellow' and 'yellow' is called 'cloud'; which of the following do the 'fish' live in?
(a) Air (b) Water (c) Green
(d) Dust (e) Yellow

2. If 'cloud' is called 'white'; 'white' is called 'rain'; 'rain' is called 'green'; 'green' is called 'air'; 'air' is called 'blue' and 'blue' is called 'water', where do the birds fly in?
(a) Air (b) Cloud (c) White
(d) Rain (e) Blue

3. If 'dust' is called 'air'; 'air' is called 'white'; 'white' is called 'yellow'; 'yellow' is called 'water' and 'water' is called 'red', then where do the birds fly in?
(a) Yellow (b) White (c) Red
(d) Air (e) Water

4. If the animals who can walk, are called 'swimmers'; animals, who can crawl, are called 'flying'; those living in water are called 'Snakes' and those who fly in the sky are called 'hunters', then what will a 'Lizard' be called?
(a) Swimmer (b) Snake (c) Hunter
(d) Flying (e) None of these

5. If 'air' is called 'water'; 'water' is called 'sky'; 'sky' is called 'blue'; 'blue' is called 'rain'; 'rain' is called 'dust' and 'dust' is called 'green'; where do the fish live in?
(a) Sky (b) Air (c) Water
(d) Dust (e) Rain

Category 5

1. If TOP = 201516; POT = 161520; TAR = 20118; then RAT is :
(a) 81102 (b) 18120 (c) 11820 (d) 81120

2. If CAB = 6, BAT = 40, COAT = 900, then what is TIP?
(a) 2808 (b) 2800 (c) 2880 (d) 2780

3. If RATE = 6, FATE = 18, MATE = 11, then CEAT is equal to
(a) 12 (b) 13 (c) 14 (d) 15

4. If PET = 4, LET = 3, JEY = 2; then XET is equal to
(a) 1 (b) 5 (c) 6 (d) 8

5. If AREA = 25, READ = 28, ROAD = 38, what is the value of DEAR?
(a) 28 (b) 29 (c) 30 (d) 31

Category 6

Exercise 1.

Directions : In the following questions (1–5) you have to identify the responses which would be a correct inference from the given premises stated according to the following system :

(i) 'A' stands for 'not greater than'
(ii) 'B' stands for 'equal to'
(iii) 'C' stands for 'less than'
(iv) 'D' stands for 'not less than'
(v) 'E' stands for 'not equal to'
(vi) 'F' stands for 'greater than'

1. Premises : (3a A 2b) and (3a F 0)
(a) 2 b C 0 (b) 2 b D 0 (c) 2 b B 0 (d) 2 b A 0

2. Premises : (p A 3q) and (3q C 2r)
(a) p C 2r (b) p F 2r (c) p D 2r (d) p B 2r

3. Premises : (2m D 3n) and (3n B 0)
(a) m C 0 (b) 3n E 2m (c) 2m D 0 (d) 2m A 0

4. Premises : (2x B y) and (2y A 3x)
(a) 2x D 3z (b) 2x B 6z (c) 2x C 3z (d) 3z B 3y

5. Premises : (3x F 2y) and (2y D 3y)
(a) 3x B 3r (b) 3x A 3r (c) 3x F 3r (d) 3x C 3r

Exercise 2.

Directions : In each question (1–5), some relationships have been expressed through symbols which are explained below :

(i) 'O' means 'greater than'
(ii) 'Δ' means 'not equal to'
(iii) '×' means 'not less than'

(iv) '+' means 'equal to'
(v) 'Φ' means 'not greater than'
(vi) '∇' means 'less than'

1. If a + b + c, it implies that
(a) a × b Δ c (b) a + b ∇ c (c) a Φ b Φ c
(d) a O b × c (e) a Δ b O C

2. If a Δ b ∇ c it does not imply that
(a) a Φ b × c (b) a O b ∇ C (c) a Δ b Δ c
(d) a O b Φ c (e) a ∇ b Φ c

3. If a Δ b Δ c, it implies that
(a) a O b + c (b) a O b × c (c) a + b ∇ c
(d) a Φ b + c (e) a × b + c

4. If a ∇ b ∇ c, it follows that
(a) a Φ b O c (b) a Δ b Φ c (c) a + b × c
(d) a × b Δ c (e) a ∇ b × c

5. If a O b ∇ c, it does not imply that
(a) a × b Φ c (b) a Δ b Δ c (c) a O b Δ c
(d) a × b Δ c (e) a Δ b × c

Category 7

Exercise 1.

Directions : I f '÷' means 'greater than'; '×' means 'addition', '+' means 'division'; '–' means 'equal to'; '>' means 'multiplication', '=' means 'less than' and '<' means 'subtraction'

Which of the following relationship is *TRUE* in the following questions :

(a) 7 + 3 < 2 ÷ 8 × 2 < 9 (b) 7 > 3 × 2 = 8 + 2 × 9
(c) 7 < 3 + 2 – 8 < 2 + 9 (d) 7 × 3 > 2 – 8 + 2 × 9
(e) 7 × 3 + 2 ÷ 8 > 2 × 9

(a) 3 × 4 × 2 – 10 > 2 + 6 (b) 3 > 4 < 2 = 10 + 2 + 6
(c) 3 < 4 > 2 ÷ 10 < 2 × 6 (d) 3 + 4 × 2 – 10 × 2 < 6
(e) 3 > 4 > 2 ÷ 10 > 2 × 6

(a) 8 + 6 × 2 = 8 × 2 < 7 (b) 8 > 6 < 2 – 8 < 2 × 7
(c) 8 × 6 < 2 ÷ 8 > 2 > 7
(d) 8 < 6 × 2 ÷ 8 + 2 × 7 (e) 8 × 6 + 2 – 8 + 2 × 7

(a) 9 > 2 < 8 = 10 > 2 < 9 (b) 9 + 2 × 8 – 10 > 2 × 9
(c) 9 × 2 > 8 – 10 + 2 × 9 (d) 9 < 2 × 8 ÷ 10 × 2 > 9
(e) 9 × 2 < 8 – 10 < 2 + 9

5. (a) $5 < 3 \times 4 - 3 \times 5 > 2$ (b) $5 > 3 < 4 \div 3 > 5 \times 2$
(c) $5 \times 3 > 4 - 3 > 5 \times 2$ (d) $5 + 3 > 4 = 3 + 5 \times 2$
(e) $5 < 3 + 4 \div 3 \times 5 < 2$

Exercise 2.

Directions : Here some signs used in Mathematics are replaced by different signs as follows :
'>' stands for 'division'; '$\vee$' stands for 'multiplication', '<' stands for 'addition', '$\wedge$' stands for 'subtraction'; '+' stands for 'equal to'; '–' stands for 'greater than' and '×' stands for 'less than'
In the questions given below one alternative is correct. Find out that :

1. (a) $5 \vee 4 < 2 + 10 \vee 2 < 2$ (b) $8 \vee 4 - 2 + 5 > 7 \wedge 6$
(c) $8 \vee 6 - 3 + 4 > 7 \wedge 6$ (d) $9 \vee 3 < 1 + 6 > 8 \wedge 9$
(e) $4 \vee 3 + 3 + 8 \vee 5 \wedge 6$
2. (a) $3 \wedge 5 \vee 6 + 12 \vee 6 \wedge 7$ (b) $3 \wedge 4 \vee 5 + 8 \vee 6 \wedge 4$
(c) $8 > 6 \vee 6 + 8 \vee 4 \wedge 4$ (d) $5 \wedge 6 > 9 + 6 \wedge 9 \vee 8$
(e) $8 < 2 \wedge 6 + 5 \vee 2 \wedge 6$
3. (a) $8 > 6 \vee 7 + 5 \vee 1 \wedge 7$ (b) $9 \wedge 8 < 7 + 3 < 7 \wedge 8$
(c) $9 \wedge 5 > 1 + 5 \vee 6 \wedge 8$ (d) $9 \wedge 3 < 9 + 3 < 6 < 6$
(e) $7 \wedge 3 > 2 + 9 \vee 6 \wedge 8$
4. (a) $5 \wedge 2 \vee 7 + 12 \wedge 3 \vee 7$ (b) $7 \wedge 4 \wedge 8 + 9 \wedge 6 \vee 4$
(c) $5 \wedge 2 > 7 + 6 > 3 \wedge 7$
(d) $7 \wedge 5 \wedge 4 + 6 \wedge 7 \wedge 4$ (e) $4 \wedge 3 > 6 + 3 > 7 \wedge 8$
5. (a) $12 \wedge 3 < 5 < 4 + 12$ (b) $11 \wedge 12 < 5 < 4 + 12$
(c) $10 \wedge 3 < 5 < 4 < 16$
(d) $4 \wedge 6 < 4 < 4 + 16$ (e) $12 \wedge 3 \vee 5 < 4 + 12$

TYPE ELEVEN — *IDENTIFICATION OF LETTERS*

Directions : By using the alphabets :
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
Answer the questions given below :

1. Which letter will be the midway between the fourteenth letter from the left end and nineteenth letter from the right in the alphabets?
(a) I (b) K (c) M (d) G (e) none
2. Which letter in the alphabets is the eighth letter to the right of the letter which is twelfth from the left?
(a) D (b) E (c) S (d) T (e) W

3. If the letters of the alphabets are arranged in the reverse order, then which will be the fourth letter to the right of the thirteenth letter from the right?
(a) Q (b) J (c) R (d) K (e) L
4. If the alphabets are written in the reverse order, then which will be the fourth letter to the right of the thirteenth letter from the left?
(a) J (b) L (c) K (d) M (e) N
5. If the alphabets are written in the reverse order, then which will be the seventh letter to the right of the twelfth letter from the left?
(a) F (b) G (c) H (d) S (e) R
6. If the first half of alphabet given above is written in the reverse order, which letter will be the nineteenth from your right?
(a) H (b) F (c) D (d) E (e) none
7. If the alphabets are written in the reverse order and then cancelling its every second letter. From the remaining alphabets, select that letter which divides the letters into two equal parts. This letter is
(a) L (b) M (c) N (d) P (e) none
8. If you count 21 letters in the English alphabet from the end and 20 letters from the beginning which letter will appear exactly in the middle of the sequence thus formed?
(a) T (b) R (c) S (d) M (e) P

TYPE TWELVE — *SERIES COMPLETION I*

Directions : In each of the following letter series, some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

1. a – b b c – a a b – c c a – b b c c
(a) b a c b (b) a c b a (c) a b b a (d) c a b a
2. a a b – a a – b b b – a a a – b b b a
(a) a b b a (b) b a a b (c) a a a b (d) a b a b
3. b c – b – c – b – c c b
(a) c b c b (b) b b c b (c) c b b c (d) b c b c
4. a b b – b a a – a – b a b – a b a
(a) a b b a (b) a b a b (c) c c a c (d) a a b b
5. a b c a – b c a a b – c a – b b c – a
(a) c c a a (b) b b a a (c) a b a c (d) a b b a
6. – a b a – c a b c – d c b a – b a b – a
(a) a b d c a (b) b c a d c (c) a b c d d (d) c b d a a

7. a–cdaab–cc–daa–bbb–ccddd
(a) bdbda (b) bddca (c) dbbca (d) bbdac

8. aa–abbb–ccccd–ddccc–bb–b
(a) abcda (b) abdbc (c) abdcb (d) abcad

9. –bcdbc–dcabd–bcdbc–dc–bd
(a) aaaaa (b) ccccc (c) bbbbb (d) ddddd

10. adb–ac–da–cddcb–dbc–cbda
(a) bccba (b) cbbaa (c) ccbba (d) bbcad

11. –aaba–bba–bba–abaa–b
(a) aabab (b) ababa (c) baaba (d) bbaba

12. ab–bbc–c–ad–ab–d
(a) ccaac (b) cbabc (c) cacac (d) bccab

13. –bca–cca–ca–b–c
(a) aaaaa (b) bbbab (c) aabaa (d) bbabb

14. b–ac–cc–cb–ab–ac
(a) cbaba (b) bbaac (c) abbbc (d) aabba

15. c–ac–aa–aa–bc–bcc
(a) cabba (b) ccbbb (c) bbbbb (d) cbabc

16. ba– ba–bac–acb–cbac
(a) aacb (b) bbca (c) ccba (d) cbac

17. acc–bc–a–ccbbcc–
(a) abab (b) bcaa (c) aabc (d) bcab

18. aab–bbaaa–cbba–abc–ba
(a) bcca (b) cbab (c) cbba (d) aabc

19. cc–ccbc–accbcc–c–b
(a) acac (b) abac (c) abab (d) aabc

20. aaa–bb–aab–baaa–bb
(a) abab (b) bbaa (c) babb (d) baab

21. aba–baca–ba–bacaabac–aca
(a) cacb (b) ccab (c) cabc (d) abcc

22. a–ba–cbaac–aa–ba
(a) ccbb (b) cabc (c) cbcb (d) bbcc

23. aa– aaa–aaaa–aaaa–b
(a) baaa (b) bbaa (c) bbbb (d) bbba

24. ab–baabc–aabcb–abcb–
(a) bcaa (b) cbaa (c) abca (d) aacb

25. aa–bbb–ccaaab–bc–c
(a) bbcc (b) bccc (c) ccbb (d) acbc

SERIES COMPLETION II

Directions : In the following letter series, some of the letters are missing. The missing letters in proper sequence are given in one of the four alternatives. Choose the correct order.

1. ab–aabb––bb–
(a) abbb (b) abab (c) baba (d) baaa

2. a–abbb–ccccd–ddccc–bb–ba
(a) abcda (b) abdbc (c) abdcb (d) abcad

3. x–xy–yx–x–x–
(a) yxyyy (b) yyxxy (c) yyyxx (d) xyyxx

4. ab–a–ba–babb
(a) baa (b) bba (c) bbb (d) aab

5. a–b–aaa–bbaa
(a) aab (b) aba (c) bab (d) bba

6. ba––aaba–b–a
(a) baba (b) abab (c) babb (d) abaa

7. ba–b–a–b–aab
(a) abba (b) abab (c) baab (d) aabb

8. ab–a–aabaa–a
(a) bab (b) bba (c) aab (d) abb

9. aa–baab–ba–
(a) bba (b) bbb (c) abb (d) baa

10. a–ab––bbab
(a) babb (b) abab (c) bbab (d) bbba

TYPE THIRTEEN

Directions : Choose the group of letters which is different from others.

1. (a) BCD (b) KMN (c) QRS
(d) GHI (e) WXY

2. (a) ACEG (b) JLNP (c) SUWY
(d) RTVX (e) BDFG

3. (a) POCG (b) KLIZ (c) BUDX
(d) FQMV (e) ARTG

4. (a) CZHK (b) MLAG (c) XUBU
(d) SENO (e) YDFP

5. (a) BDGK (b) JLOS (c) NPSW
(d) MORU (e) HJMQ

6. (a) C F I L (b) P S V X (c) J M P S
(d) O R U X (e) Q T W Z

7. (a) D K U Z (b) L P u B (c) F o M Y
(d) U X e N (e) W a Q S

8. (a) F C G D E (b) T R Q P S (c) K J H M F
(d) K H G J I (e) X V Y Z W

9. (a) A U g P Z (b) M X i D V (c) K F e C O
(d) Y G L h T (e) U H m Q Y

10. (a) D X C L Q Z (b) P F Z U B M (c) X G K N T Y
(d) N W M B H J (e) G J M Q V X

TYPE FOURTEEN (I)

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

1. ak eo is ? qa ue
(a) Lv (b) mw (c) nx
(d) Lw (e) mv

2. nd iy dt yo tj ?
(a) mp (b) nq (c) of
(d) oe (e) me

3. ejo tyd ins xch ?
(a) nrw (b) mrw (c) msx
(d) nsx (e) nsw

4. deb ijg nol ? xyv
(a) rsp (b) stp (c) rsq
(d) stq (e) sto

5. ? siy oeu kaq gwm cri
(a) wnc (b) wnb (c) vnc
(d) vmc (e) wmc

TYPE FOURTEEN (II) LETTER SERIES

1. Which one of the following will fit in the letter series given below
CLZ, BMY, INX, HOW, —
(a) OQV (b) OPV (c) OOV
(d) PQV (e) none of these

2. Which term out of the following will come in place of (?) in the following series
ACE, GIK, ?, SUW, YAC
(a) MOQ (b) MNP (c) MOP
(d) MPQ (e) MLQ

3. Which of the following will come next in the series below?
SHG, RIF, QJE, PKD, ?
(a) OMC (b) OLC (c) OLB
(d) OKC (e) ONC

4. Find the missing term PRT, —, BDF, HJL, NPR
(a) AVY (b) XZB (c) VXZ
(d) UYB (e) none of these

5. Which one of the following is next in the sequence?
CXA, EVC, GTE, IRG, ?
(a) AZI (b) VYI (c) DWL
(d) KPI (e) none of these

6. Find out the missing term out of the following alternative
AK, EO, IS, ?, QA, UE
(a) LV (b) MW (c) NX
(d) LW (e) MV

7. Which will be the next term out of the following in the letter series given below?
ND, IY, DT, YO, TJ, —
(a) MP (b) NQ (c) OF
(d) OE (e) ME

What should come in place of the question mark (?) in the following series?

