NATIONAL TALENT SEARCH EXAMINATION-2019-20, UTTAR PRADESH

MENTAL ABILITY TEST (MAT)_ PAPER & HINTS & SOLUTION

1. Read the following instructions carefully before you answer the questions. Answers are to be SHADED on a SEPARATEOMR Answer sheet given, with a HB pencil. Read the Instructions printed on the OMR sheet carefully before answering the questions.

Please write you Centre Code No. and Roll no. very clearly (only one digit in one block) on the **Direction- In question no. 1 to 12** each question has four terms. Each terms are alike in some way. One term is different from three others. Find out the correct term which is different from three others and write its alternative number on your answer sheet against the proper question number-

1. Ans.	(1) R 81 (2)	(2) L 19	(3) W 25	(4) M 16		
Sol.	Number given in the question are perfect square except option(2) 2.					
2. Sol.	(1) CJM Ans. (4) CJM \Rightarrow 3 + 10 = 13 \Rightarrow RGW \Rightarrow 16 + 7 = 23 \Rightarrow RBT \Rightarrow 18 + 2 = 20 \Rightarrow SFH \Rightarrow 19 + 6 = 25 \Rightarrow	W Γ	(3) RBT	(4) SFH		
3. Ans. Sol.	(1) Z8R (3) Z(26) – R(18) = 8 Q(17) – D(4) = 13 M(13) – K(11) = 2 T(20) – F(6) = 14	(2) Q13D	(3) M22K	(4) T14F		
4. Ans. Sol.	(1) BDG (2) HJM (3) QSV (4) KMH (4) BDG \Rightarrow B + 2 = D, D + 3 = G HJM \Rightarrow H + 2 = J, J + 3 = M QSV \Rightarrow Q + 2 = S, S + 3 = V KMH \Rightarrow K + 2 = M, M + 3 = N					
5. Ans. Sol.	(1) Lion (2) All except Deer are car	(2) Deer niverous animals.	(3) Wolf	(4) Fox		
6. Ans. Sol.	(1) Labour (3) All except student are p	(2) Doctor profession	(3) Student	(4) Tailor		
7. Ans. Sol.	(1) Deputy Chief Minister(3) Prime Minister(2)All except governer are part of cabinet minitry		(2) Governor(4) Chief Minister			
8. Ans. Sol.	(1) Kanpur (3) All except merut are co	(2) Lucknow arrectly spelled	(3) Merut	(4) Mirzapu		
9.	(1) 13, 7	(2) 24, 19	(3) 36, 27	(4) 45, 29		

Ans. (3)

Sol. All except option (3) are coprime number.

10. (1) 1980

(2) 1924

(3) 1946

(4) 1996

Ans. (4)

Sol. All except option (4) have sum as even number.

11. (1) 133

(2) 147

(3) 182

(4) 234

Ans. (4)

Sol. All except 234 are divisible by 7.

12. (1) 32.5

(2)43.5

(3)58.5

(4)73.5

Ans. (1)

Sol. All except 32.5 are divisible by 0.3

Direction- In question no. 13 to 24 are based on number / letter series. In each series missing term is indicated by

Blank space (–). Find out the missing term out of the four alternatives given below and write its alternative number against the correct question number on your answer sheet-

13. 1_44_6114_661_446_

 $(\overline{1})$ 6 $\overline{1}$ 416

(2) 16416

(3) 41416

(4) 64616

Ans. (2)

Sol. 11|44|66|11|44|66|11|44|66

14. _A_CCA_BC_AABC_ (1) ABACC

(2) ABACB

(3) CABCA

(4) AABCC

Ans. (1)

Sol. AABCC/AABCC/AABCC

15. 3,8, _, 68,_,608,1823

(1) 25, 199

(2) 29, 205

(3) 23, 203

(4) 24, 136

Ans. (3)

Sol. $3 \times 3 - 1 = 8$

 $8 \times 3 - 1 = 23$

 $23 \times 3 - 1 = 68$

 $68 \times 3 - 1 = 203$

203 × 3 – 1 = 608

16. 9, 64, _ , 216, 49, _, 81

(1) 20, 72

(2) 25, 512

(3) 30, 64

(4) 32, 63

Ans. (2)

Sol. 32 = 9, 43 = 64, 52 = 25, 63 = 216, 72 = 49, 83 = 512, 92 = 81

17. $\frac{B}{5}, \frac{D}{12}, \frac{H}{24}, \frac{J}{13}, \frac{L}{36}, -, \frac{P}{48}$

 $\frac{E}{15}, \frac{N}{18}$

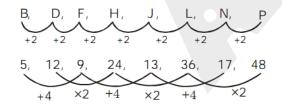
 $\frac{F}{18}, \frac{O}{16}$

 $\frac{1}{9}, \frac{N}{17}$

 $\frac{G}{9}, \frac{M}{17}$

Ans. (3)

Sol. B, D, F, H, J, L, N, P



18. 18. 121, 144, 169, 196, _

(1)223

(2) 225

(3)227

(4) 229

Ans. (2)

 $11^2 = 121$, $12^2 = 144$, $13^2 = 169$, $14^2 = 196$, $15^2 = 225$ Sol.

19. 216, 343, 512, 729, _, 1331

(1) 1000

(2)894

(3)819

(4) 1211

Ans. (1)

 $6^3 = 216, 7^3 = 343, 8^3 = 512, 9^3 = 729, 10^3 = 1000, 11^3 = 1331$ Sol.

20. 78Z, 6C, 15E, _, 30J, 25M

(1) 24H

(2) 21G

(3) 18I

(4) 16H

(4) Ans.

Sol. $78Z \Rightarrow 78 \div 3 = 26 \rightarrow Z$

 $6C \Rightarrow 6 \div 2 = 3 \rightarrow C$

 $15E \Rightarrow 15 \div 3 = 5 \rightarrow E$

So, Ans is $16H \Rightarrow 16 \div 2 = 8 \rightarrow H$

21. F_UR_OU_FO_RF_UR

(1) OFRUO

(2) FUOOR

(3) FROUO

(4) ROUFO

Ans. (1)

FOUR|FOUR|FOUR Sol.

22. 0, 2, 6, _, 20, 30, _

(1) 8

(2) 10

(3) 12

(4) 16

Ans. (3)

0 + 2 = 2, 2 + 4 = 6, 6 + 6 = 12, 12 + 8 = 20, 20 + 10 = 30. Sol.

23. 9, 10, 8, 11, _, 12, 6, _, 5

(1) 7, 13

(2) 6, 13

(3) 7, 12

(4) 8, 12

Ans. (1)

Sol.

CD, XW, __, VU, GH, __, IJ, RQ (1) FE, TS (2) DE, U 24.

(2) DE, UT

(3) FG, ST

(4) EF, TS

Ans. (4)

1st Alternate series : CD, EF |, GH, IJ Sol.

2nd Alternate series : XW, VU, TS, RQ

25. In a certain code language if HUNDRED is written as NUHDDER, what will be code of KITCHEN in

same language?

(1) HENTIKC

(2) TIKCNEH

(3) ITKHCNE

(4) TKICNEH

(2) Ans.