8. BXJ, ETL, HPN, KLP, ?
(a) HNR (b) MHQ (c) MIP
(d) NHR (e) none of these

9. AZ, BY, CX, ?
(a) EF (b) GH (c) IJ
(d) DE (e) DW

10. DEF, HIJ, MNO, ?
(a) STU (b) RST (c) RTV
(d) SRQ (e) TUV

TYPE FIFTEEN

Direction : Arrange the given words in alphabetical order and choose the one that comes first

1. (a) Grammar (b) Granary (c) Gradient (d) Grand (e) Granule
2. (a) Sport (b) Spouse (c) Squash (d) Sporadic (e) Sprout
3. (a) Foment (b) Foetus (c) Forceps (d) Foreign (e) Foliage
4. (a) Devise (b) Dexterity (c) Devour (d) Dew (e) Deuce
5. (a) Necessary (b) Nature (c) Naval (d) Navigate (e) Nautical
6. (a) Praise (b) Practical (c) Prank (d) Prayer (e) Practise
7. (a) Animate (b) Animosity (c) Anguish (d) Ankle (e) Announce
8. (a) Probe (b) Proclaim (c) Proceed (d) Problem (e) Probate
9. (a) Guarantee (b) Group (c) Groan (d) Grotesque (e) Guard
10. (a) Wasp (b) Waste (c) War (d) Wrinkle (e) Wrist
11. (a) Science (b) Scrutiny (c) Scripture (d) Scramble (e) Script
12. (a) Intense (b) Intellect (c) Intend (d) Intelligent (e) Integument
13. (a) nature (b) Native (c) Narrate (d) Nascent (e) Naughty

TYPE SIXTEEN – MENTAL ABILITY

Complete the given series :

1. 2, 5, 10, 17, –, 37, 50
   (a) 30 (b) 28 (c) 26 (d) 25
2. 2, 7, 28, 63, 126, –
   (a) 201 (b) 215 (c) 216 (d) 217
3. 4, 6, 12, 14, 28, 30, –
   (a) 32 (b) 64 (c) 62 (d) 60

4. 5, 10, 13, 26, 29, 58, –, 122
   (a) 60 (b) 61 (c) 111 (d) 91
5. 4, 9, 13, 22, 35, –
   (a) 57 (b) 70 (c) 63 (d) 75
6. 2, 9, 28, 65, 126, –
   (a) 216 (b) 217 (c) 215 (d) 221
7. 1, 2, 3, 6, 9, 18, –, 54
   (a) 18 (b) 36 (c) 81 (d) 27
8. 5, 9, 6, 11, 7, –
   (a) 13 (b) 15 (c) 17 (d) 19
9. 11, 13, 17, 19, 23, 25, –
   (a) 25 (b) 27 (c) 29 (d) 31
10. 97, 86, 73, 58, 45, –
    (a) 34 (b) 54 (c) 55 (d) 56
11. 66, 36, 18, –
    (a) 9 (b) 3 (c) 6 (d) 8
12. –, $\frac{1}{24}$, $\frac{1}{36}$, $\frac{1}{54}$, $\frac{1}{81}$
    (a) $\frac{1}{32}$ (b) $\frac{1}{9}$ (c) $\frac{1}{16}$ (d) $\frac{1}{18}$
13. 2, 7, 22, 67, –, 607
    (a) 200 (b) 201 (c) 202 (d) 203
14. 3, 4, 6, 13, 23, 42, –
    (a) 78 (b) 65 (c) 83 (d) 85
15. 210, 177, 144, 111, –
    (a) 89 (b) 77 (c) 110 (d) 78
16. 7, 13, 27, 53, –, 213
    (a) 106 (b) 107 (c) 105 (d) 108
17. 5, 11, 24, 51, 106, –
    (a) 217 (b) 212 (c) 214 (d) 216
18. 61, 67, 71, 73, 79, –
    (a) 81 (b) 82 (c) 83 (d) 85
19. 15, 31, 60, 123, 242, –
    (a) 280 (b) 285 (c) 279 (d) 489
20. 2, 6, 14, 30, 62, –
    (a) 124 (b) 126 (c) 128 (d) 132

21. 8, 24, 12, 36, 18, 54, –
(a) 27 (b) 29 (c) 31 (d) 32

22. 3, 6, 18, 72, –
(a) 144 (b) 216 (c) 360 (d) 288

23. 2, 5, 9, 19, 37, –
(a) 72 (b) 74 (c) 75 (d) 76

24. 9, 12, 11, 14, 13, –, 15
(a) 12 (b) 16 (c) 10 (d) 17

25. 1, 5, 11, 19, 29, –
(a) 45 (b) 39 (c) 41 (d) 47

26. 2, 12, 30, 56, –
(a) 84 (b) 86 (c) 88 (d) 90

27. 3, 15, 35, 63, –
(a) 101 (b) 99 (c) 72 (d) 132

28. 4, 9, 25, 49, –
(a) 81 (b) 64 (c) 100 (d) 121

29. 24, 46, 68, –
(a) 801 (b) 89 (c) 86 (d) 810

30. 10, 34, 74, 130, –
(a) 290 (b) 280 (c) 202 (d) 310

TYPE SEVENTEEN – MENTAL ABILITY

Find the wrong number in the given series.

1. 3, 8, 15, 24, 34, 48, 63
(a) 15 (b) 24 (c) 34 (d) 48

2. 3, 4, 10, 32, 136, 685, 4116
(a) 136 (b) 10 (c) 32 (d) 4116

3. 325, 259, 202, 160, 127, 105, 94
(a) 94 (b) 127 (c) 105 (d) 202

4. 105, 85, 60, 30, 0, –45, –90
(a) 0 (b) 85 (c) 60 (d) –45

5. 52, 51, 48, 43, 34, 27, 16
(a) 51 (b) 48 (c) 34 (d) 43

6. 46080, 3840, 384, 48, 24, 2, 1
(a) 1 (b) 2 (c) 24 (d) 48

7. 8, 27, 125, 343, 1381
(a) 27 (b) 8 (c) 343 (d) 1381

8. 10, 14, 28, 32, 64, 68, 132
(a) 32 (b) 68 (c) 64 (d) 132

9. 6, 13, 18, 25, 30, 37, 40
(a) 25 (b) 30 (c) 37 (d) 40

10. 56, 72, 90, 110, 132, 150
(a) 150 (b) 72 (c) 90 (d) 110

11. 25, 36, 49, 81, 121, 169, 225
(a) 36 (b) 49 (c) 121 (d) 169

12. 8, 13, 21, 32, 47, 63, 83
(a) 13 (b) 47 (c) 63 (d) 32

13. 1, 2, 6, 15, 31, 56, 91
(a) 31 (b) 15 (c) 56 (d) 91

14. 445, 221, 109, 46, 25, 11, 4
(a) 221 (b) 109 (c) 46 (d) 25

15. 3, 7, 15, 39, 63, 127, 255, 511
(a) 39 (b) 15 (c) 7 (d) 63

16. 10, 26, 74, 218, 654, 1946, 5834
(a) 26 (b) 74 (c) 218 (d) 654

17. 196, 169, 144, 121, 100, 80, 64
(a) 80 (b) 169 (c) 144 (d) 121

18. 8, 14, 26, 48, 98, 194, 386
(a) 194 (b) 98 (c) 14 (d) 48

19. 73, 79, 83, 87, 89, 97
(a) 79 (b) 73 (c) 87 (d) 97

20. 380, 188, 92, 48, 20, 8, 2
(a) 188 (b) 48 (c) 92 (d) 20

21. 1, 3, 10, 21, 64, 129, 356, 777
(a) 10 (b) 21 (c) 356 (d) 129

22. 6, 12, 48, 100, 384, 768, 3072
(a) 768 (b) 384 (c) 100 (d) 48

23. 11, 24, 74, 298, 1482, 8894
(a) 2 (b) 74 (c) 218 (d) 1482

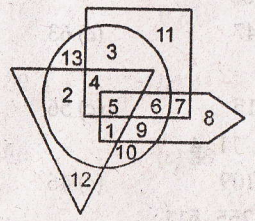
24. 75, 79, 72, 80, 69, 83, 66
(a) 69 (b) 72 (c) 79 (d) 83

25. 7, 8, 12, 20, 37, 62
(a) 12 (b) 20 (c) 37 (d) 62

TYPE EIGHTEEN

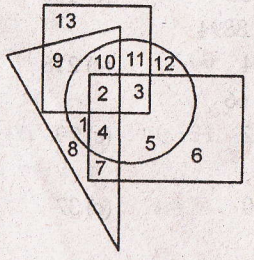
LOGICAL VENN DIAGRAM PART-I

Directions : *Questions 1 to 3 are based on the diagram given below. In the diagram each section is numbered. The circle represent HILLY REGION. The triangle represents GRASSLANDS. The square represents area that SNOW in water, and the five sided figure represents area covered with FORESTS.*



1. Which number represent the area which is not hilly nor has snow but is covered with forests as well as grasslands?
   (*a*) 1 (*b*) 5 (*c*) 6
   (*d*) 9 (*e*) none
2. Number 4 represents the area that is :
   (*a*) Hilly, has snow and grasslands but not forests.
   (*b*) Hilly, has snow, grasslands and forests.
   (*c*) Hilly, has snow, forests but no grassland.
   (*d*) Hilly, has forests, grassland but no snow
   (*e*) None of these
3. Which number represent's hilly region, that has snow but neither has forests nor grass?
   (*a*) 11 (*b*) 13 (*c*) 3
   (*d*) 4 (*e*) none of these

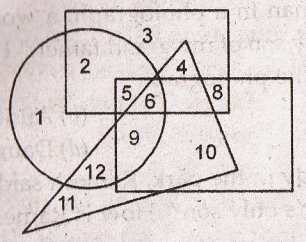
Directions : *Questions 4 to 8 are based on the Venn Diagram given below :*



Circle : represents 'poor boys'
Square : represents 'educated boys'
Triangle : represents 'boys who are employed some where'
Rectangle : represents 'those who help in the family business'
Each section of the diagram is numbered. Now answer the questions given below on the study of this diagram.

4. Which number represents those poor boys who help the family business but are not educated or employed elsewhere?
   (*a*) 2 (*b*) 3 (*c*) 4 (*d*) 5 (*e*) 7
5. Which number represents the group of educated poor boys who are employed somewhere but do not help in family business?
   (*a*) 10 (*b*) 3 (*c*) 11 (*d*) 2 (*e*) 9
6. Which section does number 3 represents?
   (*a*) Uneducated poor boys who do not help in family business
   (*b*) Educated poor boys employed in service
   (*c*) Uneducated boys who help in family business
   (*d*) Educated poor boys who help in family business
   (*e*) None of these
7. Which number represents that section of poor boys who are neither educated nor are in any employment or have any family business?
   (*a*) 4 (*b*) 5 (*c*) 1 (*d*) 11 (*e*) 12
8. Boys who are neither educated nor poor but have employment as well as a family business are represented by the number :
   (*a*) 8 (*b*) 7 (*c*) 4 (*d*) 6 (*e*) 5

Directions : *(Questions 9 – 13) are based on the following diagram :*



9. Which number includes the two rectangular figures and the circle?
   (*a*) 2 (*b*) 4 (*c*) 5 (*d*) 6 (*e*) none
10. Which number includes the triangle and the circle?
    (*a*) 7 (*b*) 9 (*c*) 11 (*d*) 12 (*e*) none
11. Which number includes only the two quadrangles?
    (*a*) 3 (*b*) 5 (*c*) 8 (*d*) 10 (*e*) none

12. Which number includes all the four figures?
(a) 6 (b) 7 (c) 8 (d) 9 (e) none

13. Which number is found only in the triangle?
(a) 12 (b) 11 (c) 10 (d) 4 (e) none

TYPE NINETEEN — BLOOD - RELATION TESTS

1. Pointing to a lady in the photograph, Manish said, "She is the daughter of my grand father's only son." How is Manish related to that lady?
(a) Father (b) Uncle
(c) Brother (d) Nephew

2. Pointing to his son's portrait, Ramesh said to a woman, "His mother is the only daughter of your mother." How was the woman related to Ramesh?
(a) Wife (b) Sister
(c) Aunt (d) Niece

3. Pointing out to a lady, Rohit said, "She is the daughter of a woman who is the mother of the husband of my mother." How is the lady related to Rohit?
(a) Aunt (b) Grand-daughter
(c) Daughter (d) Sister

4. Pointing towards the man on the stage, Ritu said, "He is the brother of the daughter of the wife of my husband." How is the man on the stage related to Ritu?
(a) Son (b) Husband
(c) Cousin (d) Nephew

5. Pointing to a man in a photograph, a woman said, "His brother's father is the only son of my grand father." How is the woman related to the main in the photograph?
(a) Mother (b) Aunt
(c) Sister (d) Daughter

6. Showing the lady in the park, Ramesh said, "She is the daughter of my grandfather's only son." How is Ramesh related to that lady?
(a) Brother (b) Cousin
(c) Father (d) Uncle

7. Rani told Sunita, "The girl I met yesterday at the hotel was the youngest daughter of the brother in law of my friend's mother." How is the girl related to Rani's friend?
(a) Cousin (b) Mother
(c) Grand Mother (d) Grand-daughter

8. Sushant introduces Raj as the son of the only brother of his father's wife. How is Raj related to Sushant?
(a) Cousin (b) Son
(c) Uncle (d) Son-in-law

9. Pointing out to a photograph, a man tells his friend, "She is the daughter of the only son of my father's wife." How is the girl related to the man in the photograph.
(a) Sister (b) Cousin
(c) Mother (d) Daughter

10. Ram introduces Sham saying, "He is the husband of the grand-daughter of the father of my father." How is Sham related to Ram?
(a) Brother (b) Son
(c) Brother-in-law (d) Son-in-law

11. Introducing a man to her husband, a woman said his brother's father is the only son of my grand-father. How is the woman related to this man?
(a) Mother (b) Aunt
(c) Sister (d) Daughter

12. If Sunder says that his mother is the only daughter of Mohit's mother, how is Sunder related to Mohit?
(a) Son (b) Father
(c) Brother (d) Uncle

13. Introducing a man, a woman said, "He is the only son of my mother's mother." How is the woman related to a man?
(a) Mother (b) Aunt
(c) Sister (d) Niece

14. Deepak said to Rahul, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife." How is the boy playing football related to Deepak?
(a) Son (b) Brother
(c) Cousin (d) Nephew

15. Showing the man receiving the award, Soni said, "He is the brother of my uncle's daughter." Who is the man to Soni?
(a) Son (b) Cousin
(c) Brother-in-law (d) Nephew

Directions : *(Question 16 - 19) Read the following information carefully and answer the questions given below :*
All the six members of a family A, B, C, D, E and F are travelling together. B is the son of C but C is not the mother of B. A and C are a married couple, E is the father of C, D is the daughter of A. F is the brother of B.

16. How many male members are there in the family?
(a) 1 (b) 2 (c) 3 (d) 3

17. Who is the mother of B?
(a) D (b) F (c) E (d) A

18. How many children does A have?
(a) One (b) Two (c) Three (d) Four

19. Which of the following is a pair of females?
(a) A, E (b) B, D (c) D, F (d) A, D

Directions : *(Question 20 - 23) : A + B means A 'is the son of' B; A – B means A 'is the wife of' B; A × B means A 'is the brother of' B; A ÷ B means A 'is the mother of' B and A = B means A 'is the sister of' B.*

20. What does P + R – Q mean?
(a) Q is the father of P (b) Q is the son of P
(c) Q is the uncle of P (d) Q is the brother of P

21. What does P × R ÷ Q mean?
(a) P is the brother of R (b) P is the father of Q
(c) P is the uncle of Q (d) P is the nephew of Q

22. What does P = R + Q mean?
(a) OP is the aunt of Q (b) P is the daughter of Q
(c) P is the niece of Q (d) P is the sister of Q

23. What does P = R ÷ Q mean?
(a) P is the aunt of Q (b) P is the sister of Q
(c) Q is the niece of P (d) Q is the daughter of P

Directions : *(Questions 24 - 26)*
(i) A + B means A 'is the daughter of' B
(ii) A– B means A 'is the husband of' B
(iii) A × B means A 'is the brother of' B.
Answer the following questions :

24. If P + Q – R, which of the following is true?
(a) R is the mother of P (b) R is the sister-in-law of P
(c) R is the aunt of P (d) R is the mother-in-law of P

25. If P × Q + R, which of the following is true?
(a) P is the brother of R (b) P is the uncle of R
(c) P is the son of R (d) P is the father of R

26. If P + Q × R, which of the following is true?
(a) P is the niece of R (b) P is the daughter of R
(c) P is the cousin of R (d) P is the daughter-in-law of R

27. If A * B means A 'is the sister of' B : A △ B means A 'is the father of' B. A ∈ B means A 'is the brother of' B, which of the following means X is the aunt of Y?
(a) X * D △ y (b) X △ D ∈ Y
(c) X △ D * Y (d) X ∈ D △ Y

28. If X O Y means X is the wife of Y; X * Y means X is the son of Y and X □ Y means X is the sister of Y, which of the following would mean that A 'is the daughter of' B?
(a) A * C □ D O B (b) A O C * D □ B
(c) A □ C O D * B (d) A □ C * D O B

TYPE TWENTY — NUMBER QUIZ

1. If 3 + 9 = 31; 15 + 12 = 45, 18 + 9 = 36, then 12 + 27 is
(a) 94 (b) 14 (c) 49 (d) 53

2. If 2 × 1 = 81; 3 × 2 = 278; 2 × 5 = 8125, then 1 × 3 is
(a) 127 (b) 271 (c) 126 (d) 129

3. If 213 = 419, 322 = 924; 415 = 16125; then 215 is
(a) 425 (b) 1625 (c) 4125 (d) 2541

4. If 68 = 43, 2046 = 3201, 688 = 443, what is 2008?
(a) 4002 (b) 1004 (c) 4001 (d) 4020

5. If 43 = 158, 35 = 824, 42 = 153, then 32 is?
(a) 84 (b) 83 (c) 85 (d) 94

6. If 7 * 3 = 52, 9 * 5 = 86, 3 * 4 = 13, then 5 * 7 is
(a) 30 (b) 32 (c) 40 (d) 42

7. If 3 * 7 = 58, 5 * 6 = 61, 3 * 2 = 13, then 5 * 4 is
(a) 39 (b) 41 (c) 81 (d) 90

8. If 24 + 35 = 28, 15 + 42 = 24, 57 + 48 = 48; then 69 + 37 is
(a) 62 (b) 56 (c) 38 (d) 50

9. If 84 + 72 = 45, 63 + 41 = 33, 25 + 52 = 33; then 94 + 82 is
(a) 45 (b) 59 (c) 56 (d) 65

10. If 4 × 8 = 42, 6 × 4 = 23, 8 × 6 = 34, then 2 × 4 is
(a) 25 (b) 21 (c) 26 (d) 30

11. If 36 × 92 = 9623, 25 × 82 = 8522, 68 × 75 = 7856, then 47 × 52 is
(a) 5742 (b) 5274 (c) 7427 (d) 5724

12. If 3 × 4 = 14, 5 × 6 = 33, 7 × 8 = 60, then 8 × 9 is
(a) 77 (b) 75 (c) 79 (d) 72

13. If 2 × 8 = 4; 3 × 27 = 9, 6 × 24 = 4, the 5 × 40 is
(a) 12 (b) 10 (c) 8 (d) 6

14. If 3 + 2 = 7, 4 + 3 = 10, 5 + 4 = 13, then 6 + 5 is
(a) 17 (b) 18 (c) 15 (d) 16

15. If 5 × 9 = 144, 7 × 8 = 151, 4 × 6 = 102, then 2 × 5 is
(a) 73 (b) 77 (c) 37 (d) 97

16. If 64 × 34 = 32; 84 × 42 = 41, 64 × 46 = 33, then 26 × 36 is
(a) 23 (b) 13 (c) 33 (d) 31

17. If 34 + 35 = 15, 55 + 86 = 24, 78 + 19 = 25, then 24 + 24 is
(a) 48 (b) 24 (c) 12 (d) 40

18. If 6 × 2 = 31, 8 × 4 = 42, 2 × 2 = 11, 6 × 6 = 33, then 8 × 6 is
(a) 34 (b) 43 (c) 14 (d) 40

19. If 2 × 8 = 4, 3 × 15 = 5, 4 × 24 = 6, then 5 × 40 is
(a) 10 (b) 8 (c) 6 (d) 15

20. If 1 × 2 × 3 = 312, 2 × 3 × 4 = 423, 3 × 2 × 4 = 432, then 2 × 4 × 3
(a) 423 (b) 234 (c) 324 (d) 432

21. If 20 × 3 = 20, 31 × 6 = 62, 25 × 9 = 75, then 40 × 12 is
(a) 160 (b) 40 (c) 80 (d) 125

22. If 4 + 3 = 10, 5 + 4 = 13, 6 + 5 = 16, the 7 + 6 is
(a) 17 (b) 52 (c) 19 (d) 5

23. If 3 × 4 = 916, 2 × 5 = 425, 1 × 7 = 149, then 4 × 5 is
(a) 232 (b) 1625 (c) 525 (d) 1628

24. If 8 ÷ 6 = 1, 20 ÷ 6 = 7, 100 ÷ 8 = 46, then 55 ÷ 5 is
(a) 25 (b) 35 (c) 45 (d) 55

25. If 8 × 6 = 43, 6 × 4 = 32, 2 × 4 = 12, then 4 × 8 is
(a) 32 (b) 16 (c) 24 (d) 48

TYPE TWENTY ONE

Directions : *Correct the following equations by interchanging two sign (use BODMAS method)*