Sol. $HUN \rightarrow NUH$ $\mathsf{KIT} \to \mathsf{TIK}$ $C \rightarrow C$

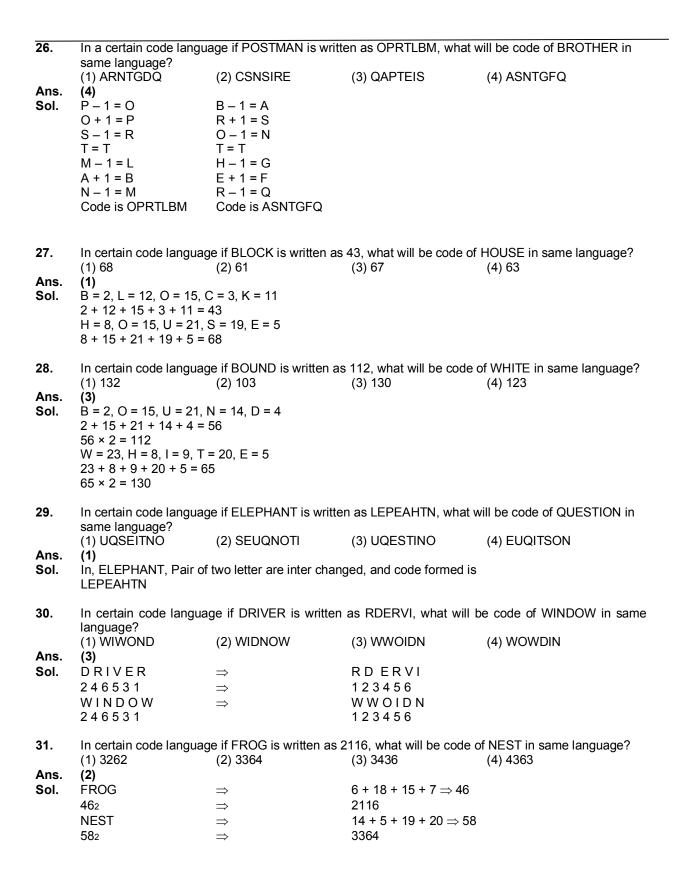
 $D \rightarrow D$

 $RED \rightarrow DER$

 $HEN \rightarrow NEH$

So, code is NUHDDER

So, code is TIKCNEH



32.	In certain code language if COVER is written as EMXCT, what will be code of BIRTH in same							
	language? (1) DJTSJ	(2) CHSSI	(3) AGSQI	(4) DGTRJ				
Ans. Sol.	$\begin{array}{c} \textbf{(4)} \\ \textbf{COVED} \rightarrow \textbf{EMXC} \end{array}$	т						
301.	+2 -2 +2 -2 +2	C O V E R ⇒ E M X C T +2 –2 +2 –2 +2						
	B I R T H ⇒ D G T R J +2 –2 +2 –2 +2							
33.	In a certain code language if XDRL is written as 12296, what will be code of NHTV is same language?							
Ans.	(1) 72511 (3)	(2) 1481022	(3) 741011	(4) 7856				
Sol.	$X \Rightarrow 24 \div 2 = 12 \text{ N} \Rightarrow 14 \div 2 = 7$							
	$D \Rightarrow 4 \div 2 = 2 \text{ H} \Rightarrow 8 \div 2 = 4$ $R \Rightarrow 18 \div 2 = 9 \text{ T} \Rightarrow 20 \div 2 = 10$							
		$\Rightarrow 12 \div 2 = 6 \text{ V} \Rightarrow 22 \div 2 = 11$						
34.	In certain code language if HOCKEY is written as YOKCEH, what will be code of PENCIL in same language?							
Anc	(1) LECNIP	(2) LICNEP	(3) NCEILP	(4) LICNPE				
Ans. Sol.	(1) HOCKEY⇒YOK	CEH						
	624351123456 PENCIL \Rightarrow LECN	IP						
	624351123456							
35.	In certain code language if RUBBER is written as BERRUB, what will be code of BUTTER in same							
	language? (1) TTBUR	(2) TERBUT	(3) TUTREB	(4) UBTTRE				
Ans.	(2)	R:RUB	,					
Sol.		R:BUT						
36.	In certain code languag	ge is SHARP is written as	s 58034, what will be cod	e of RASH in same language?				
Ans.	(1) 3058 (1)	(2) 3045	(3) 3854	(4) 5384				
Sol.	SHARP→RASH 580343058							
				use of the wrong order of signs.				
	Choose the correct order in signs from the four options given below so as to make the equations correct. Write the alternative number of the correct option of the answer sheet against the corresponding question number-							
37.	$2 + 40 - 92 = 8 \times 20$	(0)	(0)	40				
Ans.	$(1) \times = + -$ (1)	(2) - + = x	$(3) = \times + -$	$(4) + - \times =$				
Sol.	2 × 40 = 92 + 8 – 20 80 = 80							
38.	$34 - 6 = 18 \div 66 + 3$							
Ans.	$(1) = \div + -$ (3)	(2) ÷ + – =	(3) + - = ÷	$(4) + \div = -$				
Sol.	34 + 6 –18 = 66 ÷3							
	22 = 22							

39. Ans. Sol.	$2-21 \times 7 = 17 \div 11$ (1) $\times - = \div$ (4) $2 \times 21 \div 7 = 17 - 11$ 6 = 6	(2) × = - ÷	(3) = - × ÷	(4) × ÷ = –
40. Ans. Sol.	$7 \times 3 = 4 - 6 + 1$ (1) - + = × (2) $7 + 3 - 4 = 6 \times 1$ 6 = 6	(2) + - = ×	(3) - + × =	(4) + - × =
41. Ans. Sol.	$63 = 7 \div 44 + 6 - 41$ (1) $\div + = -$ (4) $63 \div 7 = 44 + 6 - 41$ 9 = 9	(2) = + ÷ –	(3) ÷ -= +	(4) ÷ = + –
42. Ans. Sol.	$69 \times 25 = 10 + 6 - 9$ (1) $- + = \times$ (1) $69 - 25 + 10 = 6 \times 9$ 54 = 54	(2) = + × –	(3) = × + –	(4) × + – =
43. Ans. Sol.	41 = 32 + 10 = 9 + 54 (1) + = - + (2) 41 + 32 - 10 = 9 + 54 63 = 63	(2) + - = +	(3) = + + -	(4) = + - +
44. Ans. Sol.	$5 = 5 + 3 \div 17 \times 8$ (1) $\times + = \div$ (3) $15 \times 5 \div 3 = 17 + 8$ 25 = 25	(2) + × ÷ =	(3) × ÷ = +	(4) + = ÷ ×
45. Ans. Sol.	$38 + 2 - 46 = 33 \times 3$ (1) = \times + - (3) $38 \times 2 = 46 + 33 - 3$ 76 = 76	(2) × + = –	(3) × = + –	(4) - + = ×
46. Ans. Sol.	$15 = 7 \times 2 - 5 + 4$ $(1) \times - + =$ (4) $15 + 7 - 2 = 5 \times 4$ 20 = 20	(2) × - + =	(3) – + = ×	(4) + - = ×
47. Ans. Sol.	$24 - 6 + 9 \div 2 = 7$ (1) $\div = + -$ (1) $24 \div 6 = 9 + 2 - 7$ 4 = 4	(2) + = ÷ –	(3) + = -÷	(4) + - = ÷
48. Ans.	5 = 8 - 29 + 4 × 15 (1) - = + × (3)	(2) + - = ×	(3) × = - +	(4) + × = –

Direction- Question no 49 to 58 numbers are lace in figure on the basis of some rules. One place in vacant which is indicated as (?). Find out the correct alternative for the vacant place and write its number against the proper question number on your answer sheet-

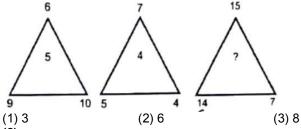
(3) 8

(4) 10

(4) 4

(4) 10

49.



Ans.

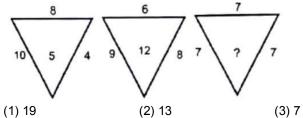
Sol.
$$15 + 14 + 7 = \sqrt{36} = 6$$

$$9 + 6 + 10 = \sqrt{25} = 5$$

$$14 + 7 + 15 = \sqrt{36} = 6$$

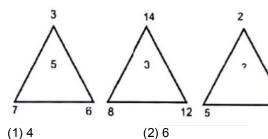
$$7 + 5 + 4 = \sqrt{16} = 4$$

50.



Sol. $(10 \times 4) \div 8 = 5$ $(9 \times 8) \div 6 = 12$ $(7 \times 7) \div 7 = 7$

51.