1. 15 ÷ 9 × 3 − 74 + 2 = 5
(a) + and − (b) ÷ and × (c) + and ÷ (d) − and ÷

2. 51 ÷ 3 × 12 − 6 + 3 = 11
(a) + and ÷ (b) − and + (c) × and ÷ (d) − and ×
(e) none

3. 16 + 4 ÷ 2 − 21 × 7 = 21
(a) + and − (b) + and × (c) − and ÷ (d) × and ÷

4. (12 × 5) + (25 − 5) ÷ (10 − 1) = 12
(a) + and ÷ (b) × and + (c) + and − (d) × and −

5. 4 × 14 + 12 − 21 ÷ 7 = 47
(a) × and ÷ (b) + and × (c) − and + (d) − and ×

6. 17 + 6 × 2 − 3 ÷ 4 = 8
(a) + and − (b) ÷ and × (c) ÷ and + (d) × and −

7. 16 ÷ 2 + 7 − 12 × 3 = 35
(a) ÷ and + (b) + and − (c) × and ÷ (d) × and −

8. 3 + 5 ÷ 15 × 6 − 7 = 0
(a) − and + (b) − and × (c) ÷ and + (d) × and +

9. 10 × 8 ÷ 4 − 2 + 2 = 8
(a) × and − (b) × and + (c) ÷ and × (d) − and +

10. 12 + 6 ÷ 3 − 2 × 8 = 8
(a) + and − (b) − and × (c) × and ÷ (d) ÷ and −

11. 25 − (6 + 3) × (36 ÷ 4) = 16
(a) × and + (b) − and + (c) × and ÷ (d) ÷ and +

12. 28 + 2 ÷ 14 × 7 − 1 = 10
(a) × and ÷ (b) + and × (c) ÷ and − (d) × and −

13. 9 + 3 + 4 − 8 × 2 = 33
(a) + and + (b) ÷ and − (c) − and × (d) ÷ and ×

14. 8 + 4 + 3 − 5 × 9 = 44
(a) − and + (b) ÷ and + (c) ÷ and − (d) − and ×

15. $8 + 6 - 4 \times 7 \div 3 = -\frac{71}{3}$
(a) + and − (b) − and × (c) + and × (d) ÷ and +

TYPE TWENTY TWO

Exercise - 1

Study the following information carefully and answer the questions given below it :

(i) A, B, C, D, E, F and G are seven members of a family.
(ii) Six of them have a different profession of Accountant, Lawyer, Teacher, Manager, Doctor, Engineer and one is a student.
(iii) There are two married couples in the family.
(iv) A and F's professions are Accountant and Doctor respectively.
(v) D is the father of B and the grandfather of G and is an Engineer.
(vi) No lady is either an Engineer or Lawyer.
(vii) G, who is a student, is a grandson of E.

1. How is C related to G?
(a) Mother (b) Aunt (c) Sister
(d) Data inadequate (e) None of these

2. What is E's profession?
(a) Teacher (b) Manager (c) Teacher or Manager
(d) Doctor (e) None of these

3. How many male members are there in the family?
(a) 4 (b) 5 (c) 3
(d) Data inadequate (e) None of these

4. Which of the following is one of the married couples?
   (a) BE (b) BD (c) BF
   (d) AC (e) DE
5. How is F related to G?
   (a) Brother (b) Sister (c) Uncle
   (d) Data inadequate (e) none of these

Exercise - 2

There are five men A, B, C, D and E and six women P, Q, R, S, T a
U. A, B and R are advocates, C, D, P, Q and S are doctor and the r
– are teachers. Some teams are to be selected from amongst these elev
persons subjects to the following conditions.
A, P and U have to be together
B cannot go with D or R
E and Q have to be together
C and T have to be together
D and P cannot go together
C cannot go with Q

1. If the team is to consist of one male advocate, one male doctor, o
lady doctor and two teachers, the members of the team are
(a) ACPTU (b) BCEQT (c) ADEPT (d) ADEPU
2. If the team is to consist of two advocates, two doctors, two teache
and not more than three ladies, the member of the team are
(a) ACPRTU (b) BCEQRT (c) AEPQRT (d) ABCPTU
3. If the team is to consist of one advocate, two doctors, three teache
and C may not go with T, the members of the team are
(a) AEPQSU (b) AEPQTU (c) BEQSTU (d) EQRSTU
4. If the team is to consist of one advocate, three doctors and one ma
teacher, the members of the team are
(a) ADPSU (b) DEQRS (c) CDRST (d) DEQRT

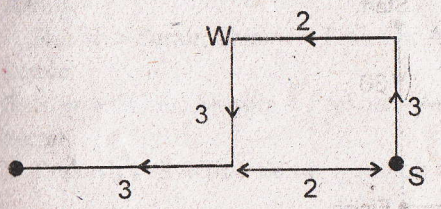
ANSWERS WITH EXPLANATIONS

TYPE ONE

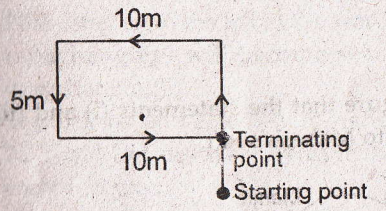
1. (b) 5 8 3
2. (d) 8 6 3
3. (e) 5 8 3
4. (a) 8 6 4
5. (c) 7 3 9

TYPE TWO

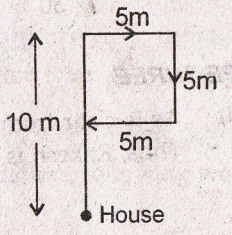
1. (a)



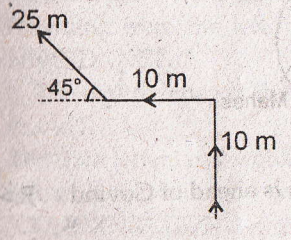
2. (a)



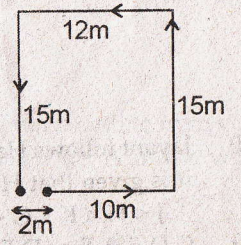
3. (c)



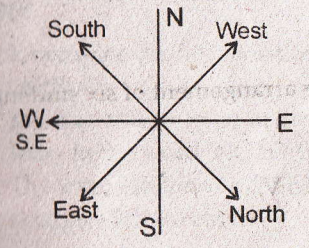
4. (d)



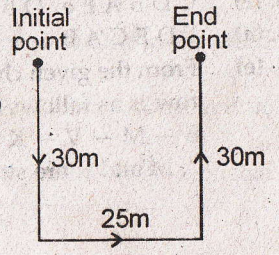
5. (b)



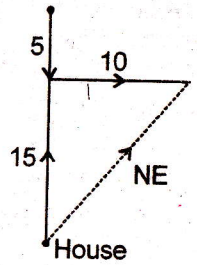
6. (b)



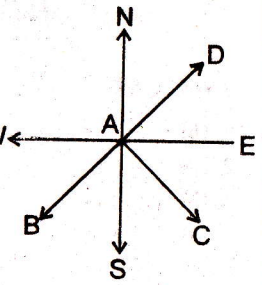
7. (c)



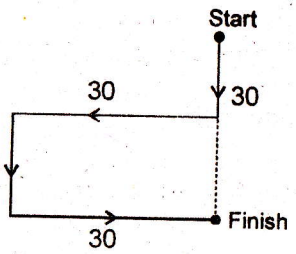
8. (e)



9. (d)

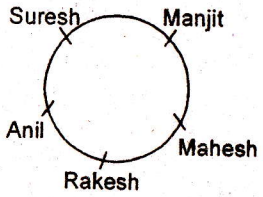


10. (e)



TYPE THREE

1. (d) As is clear from the figure that the statements (i) and (ii) holds. Thus, Rakesh is sitting to Mahesh's left.



2. (d) Jayant follows Hari ∴ J < H; Ram is ahead of Govind ∴ R > G and it is given that H < K < G
∴ J < H < K < G < R i.e. Govind is second.
3. (e) C D B A E or D B A E C
4. (a) F D E C A B
5. (e) From the given clues, the sitting arrangement of six student's in a row is as follows :
B — M — V — K — R — Q
∴ M and K are sitting adjacent to V.

TYPE FOUR

1. (d) Suresh > Ashutosh; Raju > Charu and Raju < Bala
Also Charu > Suresh
∴ Bala > Raju > Charu > Suresh > Ashutosh
2. (d) Chandu is shorter than Ashok.
3. (d) Puneet is tallest of all and is taller than Ramesh. From the given data we have
Puneet > Ramesh > Anil > Mahesh > Suresh
∴ Anil is standing exactly in the middle.
4. (e) Shirish > Charu and Shirish < Raju; Charu = Dilip and Charu > Ashok
∴ Shirish > Samir; Shishir < Prakash; Ashok > Prabodh, Ashok < Samir.
5. (e) Shishir > Samir; Shishir < Prakash; Ahsok > Prabodh, Ashok < Samir.
∴ Prakash > Shishir > Samir > Ashok > Prabodh.

TYPE FIVE

1. (e) Fifth letter from the left in the word 'DISTRIBUTION' i.e. R (before interchanging) will become seventh letter from the left (after interchanging)
2. (c) The 3rd, 4th and 11th, letters of the word 'CONTROVERSIAL' are N, T and I respectively. With these three letters, following words can be formed :
TIN, therefore, write M.
3. (e) Counting from the left to the right, the order of letters will be NIROIDANET.
∴ The eighth letter in this order is N.
4. (d) ROAST.
5. (c) The sixth letter i.e. E would be the eighth letter counting from your left as it is exchanged with the eighth letter i.e. A in the word 'CONGREGATION'.

TYPE SIX

1. (a) E occupies the fifth position in the alphabet and also in the word 'APPLES'.
2. (c) M is the middle letter in the word 'CLEMENT' and R is the middle letter in the word 'NOTORIOUS'.
3. (d) The letter I in the word 'CYBERNATICS' as well as in the alphabet occupies 9th position.

4. (d) (H, N); (R, O); (R, N) and (O, N).
5. (a) (A, E).
6. (d) The position of 'Z' in the alphabet is 26th and its position in the word 'EMPHASIZE' is 8th. Therefore, the difference between the two positions of 'Z' is 18.
7. (a) Between L and O, there are two words in the alphabet and so are in the word 'ROUBLE'. These words L and O out of which L comes earlier in the alphabet.
8. (d) In the word 'DREAM' between D and A, there are two letters R and E. Also between D and A there are two letters B and C in the alphabet. Out of these two letters D and A, A appears earlier in the alphabet.
9. (b) DE
10. (c) (S, T); (G, H)

TYPE SEVEN

1. (c) Number of students who pass = (12 + 25) + 1 = 28
Total number of students = 38 + 6 = 44
2. (d)
3. (c) 21
4. (e) 35
5. (c) 11th & 10th.
6. (d) By counting 21 letters from the end and 20 letters from the beginning we get the following sequence
F G H I J K L M N O P Q R S T
Obviously, the letter M appears exactly in the middle of the sequence formed.
7. (b)

TYPE EIGHT — CLASSIFICATION

1. (b) Pen, Pencil, Ink and Eraser are items of stationery where as calculator is not.
2. (d) Snake, Lizard, tustli and crocodile are reptiles while whale is not.
3. (c) Potato is not a root whereas the rest of the four items are forms of root.
4. (e) Brook is a natural stream of fresh water where as other may be artificially formed.
5. (d) Swan can not fly whereas others can fly.
6. (b) Moon is not a planet while all others are planets.
7. (a) All except bean can be eaten raw.

8. (a) Club is a heavy stick usually thicker at one end than the other. All other are used for writing or drawing.
9. (b) Iron gets rusted in atmospheric moisture.
10. (b) All others are different kinds of ornaments.
11. (a) All others are synonyms.
12. (d) Chandigarh is a union territory whereas the others are cereals.
13. (c) Whale cannot live on surface.
14. (a) April is the even month of the year whereas the other given months are odd.
15. (e) Mustard is not a cereals whereas the others are cereals.
16. (d) Throat is not a sense organ.
17. (c) During rain water falls in drops from the sky to the earth while all others are collections of particles of water suspended in the atmosphere.
18. (a) Driving is associated with road while all others are associated with water.
19. (d) All others are Fruits.
20. (a) Shop is a retail or wholesale store while pencil, canvas etc. are available in one shop or the other.
21. (d) All others are professions.
22. (c) It is the female animal.
23. (a) Cave is a hollow in the earth.
24. (b) Star is seen in the sky while all others are seen on earth itself.
25. (e) All others are the products of milk.

TYPE NINE

1. (d) Oar moves the boat and peddle moves the bicycle.
2. (e) War caused death and Smoke causes pollution.
3. (c) Wine is prepared from grapes while bread is prepared from wheat.
4. (d) Editor is responsible for the newspaper while director is responsible for the film.
5. (a) Poster is pasted on the wall and photograph is pasted on the frame.
6. (b) One can hear owing to Ear and can also 'see' due to 'eyes'.
7. (e) One can breathe from the nose and eat from the mouth.
8. (b) Drop is a small part in the ocean and star is a small part in the sky.
9. (a) Shoe is made by the cobbler while furniture is made by the carpenter.
10. (b) Vegetarian does not take meat and teetotaller does not take liquor.

11. (a) Father produces the child and author produces the book.
12. (d) Bullet is charged through the 'gun' and so smoke is discharged through 'chimney'.
13. (c) 'Shoe' is meant for wearing whereas ball is meant for play.
14. (d) Mat is spread on the floor whereas pillow is spread on the bed.
15. (c) It is good if one wins the match whereas it is good if one has a success in examination.
16. (b) 'Botany' is the study of plants while ornithology is the study of birds.
17. (b) T.B. is the disease of 'Lungs' and cataract is the disease of eyes.
18. (d) Sand and spend are the words having similar pronunciation and so are the words 'seed' and 'speed'.
19. (c) Largest ocean is the Pacific Ocean while largest Island is the Greenland Island.
20. (a) Followers are guided by their leader whereas soldiers are guided by their captain.
21. (e) Aunt's daughter is called niece.
22. (a) Import and Export are antonyms. So are Expenditure and Revenue.
23. (c)
24. (a)
25. (c)

TYPE TEN — CODING-DECODING

Category 1

1. (c)	2. (d)	3. (d)	4. (c)	5. (a)
6. (d)	7. (a)	8. (d)	9. (b)	10. (b)
11. (b)	12. (c)	13. (a)	14. (b)	15. (a)

Category 2

1. (c) Write the first three letters of the word 'EXPLAINING' in the reverse order, then the next two letters, then against next two letters and finally last three letter to code as 'PXEALNIGNI'
2. (b) The sequence is +1, –1.
3. (b) Write the letters in the reverse order then move one step backward to code as 'XDJMNL'. Similarly 'TIGER' is written as 'QDFHS'.
4. (a) 'Division' is coded by interchanging its 2nd and 3rd letters; 4th and 5th letters; 6th and 7th letters with each other. Similarly 'STATES' is coded as 'SATETS'.
5. (c) Each letter of the word 'COURSE' is moved three steps forward to code it as 'FRXUVH'. Similarly 'RACE' is coded as 'UDFH'.

6. (b) Same reasoning as in Q. 5 above.
7. (c) In the word 'MILLION' the first and the second letters, the third and the fourth letters as well as the fifth and sixth letters are interchanged to get 'IMLLOIN'. Similarly 'HILTON' is coded as 'IHTLNO'.
8. (a) C goes to x by the rule 'third letter from left hand become third from the right hand' etc.
9. (b) Same rule as in Q. 8 above.
10. (c) 'TRIBAL' is coded as 'TIRLBA' in the same way as 'RATIONAL' is coded as 'RTANIOLA'
11. (b) The letters are written in the reverse order.
12. (d) The second and fourth letters of the word 'PROSE' are moved one step backward to code it as 'PPOQE'. Similarly 'LIGHT' is coded as 'LGGFT'.
13. (a) Odd letters moves two step backward and even letters are moved one step forward. Same rule is followed to code 'DOCTOR' as 'BPAUMS'.
14. (c) Interchanging first and fourth letter as well as second and third letter in 'EASE' so as to get it as 'ESAE' and then move each letter two step forward. Similarly 'CUT' is written as 'VWE'.
15. (d) Odd letters are moved two steps backward in the English alphabet to code it as 'JOWAJ'. Similarly, 'PRONE' is coded as 'NRMNC'.
16. (d) Rule for coding is S_6, S_5, S_4, S_3, S_2, S_1.
17. (d) Reverse order arrangement.
18. (d) Odd letters are moved three steps forward while even letters are moved three steps backwards.
19. (a) Letters are divided into two halves and then the letters are reversed.