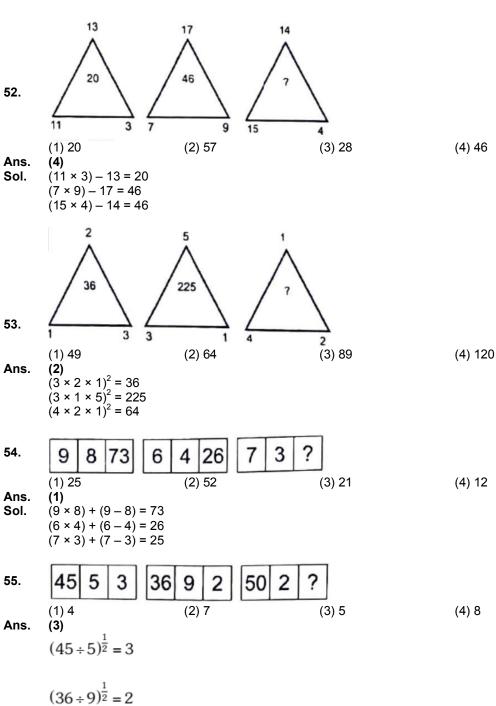


Ans.

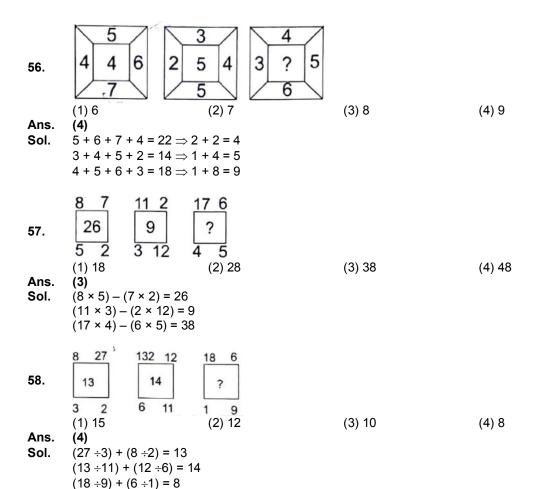
$$\frac{(3)}{(7+6)-3} = 5$$

$$\frac{(12+8)-14}{2} = 3$$

Sol.
$$\frac{(5+13)-2}{2} = 8$$



$$(50 \div 2)^{\frac{1}{2}} = 5$$



Direction- Question no 59 to 63 are based on the following information. Read carefully the information and find out the correct alternative for each question

S

Ramesh likes to study Hindi, English and Maths. Suresh likes to study Science, English and Hindi. Ahmad like to study English, Maths and Geography. Bobby likes to study Maths, Science and Hindi. Gopal likes to study only Hindi.

E M

Н М

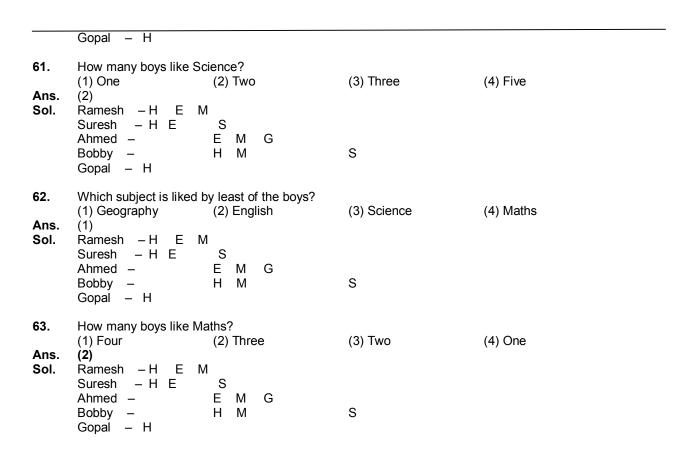
59.