Category 3

1. (d) The given expression is $14 - 10 \times 4 \div 16 + 8$
$= 14 \times 10 + 4 - 16 \div 8$
$= 14 \times 10 + 4 - 2 = 140 + 2 = 142$
2. (d) The given expression is $5 - 8 \div 4 \times 8 + 6$
$= 5 \times 8 + 4 \div 8 - 6$
$= 40 + 4 \times \frac{1}{8} - 6 = 40 + \frac{1}{2} - 6 = 34\frac{1}{2}$
3. (a) The given expression in $10 - 8 \times 16 + 8 \times 4$
$= 10 \times 8 + 16 \div 8 - 4 = 80 + 2 - 4 = 78$

4. (*d*) Given expression is $(18 + 10 \times 20) - 8 \div 6$
$= (18 \times 10 \div 20) + 8 - 6 = 200 \div 8 - 6 = 25 - 6 = 19$

5. (*a*) Given expression is $9 \times 4 + 2 - 5 \times 10 \div 3$
$= 9 \div 4 \times 2 + 5 \div 10 - 3 = \frac{9}{4} \times 2 + 5 \times \frac{1}{10} - 3 = \frac{9}{2} + \frac{5}{10} - 3 = 2$

6. (*c*) Given expression is $8 \vee 4 \wedge 6 > 2 < 3$
$= 8 \times 4 - 6 \div 2 + 3 = 32 - 6 \times \frac{1}{2} + 3 = 32 - 3 + 3 = 32$

7. (*a*) Given expression is 2 of $2 - 2 \div 2 + 2 \times 2$
$= 4 - 2 \times \frac{1}{2} + 4 = 4 - 1 + 4 = 7$

8. (*b*) Given expression is $10 \div 10 \times 10 - 10 + 10 = 10 \times \frac{1}{10} \times 10 = 10$

9. (*b*) (10 C 4) A (4 C 4) B 6 = $(10 \times 4) + (4 \times 4) - 6 = 40 + 16 - 6 = 50$

10. (*b*) Given expression is $14 + 7 \times 2 - 5 \div 4$
$= 14 \div 7 - 2 + 5 \times 4 = 2 - 2 + 20 = 20$

Category 4

Chain Coding Problems

1. (*c*) 2. (*e*) 3. (*b*) 4. (*d*) 5. (*a*)

Category 5

1. (*b*) 2. (*c*) 3. (*b*) 4. (*c*) 5. (*a*)

Reasoning : Get the number value of each alphabet.

1. R is 18, A is 1 and T is 20. Thus RAT = $18 \times 1 \times 20 = 360$
2. Same as Q. 1.
3. R (18), A (1), T (20), E (5) = (T + E) – (R + A)
i.e. $(20 + 5) - (18 + 1) = 6$.
Similarly CEAT = (A + T) – (C + E) = $(1 - 20) - (3 + 5) = 13$
4. Multiplied the first two and divided the result by third
$\therefore$ XET = $(24 \times 5) \div 20 = 6$
5. Add the number value of the alphabet
$\therefore$ DEAR = $4 + 5 + 1 + 18 = 28$.

Category 6

Ex. 1.

1. (*b*) 3a A 2b means 3 is not greater than 2 b ...(i)
3a F 0 means 3 a is greater than zero ....(ii)
From (i) and (ii) it implies that
2b is greater than zero i.e. 2b is not less than zero which means 2b D 0.

2. (*a*) 3. (*c*) 4. (*c*) 5. (*c*)

Ex. 2.

1. (*c*) $a + b + c \Rightarrow a = b = c$.
Now see the alternatives one by one till you get the answer.
(a) $a \times b \Delta c$ means $a < b \neq c$; false
(b) $a + b \nabla c$ means $a = b < c$; false
(c) $a \Phi b \Phi c$ means $a > b > c$; true
(d) $a O b \times c$ means $a > b < c$; false
(e) $a \nabla b \Phi c$ means $a < b > c$; false

2. (*c*) 3. (*b*) 4. (*b*) 5. (*c*)

Category 7

Ex. 1.

1. (*d*) The alternatives are false. We see one by one

(a) $7 \div 3 - 2 > 8 + 2 - 9 \Rightarrow \frac{7}{3} - 2 > 10 - 9 \Rightarrow \frac{1}{3} > 1$, which is false

(b) $7 \times 3 + 2 < 8 \div 2 + 9 \Rightarrow 23 > 4 + 9$ i.e. $23 < 13$; false

(c) $7 - 3 \div 2 = 8 - 2 \div 9 \Rightarrow 7 - \frac{3}{2} = 8 - \frac{2}{9}$; false

(d) $7 + 3 \times 2 = 8 \div 2 + 9 \Rightarrow 13 = 13$; true

(e) $7 + 3 \div 2 > 8 \times 2 + 9 \Rightarrow 7 + \frac{3}{2} > 16 + 9$; false

2. (*c*) 3. (*b*) 4. (*b*) 5. (*c*)

Ex. 2. 1. (*a*) 2. (*e*) 3. (*d*) 4. (*a*) 5. (*c*)

TYPE ELEVEN

1. (*b*) A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

2. (*d*) From the left, 12th letter is L and eighth letter to its right is T.
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

3. (*a*) Z Y X W V U T S R Q P O N M L K J I H G F E D C B A
Q is the 14th letter to the left of the third letter C from the right.

4. (*a*) If the English letter is written in the reverse order, 4th letter to the right of the 13th letter will be the seventeenth letter i.e. 10th letter from the beginning i.e. J.

5. (*c*) H. Same explanation as in Q. 4 above, i.e. it is the 7th letter from the beginning.

6. (*b*)
7. (*c*) Z X V T R P N L J H F D B
8. (*d*)

TYPE TWELVE

Series Completion I

1. (*b*) The series is a a b b c c / a a b b c c / a a b b c c
2. (*b*) The series is a a b b / a a a b b b / a a a a b b b b / a
3. (*a*) The series is b c c / b c c b / b c c b
4. (*a*) The series is a b b a / b a a b / a b b a / b a a b / a
5. (*c*) The series is a b c / a a b c / a a b b c / a a b b c c / a
6. (*a*) The series is a a b a b c a b c d d c b a c b a b a a
   (The letters are equidistant from the beginning and the end of series are the same)
7. (*a*) The series is a b c d / a a b b c c d d / a a a b b b c c c d d d
8. (*c*) The series is a a a / b b b b / c c c c / d d d d / c c c c/b b b b/a
9. (*a*) The series is a b c d / b c a d / c a b d / a b c d / b c a d / c a bd
10. (*b*) The series is a d b c / a c b d / a b c d / d c b a / d b c a/c b d a
    (*same reason as in Q. 6 above*)
11. (*a*) The series is a a a b / a a b b / a b b b / a a a b / a a b b
12. (*c*) The series is a b c d / b c a c / c a b a / a b c d
13. (*b*) The series is b b c a / b c c a / b c a a / b b c
14. (*b*) The series is b b c a / b c c a / b c a a / b b c
15. (*b*) The series is c c a c c / a a b a a / b b c b b / c c
16. (*c*) The series is b a c / b a c / b a c / b a c / b a c / b a c
17. (*b*) The serie sis a c c b / b c c a / a c c b / b c c a /
18. (*b*) The series is a a b c b b a / a a b c b b a / a a b c b b a
19. (*a*) The series is c c a c c b / c c a c c b / c c a c c b
20. (*c*) The series is a a a / b b b / a a a / b b b / a a a / b b b
21. (*a*) The series is a b a c / b a c a / a b a c / b a c a / a b a c / b a c a
22. (*b*) The series is a c b a / a c b a / a c b a / a c b a
23. (*d*) The series is a a b / a a a b / a a a a b / a a a a a b
24. (*b*) The series is a b c b a / a b c b a / a b c b a / a b c b a
25. (*d*) The series is a a a / b b b / c c c / a a a / b b b / c c c

Series Completion II

1. (*d*) a b b a / a b b a / a b b a
2. (*c*) a a a / b b b b / c c c c / d d d d / c c c c / b b b b / a

3. (*a*) x y / x y / x y / x y / x y / x y /
4. (*c*) a b b / a b b / a b b / a b b
5. (*b*) a a b b a a / a a b b a a
6. (*d*) b a a / b a a / b a a / b a a
7. (*b*) b a a b is a repeated series
8. (*d*) a b a / a b a / .....
9. (*a*) a a b b / a a a b b b / a a
10. (*c*) a b / a b b /a b b b / a b

TYPE THIRTEEN

1. (*b*) All other groups consist three consecutive letters.
2. (*a*) All other groups consists of alternate letters.
3. (*d*) All other groups consists of one vowel each.
4. (*c*) This is the only group in which one letter has been repeated.
5. (*d*) In all other groups, there is a gap of one letter between first and second, two letters between second and third, and three letters between third and fourth.
6. (*b*) In all other groups, each letter moves 3 steps forward to obtain the next letter.
7. (*a*) In all other groups, the smaller letter is a vowel.
8. (*c*) All other groups consist of consecutive letters though not in order.
9. (*d*) In all other groups, the smaller letter is the middle one.
10. (*b*) This is the only group containing a vowel.

TYPE FOURTEEN (I)

1. (*b*) each letter is shipped 4 letters.
2. (*d*) each letter is shipped 5 letters.
3. (*b*) A difference of 4 letter between two consecutive letter in a series.
4. (*d*) Letter in each term are moved five steps forward.
5. (*e*) Each letter is moved 4 steps backward.

TYPE FOURTEEN (II)

1. (*b*) C B I H—; there is a skipping of 5 alphabets in alternate letters so after H, it should be 5 letters from I i.e. O.
   L M N O P and Z Y X W V
2. (*a*) The series is this
   A B C D E F G H I J K L M N O P Q

3. (*b*) The first and the third letters of each term are moved one step backward and the second letter one step forward. Hence OL C is the next term.
4. (*c*) The sequence is
A / B C D E F / G H I J K L / M N O / P Q R S T /U/V W X Y Z/
5. (*d*) The first term contains third letter of alphabet from the beginning as well as from the end and third letter is the first letter in the alphabet.
6. (*b*) In each term of the given series, both letters are moved four steps forward.
7. (*d*) In each term of the given series, both letters are moved five steps backward.
8. (*b*) The sequence is +1, +2, +3, –4, –5, +2, +2, +2;
9. (*c*) 10. (*b*)

TYPE FIFTEEN

1. (*c*)	2. (*d*)	3. (*b*)	4. (*e*)	5. (*b*)
6. (*b*)	7. (*c*)	8. (*e*)	9. (*c*)	10. (*c*)
11. (*a*)	12. (*e*)	13. (*c*)		

TYPE SIXTEEN *Answers (series)*

1. (*c*) Add 3, 5, 7, 9, 11, 13 etc.
2. (*b*) $1^3 + 1$, $2^3 - 1$, $3^3 + 1$, $4^3 - 1$, $5^3 + 1$, $6^3 - 1$
3. (*d*) Add 2 and double.
4. (*b*) Add 3 after doubling the previous number.
5. (*a*) 4 + 9 = 13, 13 + 9 = 22, etc.
6. (*b*) $n^3 + 1$ where n = 1, 2, 3, ...
7. (*d*) x 2 and x 3/2 alternately or two alternate series :
1, 3, 9, 27 2, 6, 18, 54
8. (*a*) 5, 6, 7, ...; 9, 11, 13, ...
9. (*c*) +2, +4, etc.
10. (*a*) –11, –13, –15, –13, –11, etc.
11. (*d*) 6 × 6 = 36; 3 × 6 = 18; 1 × 8 = 8
12. (*c*) Multiply 3/2 each term.
13. (*c*) 2 × 3 + 1 = 7; 7 × 3 + 1 = 22, etc. 67 × 3 + 1 = 202
14. (*a*) Fourth term is sum of the first three
15. (*d*) Common difference is 33
16. (*b*) × 2 ± 1. Thus 53 × 2 + 1 = 107

17. (*a*) ×2 + 1, 2, 3, 4, etc.
18. (*c*) Prime number series. 83 is the next prime number.
19. (*d*) Double and operate, +1, –2, +3, –4, +5 etc. Ans. is 498
20. (*b*) × 2 + 2. Next number is 62 × 2 + 2 = 126
21. (*a*) Multiply by 3 and divide the result by 2. Next term is 54 ÷ 2 = 27.
22. (*c*) × 2, × 3, × 4, × 5.
23. (*c*) × 2 and +1 and –1 respectively.
24. (*b*) Two series are 9, 11, 13, 15, – and 12, 14, 16, 18, –.
25. (*c*) +4, +6, +8, +10, +12.
26. (*d*) 1 × 2, 3 × 4, 5 × 6, 7 × 8, 9 × 10
27. (*b*) 1 × 3, 3 × 5, 5 × 7, 7 × 9, 9 × 11
28. (*d*) Square on prime number. Next term is $11^2 = 121$
29. (*d*) Consecutive even number. Next term is 810.
30. (*c*) $1^2 + 3^2$, $3^2 + 5^2$, $5^2 + 7^2$, $7^2 + 9^2$, $9^2 + 11^2$,
10 34 74 130 202

TYPE SEVENTEEN *Answers (Wrong number)*

1. (*c*) Differences are 5, 7, 9, 11 and 13.
2. (*c*) 3 × 1 + 1; 4 × 2 + 2, 10 × 3 + 3, 33 × 4 + 4 etc. Hence 32 is a wrong number.
3. (*d*) Sequence is –66, –55, –44, –33, –22, –11. So 202 is a wrong number.
4. (*a*) Sequence is –20, –25, –30, –35, –40, –45. Hence 0 is a wrong number.
5. (*c*) Sequence is –1, –3, –5, –7, –9, –11. So 34 is a wrong number.
6. (*c*) ÷ 12, ÷ 10, ÷8, ÷ 6 etc. So 24 is the wrong number.
7. (*d*) Cubes on prime numbers 2, 3, 5, 7, 11. But $11^3 = 1331$.
8. (*d*) Add 4 and double. Thus, 132 is a wrong number.
9. (*d*) +7, +5, +7, +5, +7, +5.
10. (*a*) 7 × 8, 8 × 9, 9 × 10, 10 × 11, 11 × 12, 12 × 13
11. (*a*) 5^2, 7^2, 9^2, 11^2 etc.
12. (*b*) +5, +8, +11, +14, +17, +20
13. (*d*) Add 1^2, 2^2, 3^2, 4^2, 5^2, 6^2.
14. (*c*) Subtract 3 and divide by 2.
15. (*a*) × 2 + 1 etc.
16. (*d*) 10 × 3 – 4; 26 × 3 – 4 etc.
17. (*a*) 14^2, 13^2, 12^2, ..., 9^2.
18. (*d*) × 2 – 2 etc.

19. (c) 87 is not a prime number.

20. (b) Each term is 4 more than twice the next term.

21. (c) $T_1 \times 2 + 1$, $T_2 \times 3 + 1$, $T_3 \times 2 + 1$, $T_4 \times 3 + 1$, $T_5 \times 2 + 1$, $T_6 \times 3 + 1$ etc.

22. (c) Each term at even place in the series is twice the preceding term

23. (d) $11 \times 2 + 2$; $24 \times 3 + 2$, $74 \times 4 - 4$, $298 \times 5 + 2$ etc.

24. (c) Two series : 75, 72, 69, 66 and 79, 80, 83. So 79 is wrong. 77 is correct.

25. (b) Difference between two terms : 1^2, 2^2, 3^2, 4^2, 5^2. Hence 20 is wrong.

TYPE EIGHTEEN

1. (e)	**2. (a)**	**3. (c)**	**4. (d)**	**5. (a)**
6. (d)	**7. (e)**	**8. (b)**	**9. (c)**	**10. (d)**
11. (c)	12. (a)	13. (b)		

TYPE NINETEEN *Answers (Blood Relations)*

1. (c) Grandfather's only son ⇒ father; Daughter of father ⇒ Sister
∴ Manish is that lady's brother.

2. (a)

3. (a) Mother's husband ⇒ Father; Father's mother ⇒ Grandmother
Grandmother's daughter ⇒ Father's sister; Father's sister ⇒ Aunt.
∴ The lady is Rohit's aunt.

4. (a) Wife of her husband ⇒ herself; Brother of her daughter ⇒ her son.
∴ The man is Ritu's son.

5. (c) Only son of woman's grandfather ⇒ woman's father; Man's brother's father ⇒ Man's father. So the woman is man's sister.

6. (a) Grand father's only son ⇒ father; daughter of father ⇒ sister. So Ramesh is lady's brother.

7. (a) Daughter of brother-in-law is niece. Mother's niece ⇒ cousin. So, the girl is the cousin of Rani's friend.

8. (a) Father's wife ⇒ mother; mother's brother ⇒ uncle; Uncle's son ⇒ Cousin
∴ Raj is Sushant's cousin.

9. (d) Father's wife ⇒ mother; mother's only son ⇒ himself; so the girl is man's daughter.

10. (c) Father's father ⇒ grandfather; Grandfather's grand daughter ⇒ sister; Sister's husband ⇒ brother-in-law. So, Sham is Ram's brother-in-law.

11. (c) Only son of her grandfather ⇒ her father; man's brother's father ⇒ man's father. So man's father is her father i.e. she is the man's sister.

12. (d) Let Mohit's mother be X. Then X is the only daughter of Sunder's mother means Sunder is the brother of X. So, Sunder is Mohit's maternal uncle.

13. (d) My mother's mother ⇒ my grandmother; my grandmother's only son ⇒ my maternal uncle. So the woman is man's niece.

14. (b) Father's wife ⇒ mother; mother's daughter ⇒ sister; sister's younger brother ⇒ my younger brother. So, the boy is Deepak's brother.

15. (b) Brother of uncle's daughter ⇒ uncle's son ⇒ cousin; Man is Soni's cousin.

Questions 16 - 19 :

B is the son of C but C is not the mother of B means C is the father of B. A is married to C means A is the mother of B. F is the brother of B means F is son of A and C. D is the daughter of A means D is daughter of A and C.

16. (d) A is the mother and hence female. B is the son and hence male. C is the husband and hence a male. D is the daughter and hence female. E is the brother and hence Male. F is the son and hence male. So, there are four males.

17. (d) A is the mother of B.

18. (c) A has son B, son F and daughter D i.e. three children.

19. (d) Females are only the mother, A and daughter D.

20. (a) P + R – Q means P is the son of R who is the wife of Q i.e. Q is the father of P.

21. (c) P × R ÷ Q means P is the brother of R who is the mother of Q i.e. P is the uncle of Q.

22. (b) P = R + Q means P is the sister of R who is the mother of Q i.e. P is the aunt of Q.

23. (a) P = R ÷ Q means P is the sister of R who is the mother of Q i.e. P is the aunt of Q.

24. (a) P + Q – R means P is the daughter of Q who is the husband of R i.e. R is P's mother.

25. (c) P × Q + R means p is the brother of Q who is the daughter of R i.e. P is the son of R.

26. (*a*) P + Q × R means P is the daughter of Q who is the brother of R i.e. P is the niece of R.

27. (*a*) X is the aunt of the Y means X is the sister of the father (say D) of Y i.e. X * D Δ Y.

28. (*d*) A is the daughter of B means A is the sister of son (say C) of the wire (say D) of B i.e. A □ C * D O B.

TYPE TWENTY

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

TYPE TWENTY ONE

1. (*c*)	2. (*e*)	3. (*d*)	4. (*a*)	5. (*c*)
6. (*b*)	7. (*c*)	8. (*d*)	9. (*a*)	10. (*b*)
11. (*a*)	12. (*b*)	13. (*c*)	14. (*a*)	15. (*d*)

TYPE TWENTY TWO

Exercise - 1

A — Accountant; B — Lawyer; C — Teacher or Manager; D — Engineer (Male); E — (Male) Teacher or Manager (Female); F — Doctor; G — Student (Male)

D is the grandfather of G and G is the grandson of E, thus E must be the grandmother of G.

Now D is the father of B and the grandfather of G, so B is the father of G.

Since, no lady is a lawyer, therefore B is a lawyer.

∴ C or A or F is wife of B (E is wife of D)

1. (*d*) 2. (*c*)

3. (*c*) Regarding A and F, no conclusion can be drawn.

4. (*e*) 5. (*d*)

Exercise - 2

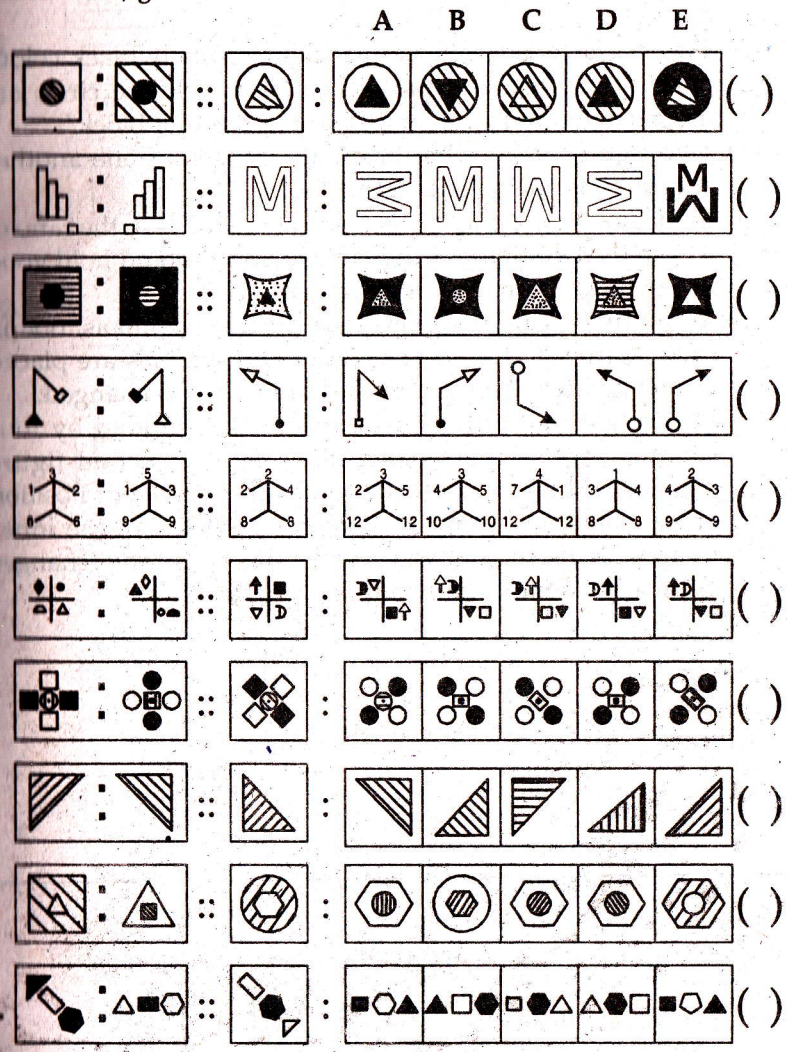
1. (*a*) 2. (*c*) 3. (*d*)

4. (*b*) 5. (*b*)

NON-VERBAL REASONING

FIGURE ANALOGIES

Directions : *In the following question two figures in block 1, bear certain relationship. The same relationship should be obtained between block 2 and one of the alternatives from the answer figure.*



Hint :

(1) There are two changes in the first time two figures. In the first figure the circle is not coloured but is having parallel lines whin it. In the second figure the circle is coloured black and the parallel lines are in the space outside the circle. Same two changes should be observed in the second block and one of the alternatives from the answer figure.

(2) In the first block the second figure is a mirror image of the first one.

(3) Two characteristics of the first figure namely black colour within the circle and parallel lines outside the circle are interchanged in the second figure of the first block.'

(4) Two figures in the first block are images of one another and there is a change in the colour.

(5) In the first block sum of the digits at the top is in the ratio of 6 : 9 in the two figures. The same relation should hold good in the third figure and the answer figure.

(6) In the first figure there are four different symbols, one in each quarter. In the second figure two symbols are placed in one quarter, their colour and order is also changed.

(7) In the first figure the small circle is surrounded by four squares, two of them being black. In the second figure position of the circle and the squares is changed. Position of the coloured figures is also changed Design the inner figure also needs a change. There are thus three changes (Similarly attempt the remaining questions.)

ANSWERS

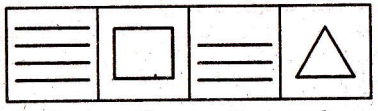
(1) D	(2) B	(3) A	(4) E	(5) C
(6) C	(7) E	(8) B	(9) C	(10) A

SERIES

Directions : *Study the problem figures carefully and try to establish the relationship between various units. From the answer-set, pick out the figure which is appropriate to completed the series.*

Problem Figures

1.



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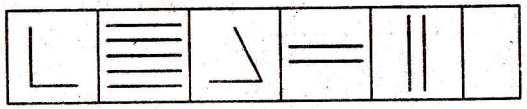

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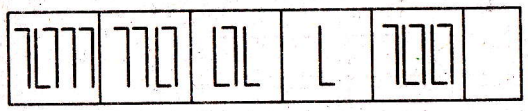

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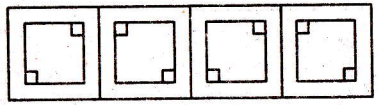

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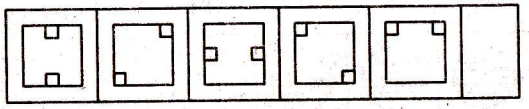

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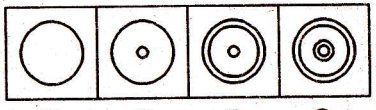

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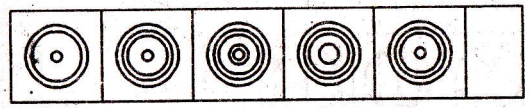

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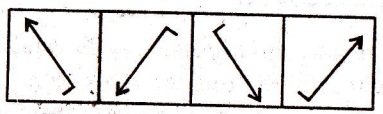

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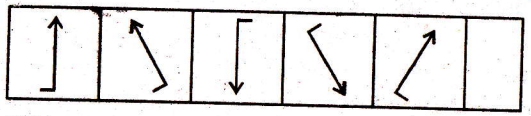

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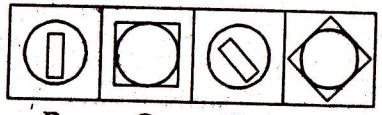

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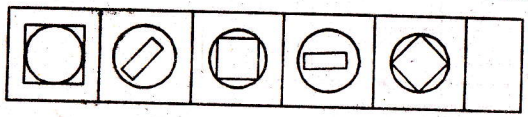

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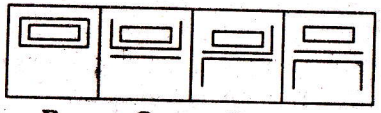

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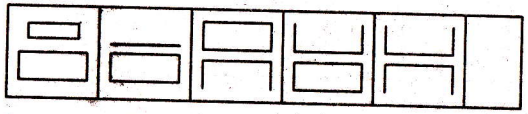

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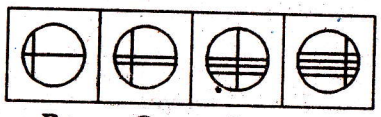

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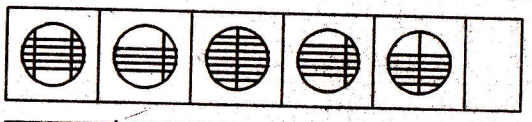

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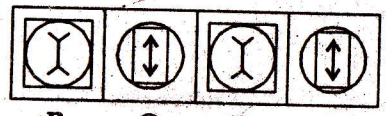

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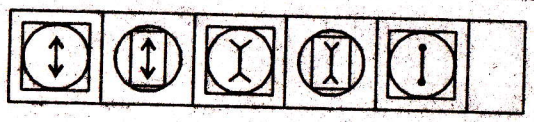

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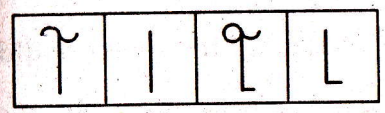

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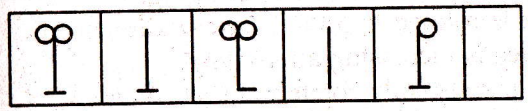

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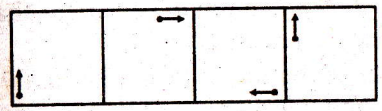

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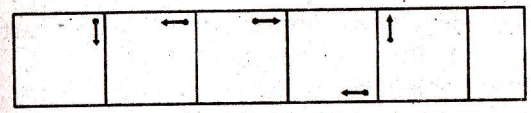

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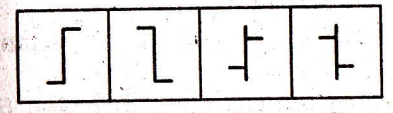

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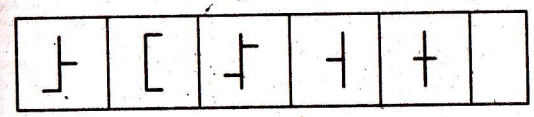


Hints :

(1) Number of lines is decreasing; the lines should be horizontal.
(2) Number of vertical lines is increasing; the position of the horizontal stroke is alternately changing.
(3) The square is rotated in anti-clockwise direction.
(4) No. of circles is increasing alternately.
(5) The arrow is gradually rotated anti-clockwise.
(6) In the alternate figures there is a small rectangle that is rotated in anti-clockwise direction.
(7) There are two rectangles in the first figure. Gradually the outer rectangle is losing one side and it is placed separately to form a new square.
(8) No. of horizontal lines is increasing, while the vertical line is gradually shifting to the right.
(9) Figures in the problem-set are alternately changing.
(10) A part is being added to alternate figures.
(11) Arrow is moving a distance of 1½ sides of the rectangle in clockwise direction.
(12) The two horizontal strokes are changing direction first and then shifting towards the centre of the vertical line.

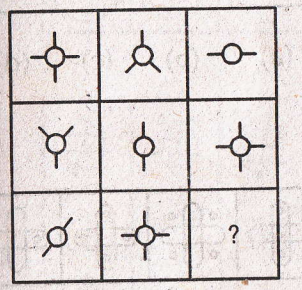
ANSWERS

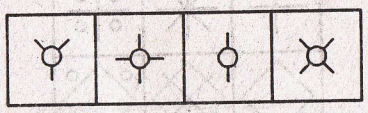
(1) S (2) T (3) Q (4) R (5) Q (6) S (7) P (8) S
(9) R (10) P (11) R (12) S

FIGURE MATRIX

Directions : *In each of the following questions, find out which of the answer figures (a), (b), (c) and (d) completes the figure-matrix ?*

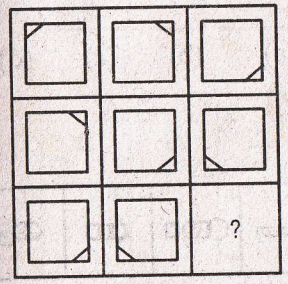
1.

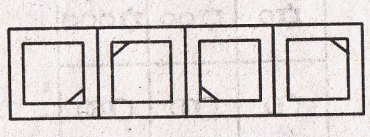




(a) (b) (c) (d)

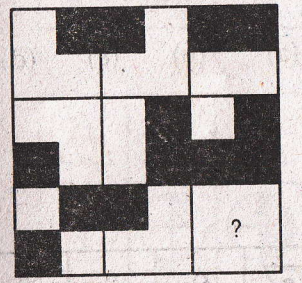
2.

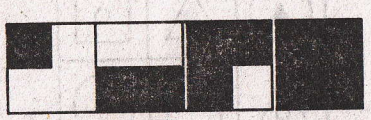




(a) (b) (c) (d)

3.





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

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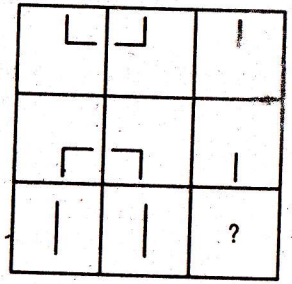

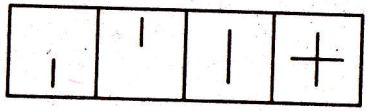

(a) (b) (c) (d)

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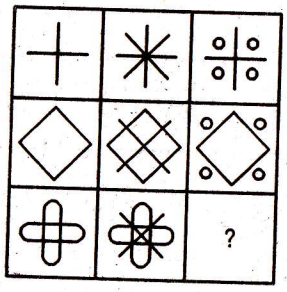

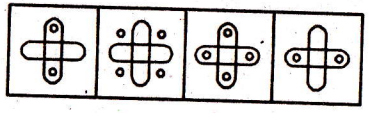

(a) (b) (c) (d)

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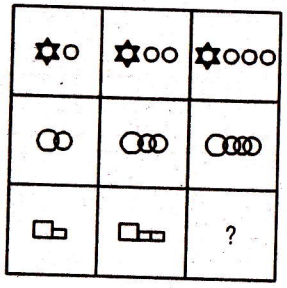

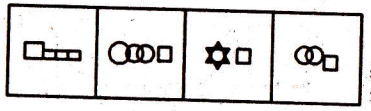

(a) (b) (c) (d)

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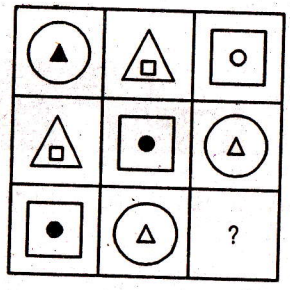

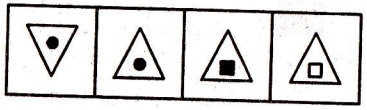

(a) (b) (c) (d)

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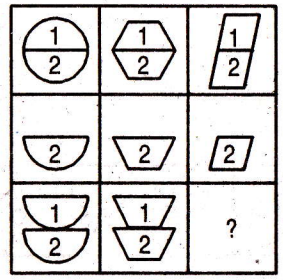
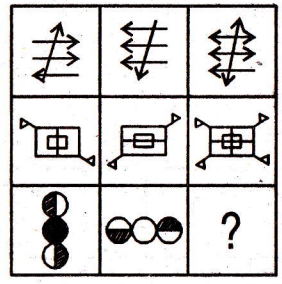
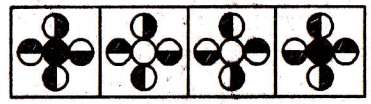


(a) (b) (c) (d)

9.





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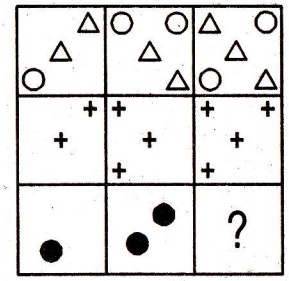
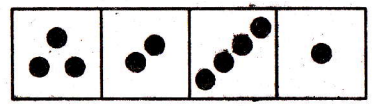
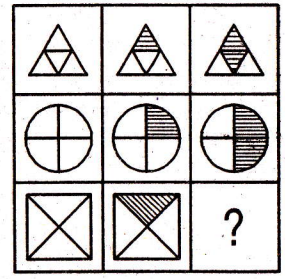
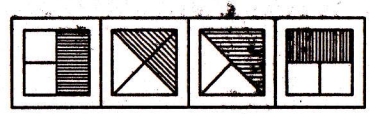




(a) (b) (c) (d)

11.





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

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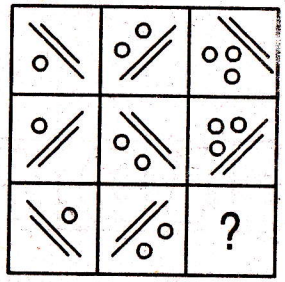
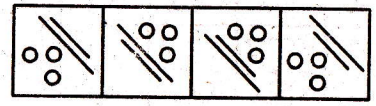
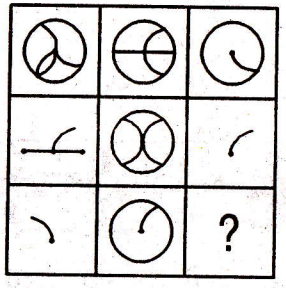
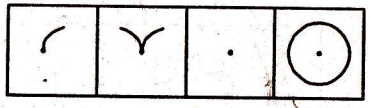




(a) (b) (c) (d)

14.





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

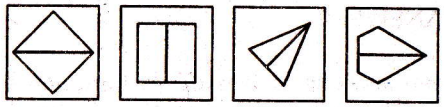
ANSWERS

1. (a) Each row of the matrix contains one circle with two bars, one with three bars and one circle with four bars.
2. (b) The line inside the square moves from one corner to another, clockwise, as we move from left to right in a row.
3. (c) The third tile from the left, in a row has design which is a union of the designs of the two tiles on its left.
4. (c) The third column contains the line which is common to the designs in the first two columns.
5. (b) As we move from the first to the second figure in a row, the figure gets intersected by two mutually perpendicular lines. In the next step, dots appear at the ends of these lines and the lines disappear to give the third figure.
6. (a) In each row, the number of smaller figures increase by one at each step from left to right.
7. (d) There are 3 outer figures (circle, triangle & square), 3 inner figures (circle, triangle and square) and 3 types of shading—plane, line and dark.
8. (c) Each figure in third row comprises of fig. 1 of first row in inverted position and fig. 2 as it is.
9. (d) The third figure in each row is the union of first two figures.
10. (a) The number of objects increases by 1 at each step from left to right in each row.
11. (b) The first figure in each row is completely unshaded, the second one has one-fourth part shaded and the third one is half shaded.
12. (b) In each figure, the circles are towards the longer line. The number of circles increases by 1 at each step from left to right in each row. Also, the positions of the lines in the first and third figures are identical.
13. (c) The third figure in each row comprises of the parts common to the first two figures.