Ahmed -

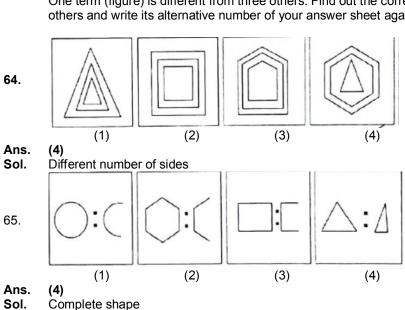
Bobby -

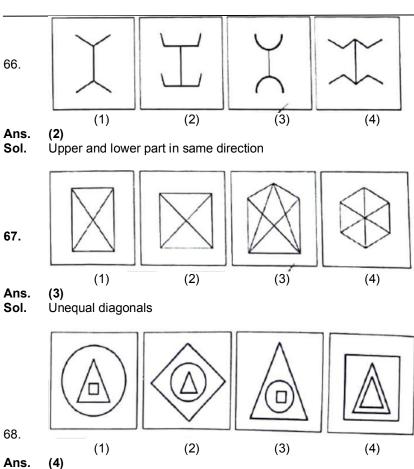
Which subject is liked by most of the boys? (1) Science (3) Hindi (4) Maths (2) English Ans. (3) Ramesh - H E M Sol. Suresh - H E S Ε Ahmed -М G Bobby -S Н M Gopal - H 60. How many boys like English? (1) One (3) Three (4) Five (2) Two Ans. (3) Sol. E M Ramesh – H Suresh - H E S

G



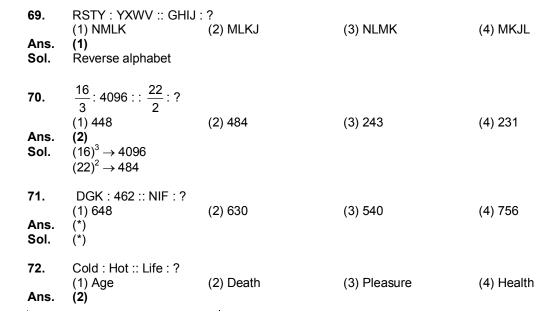
Direction- Question no 64 to 68 each question has four terms. Three terms (figure) are alike in some way. One term (figure) is different from three others. Find out the correct term which is different from three others and write its alternative number of your answer sheet against the proper question number-