CHOOSING A SIMILAR FIGURE

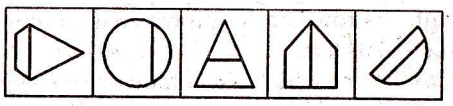
Directions : *The following problems contain four figures (A, B, C and D) forming the Problem Set and five numbered figures (1, 2, 3, 4 & 5) forming the Answer Set. The four Problem figures have certain common features. Select a figure from amongst the Answer Figuress which is similar to the Problem Figuress.*

1.



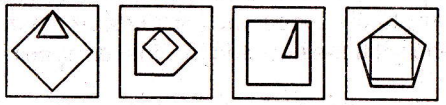
(A) (B) (C) (D)

Answer Figures



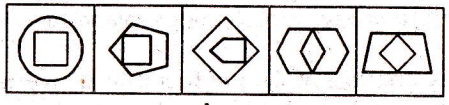
(1) (2) (3) (4) (5)

2.



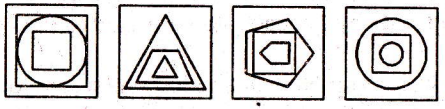
(A) (B) (C) (D)

Answer Figures



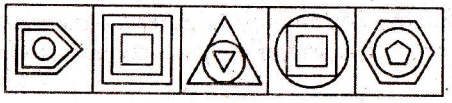
(1) (2) (3) (4) (5)

3.



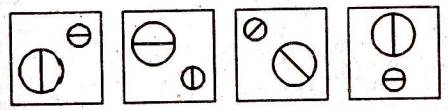
(A) (B) (C) (D)

Answer Figures



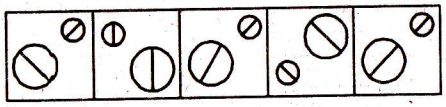
(1) (2) (3) (4) (5)

4.



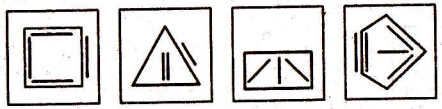
(A) (B) (C) (D)

Answer Figures



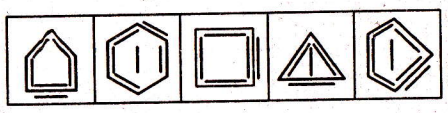
(1) (2) (3) (4) (5)

5.



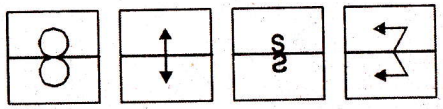
(A) (B) (C) (D)

Answer Figures



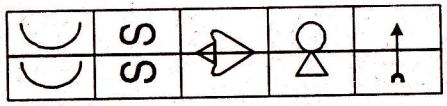
(1) (2) (3) (4) (5)

6.



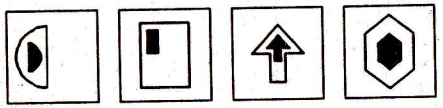
(A) (B) (C) (D)

Answer Figures



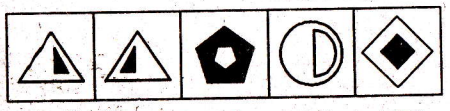
(1) (2) (3) (4) (5)

7.



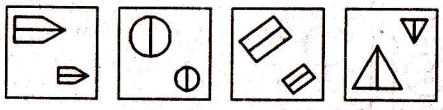
(A) (B) (C) (D)

Answer Figures



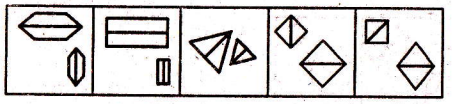
(1) (2) (3) (4) (5)

8.



(A) (B) (C) (D)

Answer Figures



(1) (2) (3) (4) (5)

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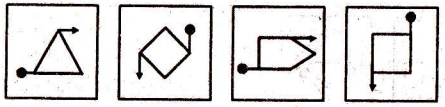
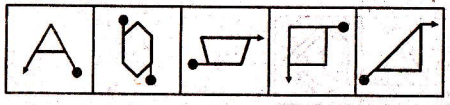


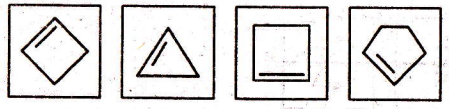
(A) (B) (C) (D)

Answer Figures



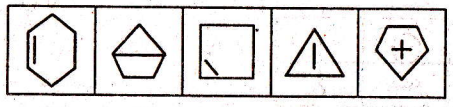
(1) (2) (3) (4) (5)

10.



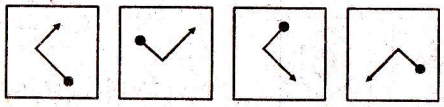
(A) (B) (C) (D)

Answer Figures



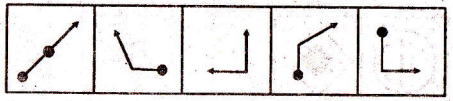
(1) (2) (3) (4) (5)

11.



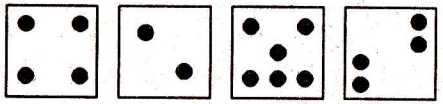
(A) (B) (C) (D)

Answer Figures



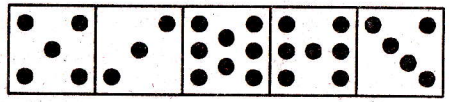
(1) (2) (3) (4) (5)

12.



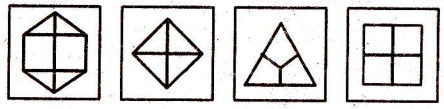
(A) (B) (C) (D)

Answer Figures



(1) (2) (3) (4) (5)

13.

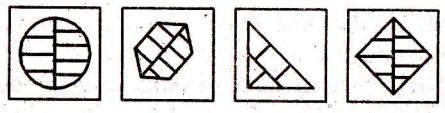


(A) (B) (C) (D)

Answer Figures

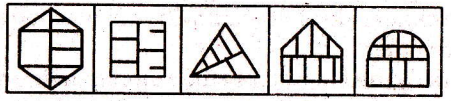
(1) (2) (3) (4) (5)

14.



(A) (B) (C) (D)

Answer Figures



(1) (2) (3) (4) (5)

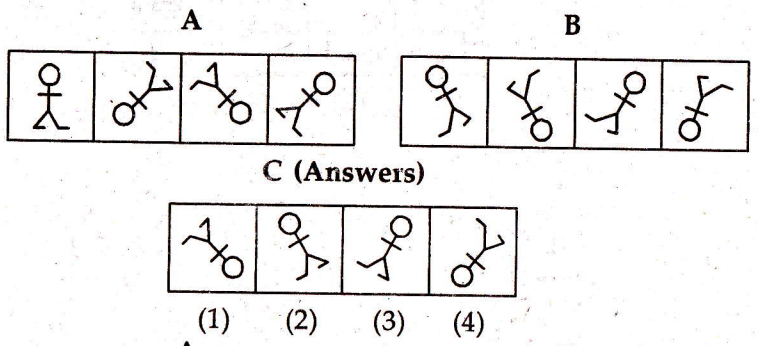
ANSWERS

1. (4) : The central line is the line of symmetry.
2. (2) : The inner figure has one less number of sides than the outer figure.
3. (3) : The outermost and the innermost figures are similar but the middle figure is different.
4. (1) : The diameters in the two circles of each figure are perpendicular to each other.
5. (2) : The number of lines inside each figure is one less than the number of sides in the figure. Also, there is a line outside each figure.
6. (3) : The figure on either side of the central horizontal line are water images of each other.
7. (5) : The inner dark figure is similar to the outer light figure.
8. (3) : The central line in the two figures are parallel to each other.
9. (3) : The arrow and the pin point in exactly opposite directions.
10. (1) : A line is present along one of the sides of each figure and it is inside the figure.
11. (5) : The arrow and the pin are at right angles to each other.
12. (3) : There are even number of dots in all other figures.
13. (2) : The figure is divided into as many parts as the number of sides in it.
14. (4) : The lines on either side of the central line touch the central line in the spaces between two opposite placed lines.

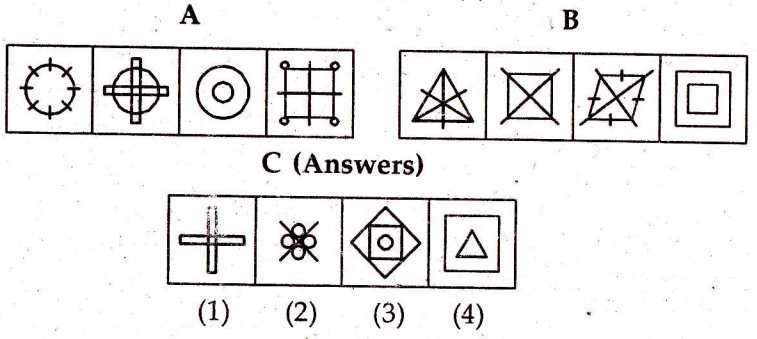
CLASSIFICATION

Directions : *State the serial number of 2 figures in block C which bear the greatest similarity to figures in block A. Figures in Block B are to help you.*

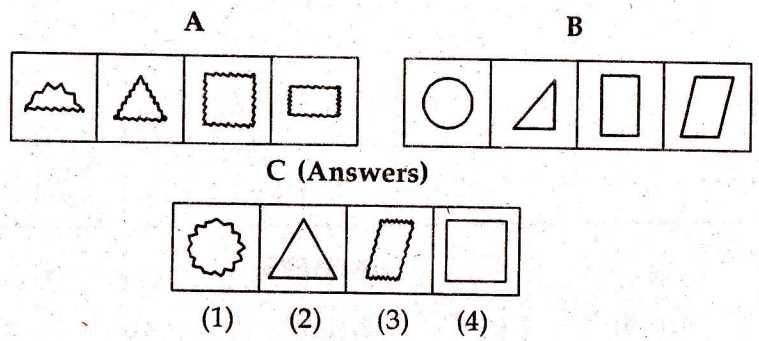
1.



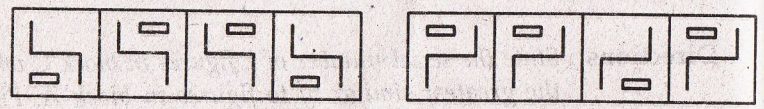
2.



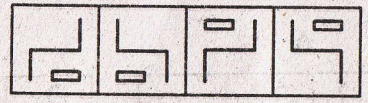
3.



4. A B



C (Answers)



(1) (2) (3) (4)

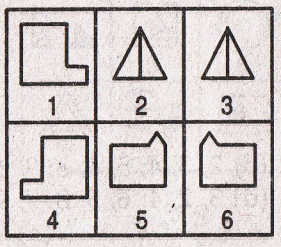
ANSWERS

1. (1, 4) 2. (2, 4) 3. (1, 3) 4. (2, 4)

GROUPING OF IDENTICAL FIGURES

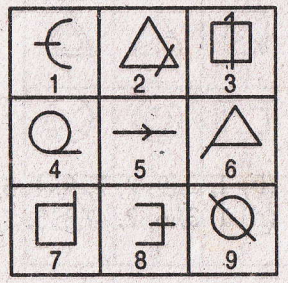
Directions : *In each of the following questions, group the given figures into three classes using each figure only once.*

1.



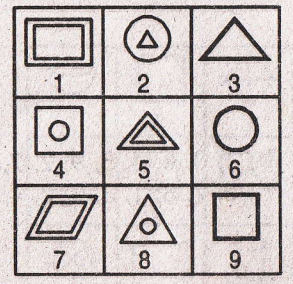
(a) 1, 4; 2, 3; 5, 6 (b) 1, 5; 2, 6; 4, 3
(c) 1, 6; 2, 3; 4, 5 (d) 1, 2; 3, 6; 4, 5

2.



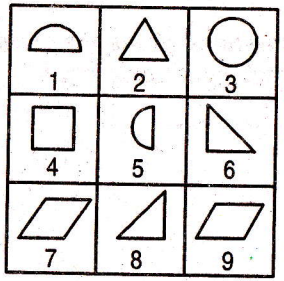
(a) 1, 3, 9; 2, 5, 8; 4, 6, 7 (b) 4, 8, 9; 1, 2, 5; 3, 6, 7
(c) 2, 5, 9; 1, 3, 8; 2, 6, 7 (d) 1, 8, 9; 4, 6, 7; 2, 3, 5

3.



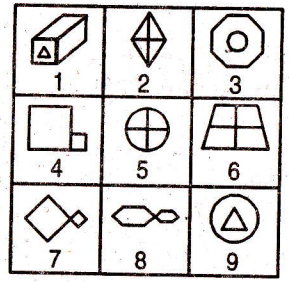
(a) 1, 5, 7; 2, 4, 6; 3, 9, 8 (b) 1, 5, 7; 2, 4, 8; 3, 6, 9
(c) 1, 5, 7; 4, 9, 8; 2, 3, 6 (d) 1, 5, 7; 3, 8, 9; 2, 4, 6

4.



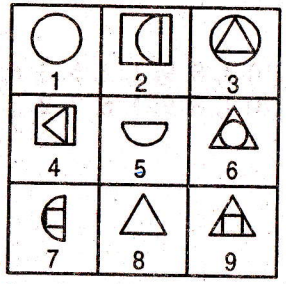
(a) 1, 3, 5; 2, 6, 9; 4, 7, 8
(b) 2, 3, 4; 5, 6, 8; 9, 1, 7
(c) 1, 3, 5; 2, 6, 8; 4, 7, 9
(d) 3, 2, 4; 6, 5, 8; 7, 9, 1

5.



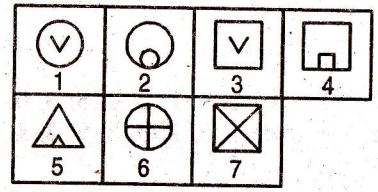
(a) 1, 3, 9; 2, 5, 6; 4, 7, 8
(b) 1, 3, 9; 2, 7, 8; 4, 5, 6
(c) 1, 2, 4; 3, 5, 7; 6, 8, 9
(d) 1, 3, 6; 2, 4, 8; 5, 7, 9

6.



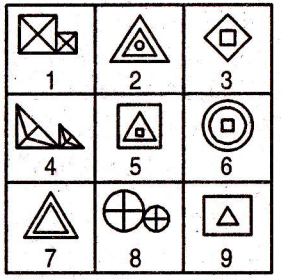
(a) 1, 5, 8; 3, 4, 7; 2, 6, 9
(b) 1, 3, 6; 4, 5, 9; 2, 7, 8
(c) 1, 3, 6; 2, 5, 7; 4, 8, 9
(d) 6, 7, 8; 1, 3, 7; 2, 4, 9

7.



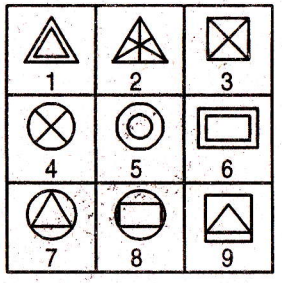
(a) 1, 2, 6; 3, 4, 7; 5
(b) 1, 3; 2, 6; 4, 5, 7
(c) 1, 2, 6, 7; 3; 4, 5
(d) 1, 3; 2, 4, 5; 6, 7

8.



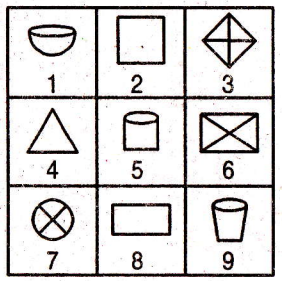
(a) 1, 3, 7; 2, 4, 6; 5, 8, 9
(b) 1, 4, 6; 2, 5, 7; 3, 8, 9
(c) 1, 4, 8; 2, 5, 6; 3, 7, 9
(d) 1, 4, 8; 2, 7, 9; 3, 5, 6

9.



(a) 1, 2, 3; 4, 5, 8; 6, 7, 9
(b) 1, 5, 6; 2, 3, 4; 7, 8, 9
(c) 1, 3, 5; 2, 4, 8; 6, 7, 9
(d) 1, 4, 7; 2, 5, 8; 3, 6, 9

10.



(a) 1, 5, 9; 3, 6, 7; 2, 4, 8
(b) 2, 3, 6; 4, 8, 9; 1, 5, 7
(c) 3, 6, 8; 2, 4, 9; 1, 5, 7
(d) 2, 5, 8; 1, 7, 9; 3, 4, 6

ANSWERS

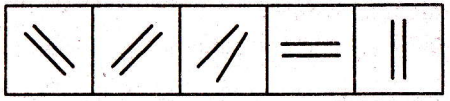
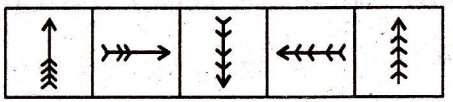
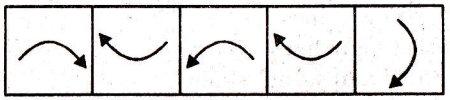
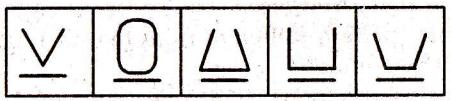
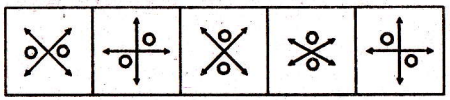
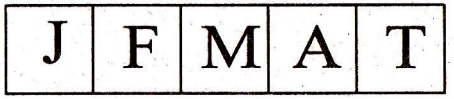
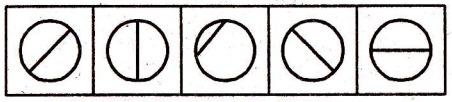
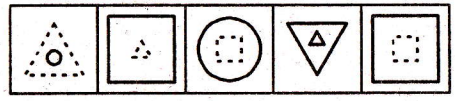
1. (a) : (1, 4), (2, 3) and (5, 6) are pairs of identical figures.
2. (d) : 1, 8, 9 are figures bisected by a straight line.
   4, 6, 7 are figures having an extended arm.
   2, 3, 5 are figure intersected by a line.
3. (b) : 1, 5, 7 are composed of two similar figures, one inside the other.
   2, 4, 8 contain figure placed inside a different figure.
   3, 6, 9 are figures with thick boundaries.
4. (c) : 1, 3, 5 have partially or completely curved boundaries.
   2, 6, 8 are triangles.
   4, 7, 9 are quadrilaterals.
5. (a) : 1, 3, 9 contain one figure inside a different figure.
   2, 5, 6 are divided into four parts by mutually perpendicular lines.
   4, 7, 8 contain similar figures attached to each other.
6. (c) : 1, 3, 6 contain one complete circle each.
   2, 5, 7 contain a semi circle each.
   4, 8, 9 contain a triangle each.
7. (d) : 1, 3 contain V-shaped figure inside another figure.
   2, 4, 5 contain one figure placed inside a similar figure.
   6, 7 are divided into four equal parts by mutually perpendicular lines.
8. (c) : 1, 4, 8 contain similar figures both divided into four parts and attached to each other.
   2, 5, 6 contain three figures (two of which are similar) placed one inside the other.
   3, 7, 9 contain one figure inside the other, which may or may not be similar.
9. (b) : 1, 5, 6 contain similar figures placed one inside the other.
   2, 3, 4 contain straight lines each dividing the figure into two equal parts.
   7, 8, 9 contain one figure enclosed by another different figure.
10. (a) : 1, 5, 9 consist of cup-shaped figures.
    3, 6, 7 contain straight lines dividing the figure into four parts.
    2, 4, 8 are simple geometrical figures.
11. (d) : 1, 2, 7 are single figures.
    3, 5, 9 contain two dissimilar figures one inside the other.
    4, 6, 8 contain two different figures touching each other.

12. (a) : 1, 7, 9 contain two similar figures one inside the other but not touching each other.
    2, 3, 6 contain two similar figures one inside the other and both touching each other.
    4, 5, 8 are divided into equal parts by straight lines emerging from the centre.
13. (c) : 1; 6, 8 consist of three lines, both straight and curved.
    3, 7, 9 consist of figures shaded by oblique lines.
    2, 4, 5 consist of straight lines only.
14. (b) : 2, 6, 9 contain triangles each enclosing another figure and three medians.
    1, 5, 7 contain rectangles each enclosing an other figure and two diagonals.
    3, 4, 8 contain circles each enclosing another figure and two diameters.
15. (a) : 1, 2, 3 consist of two straight lines.
    4, 5, 6 consist of three straight lines.
    7, 8, 9 are figures form of four straight lines.
16. (a) : 1, 2, 5 contain similar pattern enclosed inside different figures.
    3, 7, 8 contain similar pattern (different from that in 1, 2, 5) enclosed inside different figures.
    4, 6, 9 are figures enclosing a triangle with one drawn median.

CHOOSING THE ODD FIGURE

Directions : *Out of the five figures (A), (B), (C), (D) and (E), given in each problem, four are similar to a certain way. However, one figure is not like the other four. Choose the figure which is different from the rest.*

(A) (B) (C) (D) (E)

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
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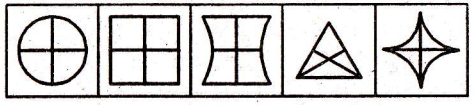
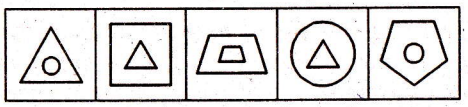
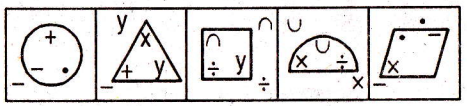
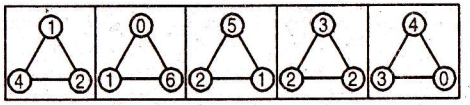
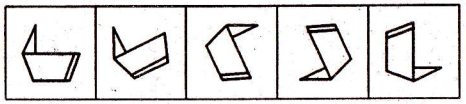
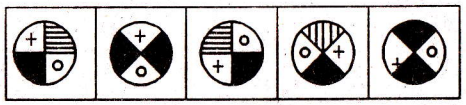
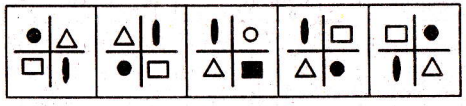
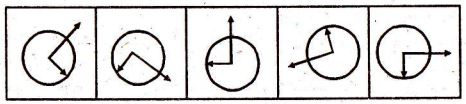
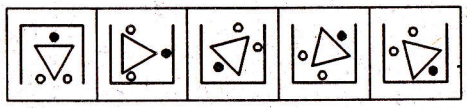
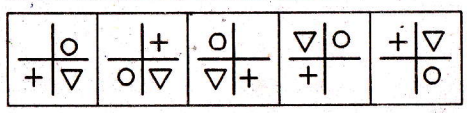
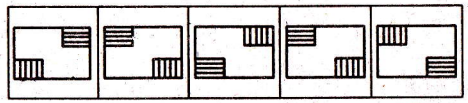
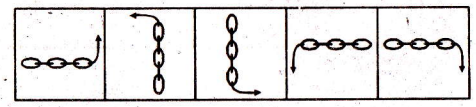
10. 

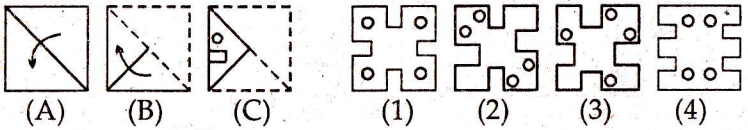
(A) (B) (C) (D) (E)

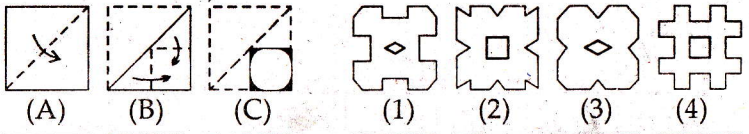
11. 
12. 
13. 
14. 
15. 
16. 
17. 
18. 
19. 
20. 
21. 

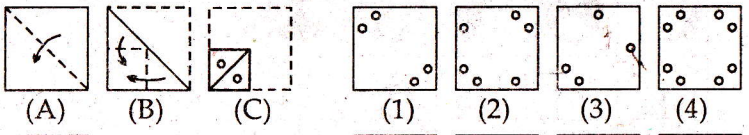
PAPER CUTTING

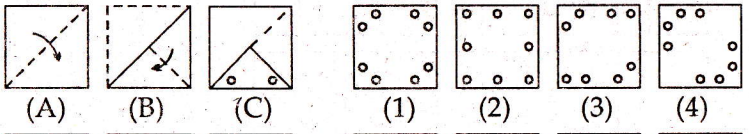
Directions : *Figure, (A), (B) are showing a sequence of folding of a piece of paper, and fig. (C) shows the manner is which the folded paper has been cut. These three figures are followed by four answer figures from which you have to choose a figure which would most closely resemble the unfolded from the fig. 3.*

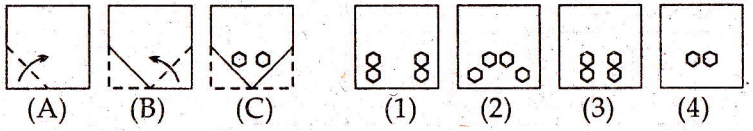
Problem Figures **Answer Figures**

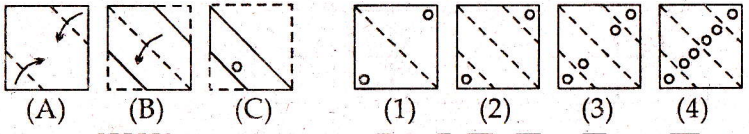
1. 

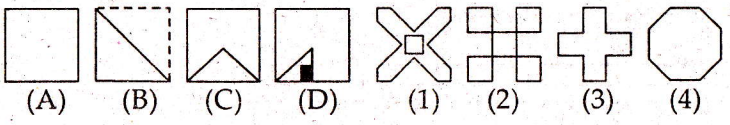
2. 

3. 

4. 

5. 

6. 

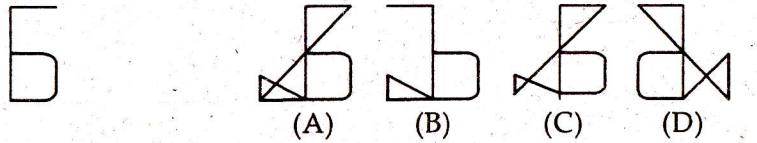
7. 

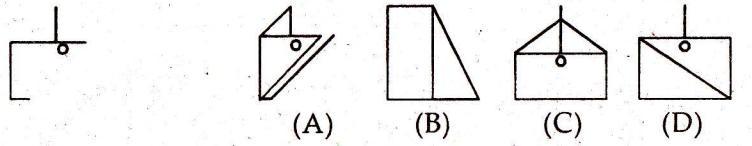
ANSWERS

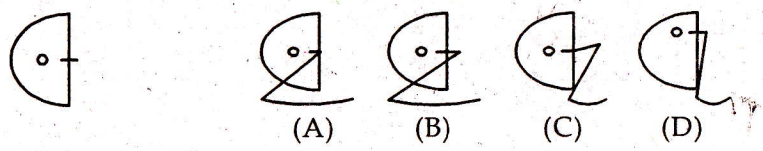
1. (3) 2. (3) 3. (4) 4. (1) 5. (2) 6. (3) 7. (2)

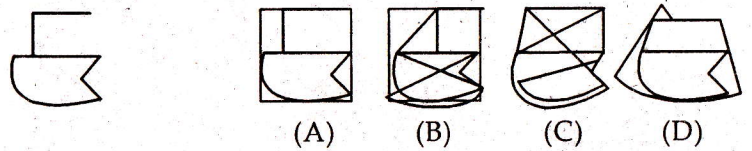
SPOTTING THE EMBEDDED FIGURE

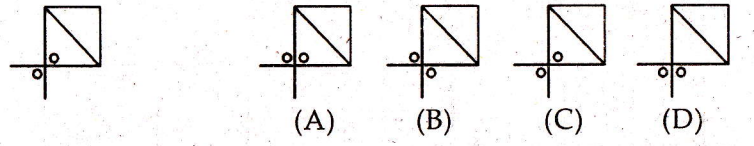
Directions : *Every question consist of tap figure and four numbered figures. You have to find out from amongst the numbered figures, the figures in which the top figure is concealed. The concealed figure should be reproduced exactly in the figure which represents the answer.*

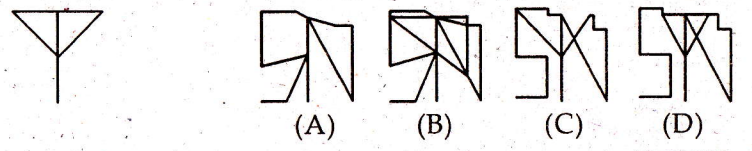
1. 

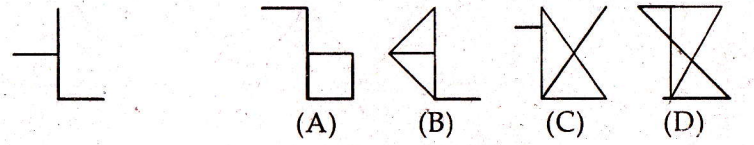
2. 

3. 

4. 

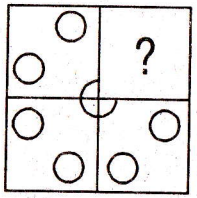
5. 

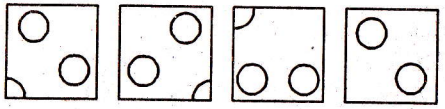
6. 

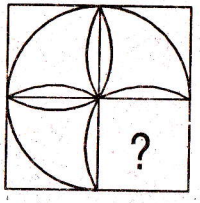
7. 

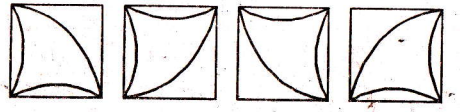
FIND THE PART OF INCOMPLETE FIGURE

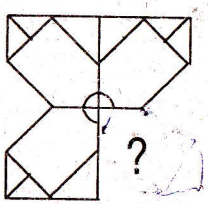
Directions : *In this type of questions figures are divided into four parts and one part is missing, you have to find out the missing part (?) from the given alternative (A), (B), (C) and (D).*

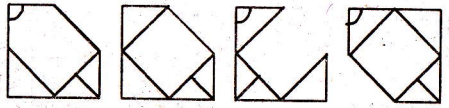
1. 

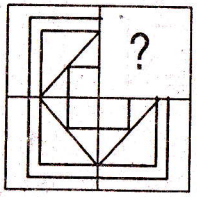


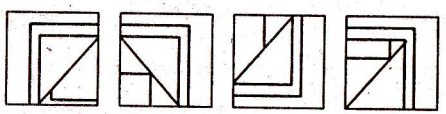
2. 

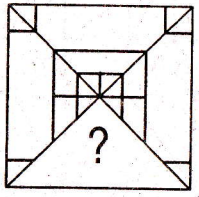


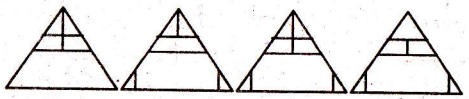
3. 

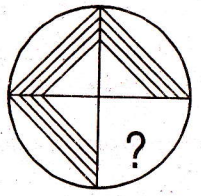


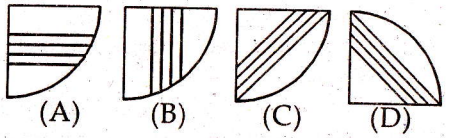
4. 

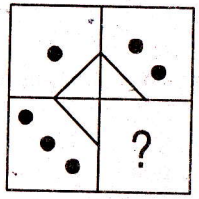


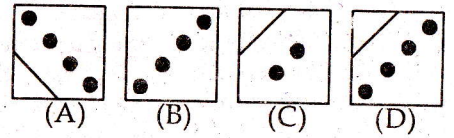
5. 

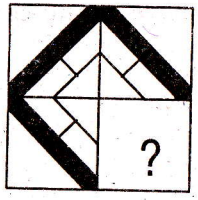


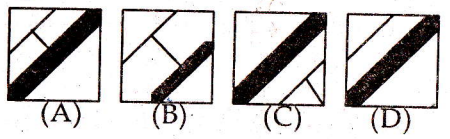
6. 

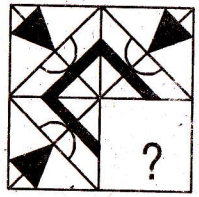


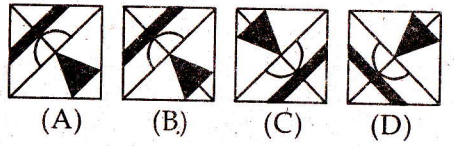
7. 

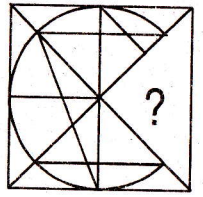


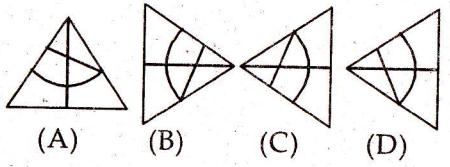
8. 



9. 



10. 



ANSWERS

1. (a)	2. (b)	3. (a)	4. (b)	5. (b)
6. (c)	7. (d)	8. (a)	9. (d)	10. (c)

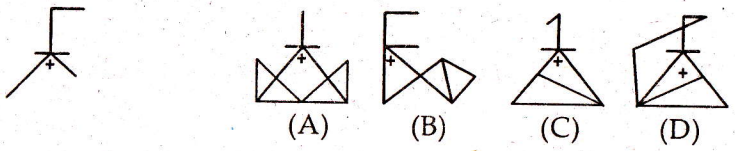
Hints :

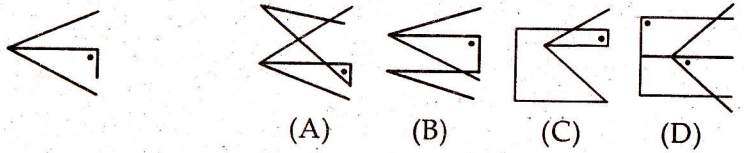
(10) Each figure except one is divided into four equal parts.
(11) The outer and inner figures in each block are dissimilar with one exception.
(12) There are three symbols inside the figure, two of them also appear outside.
(13) Find the sum of the digits at the three corner points.
(14) Four of the figures overlap if rotated.
(15) Figures a and c, b and e form pairs.
(16) The four symbols change their position in anti-colockwise direction in four of the figures.
(17) Four of the figures overlap if rotated.
(18) The black spot is near the base of the triangle.
(19) The symbols move in clockwise direction.
(20) The small rectangles in each block move in anti-clockwise direction. Find the exception.
(21) The chain and the arrow overlap if rotated.

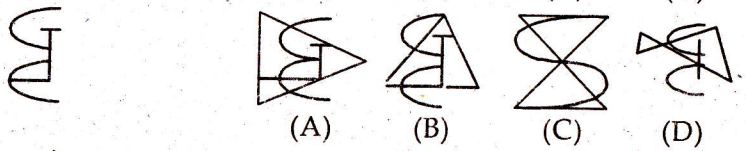
ANSWERS

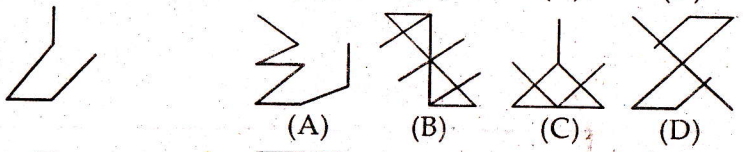
1. (C) : Only in this figure, the two lines are not parallel.
2. (B) : This figure contains four arrowheads while each one of the other figures contains five arrow heads.
3. (C) : The arrow head of this figure only, indicates anticlockwise motion; while each one of the others shows a clockwise motion.
4. (B) : Each one of the remaining figures is made by straight lines only.
5. (D) : In all other figures, the lines cut each other at right angles.
6. (E) : Others are the first letters of the names of the months in a year viz., January, February, march and April respectively, while T is not the first letter of the name of the next month viz. May.
7. (C) : In this figure only, the central line is not a diameter.
8. (D) : In all other cases, one of the two figures is made of dotted lines.
9. (C) : The number of sides in the outer, middle and inner figures should be either in the increasing or decreasing order.