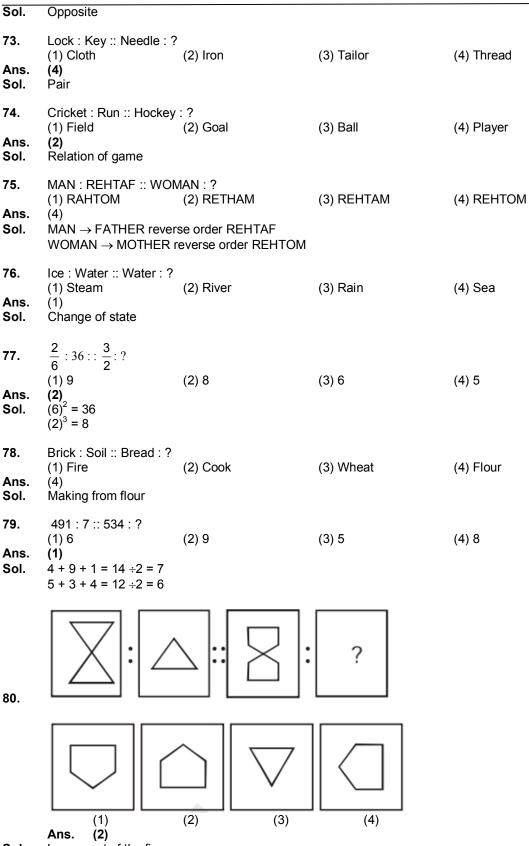




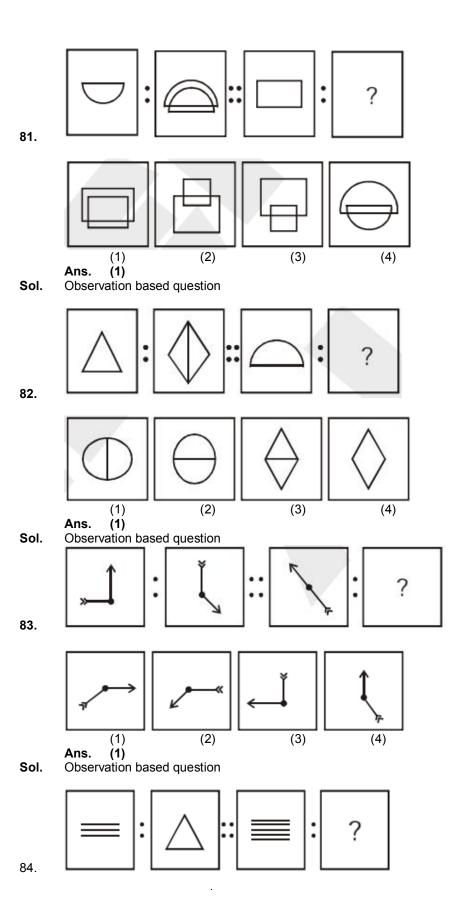
Ans. (4)
Sol. 2 Triangle and no circle

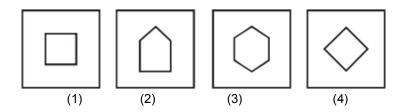
Direction- In question 69 84 there are four terms in each question. The relation that exist between the terms left to the symbol :: Out of the four terms one term is missing in each question. The missing term is one of the four alternatives given below each equation. Find out the correct alternative and write its number on your answer sheet against the proper question-





Sol. Lower part of the figure

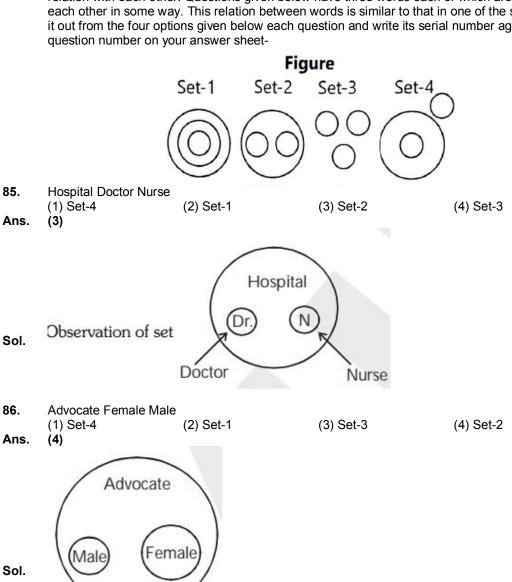


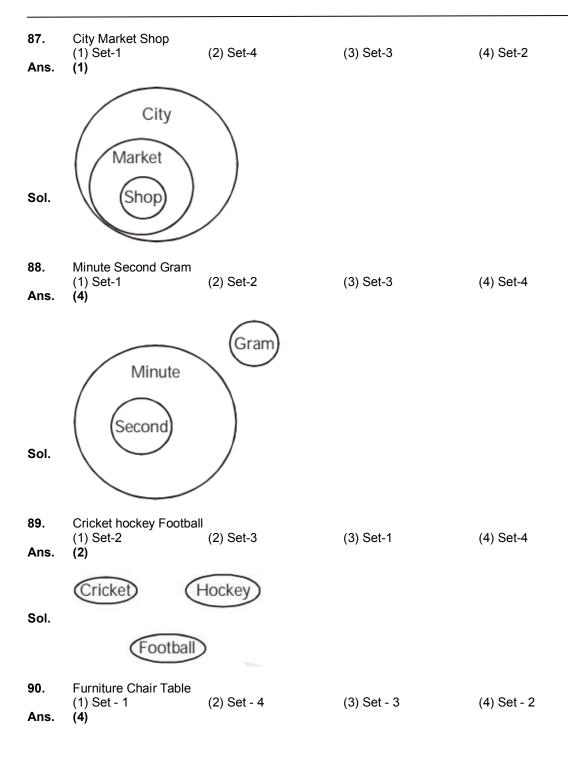


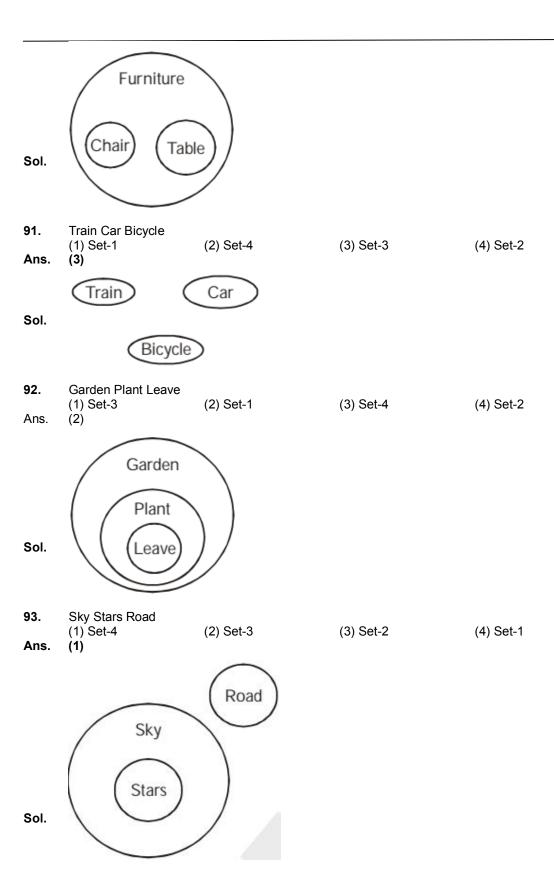
Ans. (2)

Sol. Number of sides 5

Direction- For question 85 to 95 four sets of circles have been given below. Three circles of sets have some relation with each other. Questions given below have three words each of which are also related to each other in some way. This relation between words is similar to that in one of the sets of circles. Find it out from the four options given below each question and write its serial number against corresponding









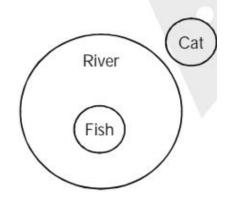
(1) Set-3

(2) Set-4

(3) Set-1

(4) Set-2

Ans. (2)



Sol.

95. Pond Water Frog

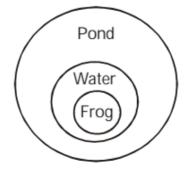
(1) Set-3

(2) Set-2

(3) Set-1

(4) Set-4

Ans. (3)



Sol.

Direction- Question no 96 to 100 are based on following statement. Read the statement carefully and find out correct alternative given for the question and write correct alternative number on your answer sheet against the corresponding question Sam's age is one fourth of Ali's age. Sam is eleven years elder to

Rahul but Deepak is five years younger to Rahul then-

96. Who is eldest

(1) Ali

(2) Sam

(3) Deepak

(4) Rahul

Ans. (1)

Sol. Sam = $\frac{Ali}{4}$

Sam = 11 + Rahul

Deepak = Rahul – 5

97. Who is youngest

(1) Ali

(2) Sam

(3) Deepak

(4) Rahul

Ans. (3)

Sol. Sam = $\frac{Ali}{A}$

Sam = 11 + Rahul Deepak = Rahul – 5

98. If Deepak's age is nine years, what is teh age of Ali?

(1) 85 yrs

(2) 90 yrs

(3) 97 yrs

(4) 100 yrs

Ans. (4)

Sol. Rahul = 14

Sam = 25

Ali = 100

99. What is the difference between the age of Sam and Deepak?

(1) 16 yrs (1)

(2) 9 yrs

(3) 11 yrs

(4) 5 yrs

Ans. (1

Sol. Sam = Deepak + 16

100. If Deepak's age is eight years, how many years is Ali elder to Deepak?

(1) 92 yrs

(2) 88 yrs

(3) 80 yrs

(4) 78 yrs

Ans. (2)

Sol. Deepak – 8

Sam = 24, Ali = 96, 96 - 8 = 88 year