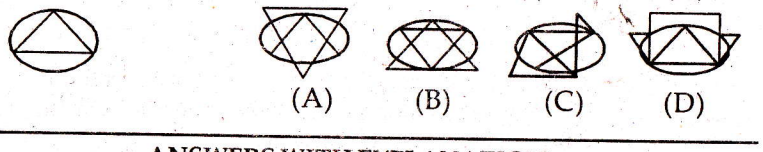
10. (D)	11. (C)	12. (B)
13. (C)	14. (E)	15. (D)
16. (C)	17. (C)	18. (B)
19. (A)	20. (D)	21. (E)

8. 

9. 

10. 

11. 

12. 

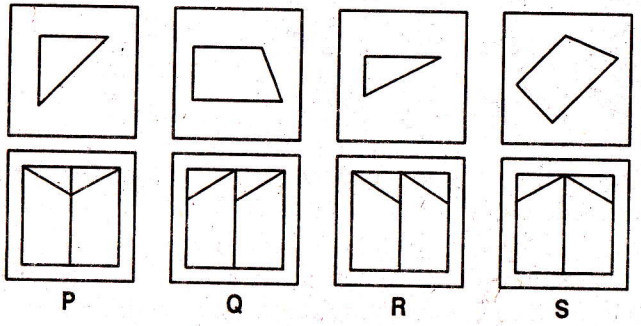
ANSWERS WITH EXPLANATION

1. (A) The question pattern figure is completely emerged in figure no. 1 of the answer pattern Fig. No. 3 also seems like same but in the figure one line is increased towards downwards therefore is differ with the question pattern.
2. (A) The answer figure no. 1. The figure 4 also seems like this but it is a complete square but the question fig. a rectangle one.
3. (B) In the rest of the figures the middle circle and the line are not like the question fig.
4. (A) In the rest of the figures the upper lines are not the same as of the question fig.
5. (C) In the rest of the figures the small circles are not the same as of the question fig.
6. (D) The rest of the figures are different with the question fig.
7. (B) In the rest of the figures either the lower part or the middle parts are different.
8. (D) In the rest of the figures the upper part is not as of the question fig.
9. (B) In the rest of the figures the line near dot is smaller
10. (B) Check the circular loop of C.
11. (C) 12. (D)

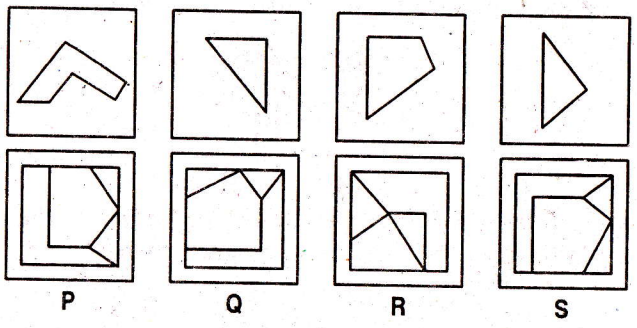
PUTTING THE PIECES TOGETHER (SPATIAL ABILITY)

Directions : *In each item below are given four pieces which can be put together like the pieces in a wooden puzzle, to form one of the rectangles given in each question. The pieces can be visually moved around but they cannot be turned over. Decide which figure can be formed with each set of pieces.*

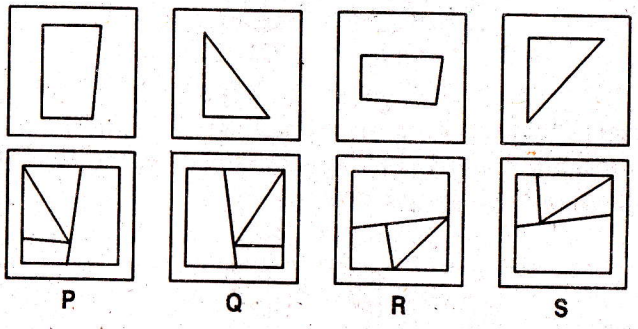
Answer

1. 

( )

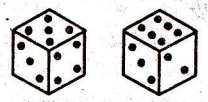
2. 

( )

3. 

( )

6. Two positions of a dice are shown below.

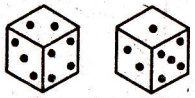


(i) (ii)

If 1 is at the bottom, which number will be on the top ?

(a) 2 (b) 3 (c) 4 (d) 5

7.

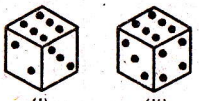


(i) (ii)

What is the number of dots at the bottom face of the left hand side dice?

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

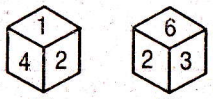
8. Two positions of a dice with 1 to 6 dots on its sides are shown below. If the dice is resting on the side with three dots, what will be the number of dots on the side at the top?



(i) (ii)

(a) 1 or 5 (b) 2 (c) 3 (d) 5

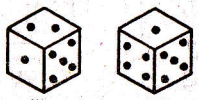
9. What will be the number at the bottom if 5 is at the top; the two positions of the dice being as given below :



(i) (ii)

(a) 1 (b) 2 (c) 3 (d) 6

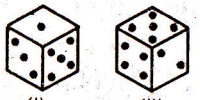
10. Observe the dots on a dice (one to six dots) in the following figures. How many dots are contained on the face opposite to that containing four dots?



(i) (ii)

(a) 2 (b) 3 (c) 5 (d) 6

11.

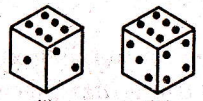


(i) (ii)

What is the number of dots on the face opposite 2 dots ?

(a) 1 (b) 3 (c) 4 (d) 6

12. Two positions of a block are shown below :



(i) (ii)

When six is at the bottom, what number will be at the top?

(a) 1 (b) 2 (c) 4 (d) 5

ANSWERS

1. (a) : From fig. (i), (ii) and (iii), it is clear that the numbers 2, 3, 4 and 5 lie adjacent to the number 6. So, 1 lies opposite 6.
2. (a) : From fig. (i), (ii) and (iii), it is clear that the numbers 1, 5, 4 and 2 lie adjacent to the number 3. So, 6 lies opposite 3. From fig. (ii) and (iii), it follows that 3, 5 and 2 lie adjacent to 4. So, 1 and 6 can lie opposite 4. But 6 lies opposite 3. Therefore, 1 lie opposite 4.
3. (c) : From fig. (i), (iii) and (iv), it is clear that the numbers 1, 6, 5 and 2 lie adjacent to the number 3. So, 4 lies opposite 3.
4. (c) : From fig. (i), (iii) and (iv), we find that the numbers adjacent to 4 are 5, 6, 1 and 2. So, 3 lies opposite 4 i.e. 4 lies opposite 3.
5. (d) : From fig. (ii) and (iii) it is clear that C, D, B and F cannot appear opposite E. So, A appears opposite E. i.e. E is the alphabet opposite A.

Hints : Initially it is difficult to visualise the pattern of unfolding the piece of paper. Take a square piece of paper, fold it as shown, then unfold it. Verify your response with the unfolded piece of paper.

(1) Piece of paper is folded twice, hence the unfolded paper will look like n. The fold will appear four times.

(2) The piece is folded thrice, the fold will appear eight times.

(3) The piece is folded thrice but the third fold is different from the earlier one.

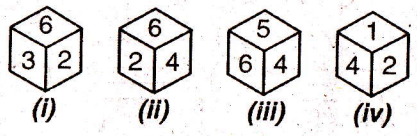
(4) First fold will be on the diagonal.

(5) and (6). Take a triangular piece and try the folds.

ANSWERS

(1) n (2) m (3) *l* (4) p (5) *l* (6) p

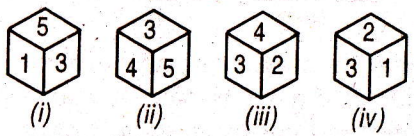
PROBLEMS ON DICE

1. 

(i) *(ii)* *(iii)* *(iv)*

Which number is on the face opposite 6 ?

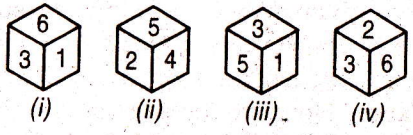
(a) 1 (b) 2 (c) 3 (d) 4

2. 

(i) *(ii)* *(iii)* *(iv)*

What number is opposite 4?

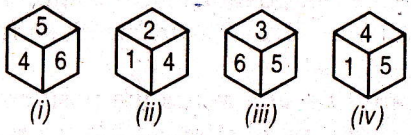
(a) 1 (b) 2 (c) 5 (d) 6

3. 

(i) *(ii)* *(iii)* *(iv)*

What number is opposite 3?

(a) 2 (b) 3 (c) 4 (d) 6

4. 

(i) *(ii)* *(iii)* *(iv)*

Which number is opposite 3?

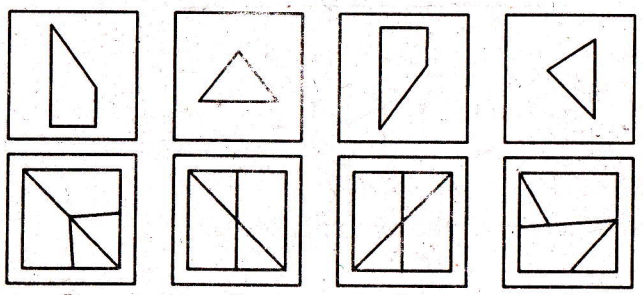
(a) 1 (b) 2 (c) 4 (d) 6

5. The six face of a die have been marked with alphabets A, B, C, D, E and F respectively. This die is rolled down three times. The three positions are shown as

(i) *(ii)* *(iii)*

Find the alphabet opposite A?

(a) B (b) C (c) D (d) E

4.  ( )

P Q R S

Hints : It is difficult to visualise the movement of the pieces for want of practice. In order or to have practice in visualising, take four pieces of paper and cut them according to the shapes shown in the question. Try to slide the pieces together to form one whole figure. How does it look like? Compare it to the four alternative given. While attempting such questions it is desirable to concentrate attention on some characteristics e.g. is there an isosceles or an equilateral triangle in the whole figure? How are the angles? Are they equal? Is there any right angle in the figure? Such factors should be taken into account while studying the problem.

(1) The alternatives P and S are not possible. Now compare Q and R. Compare the four sections of R with the given four pieces.

(2) Study the first piece. Can it be slided into the position of figure S? In the figure Q the small triangle has no right angle; in figure P one of the pieces has five sides, while in the given four pieces there is none with 5 sides. Figure R appears to be the possibility.

(3) In which of the can rectangles the bigger four sided piece be slided? R and S are eliminated. Then compare the remaining two.

(4) The two bigger pieces can not both be slided to fit into the rectangles Q and R. Only one of them can be slided. Now try the figures P and S.

ANSWERS

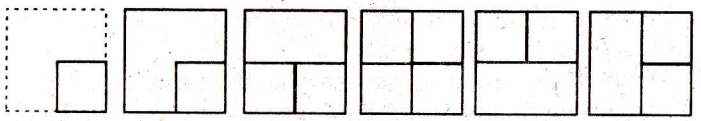
(1) Q (2) R (3) P (4) P

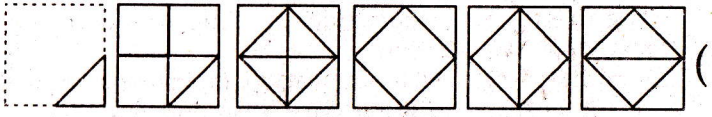
VISUALISING A PATTERN

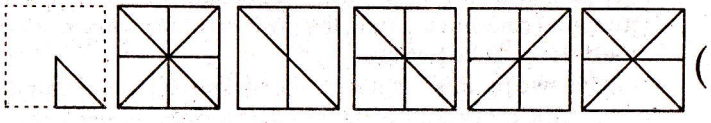
Directions : *In each of the following questions, a problem figure is given on the extreme left. The dotted lines of this figure show a sheet of paper. The sold lines show the same sheet of paper when folded. The folded sheet is again opened.*

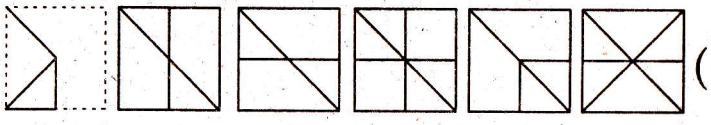
Which one of the five alternatives on the right shows how the opened sheet will look?

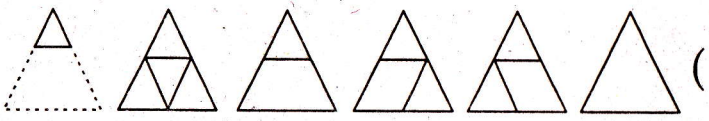
(*l*) (m) (n) (o) (p)

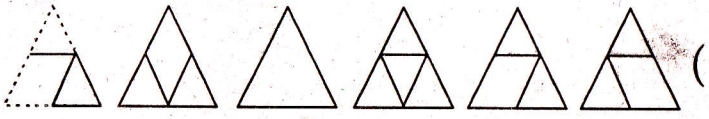
1.  ( )

2.  ( )

3.  ( )

4.  ( )

5.  ( )

6.  ( )

6. (b) : From the two figures it is clear that four, five, two and six dots cannot appear opposite three dots. So, one dot appears opposite three dots. Therefore, if one dot is at the bottom, then three dots will lie on the top.

7. (d) : From the two figures it is clear that three, four, one and five dots cannot appear opposite two dots. So, six dot appears opposite two dots. In the left hand side dice, there are two dots on the top; so, there should be six dots at the bottom face.

8. (a) : From the two figures it is clear that two, six and four dots cannot appear opposite three dots. So, either one or five dots can appear opposite three dots. Therefore, if the dice is resting on the side with three dots, then either one or five dots will appear on the top.

9. (a) : From the two figures, it is clear that the numbers 1, 4, 6 and 3 cannot appear opposite 2. So, 5 appears opposite 2. Therefore, if 5 is of the top; 2 will be at the bottom.

10. (a) : If fig. (i) is rotated in the position of fig. (ii), then two dots will appear opposite four dots.

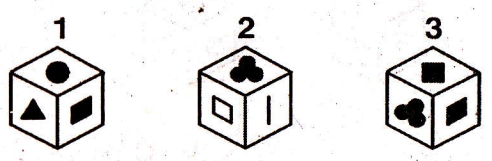
11. (b) : From the two figures it is clear that one, three, two and four dots cannot appear opposite five dots. So, six dots appear opposite five dots. Now, assuming six dots opposite five dots in the two figures and rotating fig. (i) in the position of fig. (ii), we will get three dots opposite two dots.

12. (d) : From the two figures it is clear that one, two, three and four dots cannot appear opposite six dots. So, five dots appear opposite six dots. Therefore, when six is at the bottom, then five will be at the top.

PROBLEMS ON CUBES

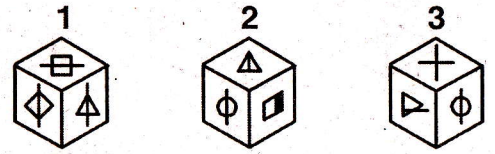
1. Group A Group B

Which one of the following cubes can possibly belong to Group A ?



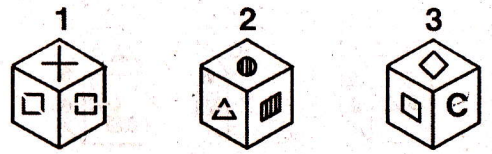
2. Group A Group B

Which one of the following cubes can possibly belong to Group A ?



3. Group A Group B

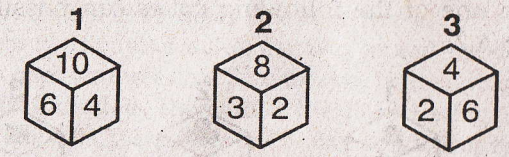
Which one of the following cubes can possibly belong to Group A ?



4. Group A

Group B

Which one of the following cubes can possibly belong to Group A ?

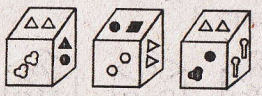


5. Group A

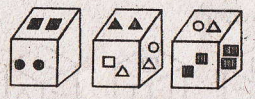
Group B

Which one of the following cubes can possibly belong to Group A ?

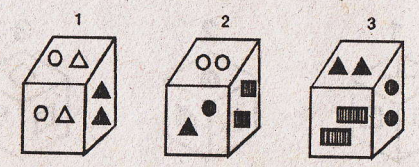
6. Group A



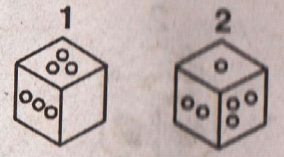
Group B



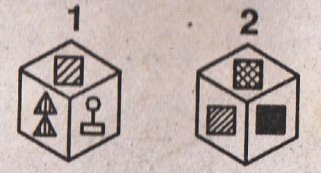
Which one of the following cubes can possibly belong to Group A ?



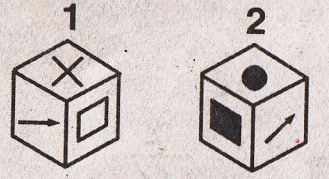
7. Find if the two cubes are alike. Write 'Yes' or 'No' on the answer sheet.



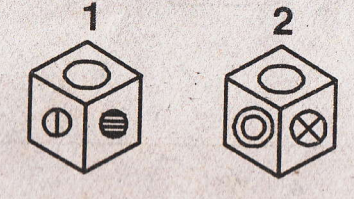
8. Find if the two cubes are alike. Write 'Yes' or 'No' on the answer sheet.



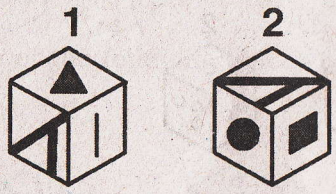
9. Find if the two cubes are alike. Write 'Yes' or 'No' on the answer sheet.



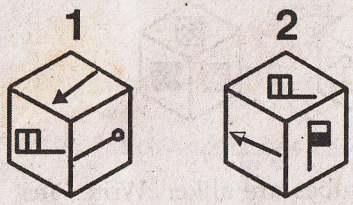
10. Find if the two cubes are alike. Write 'Yes' or 'No' on the answer sheet.



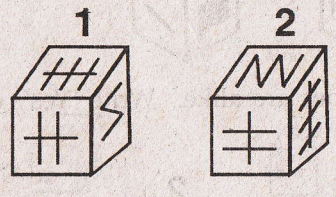
11. Find if the two cubes are alike. Write 'Yes' or 'No' on the answer sheet.



12. Find if the two cubes are alike. Write 'Yes' or 'No' on the answer sheet.



13. Find if the two cubes are alike. Write 'Yes' or 'No' on the answer sheet.



ANSWERS

(1) 2 (2) 3 (3) 3 (4) 2 (5) 2 (6) 2 (7) No

(8) No (9) Yes (10) Yes (11) Yes (12) Yes (13) Yes