

# NATIONAL TALENT SEARCH EXAMINATION (NTSE-2020) STAGE -1

STATE : U.P.

PAPER : MAT

# Date: 03/11/2019

Max. Marks: 50

\*

# SOLUTIONS

Time allowed: 45 mins

Read the following instructions carefully before you answer the questions. Answers are to be SHADED on a SEPARATE OMR 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.	*			
	(1) R81	(2) L19	(3) W25	(4) M16
Ans.	(2)			
Sol.	Number given in the	e question are perfect	square except option	n(2)
2.	*			
	(1) CJM	(2) PGW	(3) RBT	(4) SFH
Ans.	(4)			
Sol.	$CJM \Longrightarrow 3 + 10 = 1$	$3 \rightarrow M$		
	$RGW \Rightarrow 16 + 7 = 2$	$23 \rightarrow W$		
	$RBT \Longrightarrow 18 + 2 = 2$	$0 \rightarrow T$		
	$SFH \Rightarrow 19 + 6 = 2$	$5 \rightarrow Y$		
3.	ale			
	(1) Z8R	(2) Q13D	(3) M22K	(4) T14F
Ans.	(3)			
Sol.	Z(26) - R(18) = 8			
	Q(17) - D(4) = 13			
	M(13) - K(11) = 2			
	T(20) - F(6) = 14			
4.	ale			
	(1) BDG	(2) HJM	(3) QSV	(4) KMH
Ans.	(4)			
Sol.	$BDG \Longrightarrow B + 2 = D$	, D + 3 = G		
	$HJM \Longrightarrow H + 2 = J,$	J + 3 = M		
	$QSV \Longrightarrow Q + 2 = S,$	S + 3 = V		
	$KMH \Longrightarrow K + 2 = M$	I, M + 3 = N		

5.	*			
	(1) Lion	(2) Deer	(3) Wolf	(4) Fox
Ans.	(2)			
Sol.	All except Deer are	e carniverous animals		
6.	*			
	(1) Labour	(2) Doctor	(3) Student	(4) Tailor
Ans.	(3)			
Sol.	All except student a	are profession		
7.	*			
	(1) Deputy Chief	(2) Governor	(3) Prime Minister	(4) Chief Minister
Ans.	(2)			
Sol.		are part of cabinet r	ninitry	
8.	*			
		(2) Lucknow	(3) Merut	(4) Mirzapur
Ans.				
	All except merut ar	e correctly spelled		
9.	*			
		(2) 24, 19	(3) 36, 27	(4) 45, 29
Ans.				
Sol.	All except option (3	3) are coprime numbe	er.	
10.	(1) 1000	(0) 1004	(2) 104 $c$	(4) 1000
<b>A</b>	(1) 1980	(2) 1924	(3) 1946	(4) 1996
Ans.			und an	
Sol. 11.	*	l) have sum as even n	lumber.	
11.		(9) 147	(3) 182	(4) 934
Ans.	(1) 133 ( <b>A</b> )	(2) 147	(3) 182	(4) 234
Sol.	All except 234 are	divisible by 7		
12.	*			
- 2.	(1) 32.5	(2) 43.5	(3) 58.5	(4) 73.5
Ans.		,	(0) 00.0	(
Sol.	All except 32.5 are	e divisible by 0.3		
	0.100pt 02.0 ute			

**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\_ (1) 61416 (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.**  $3 \times 3 - 1 = 8$  $8 \times 3 - 1 = 23$  $23 \times 3 - 1 = 68$  $68 \times 3 - 1 = 203$  $203 \times 3 - 1 = 608 \dots$ **16.** 9, 64, \_ , 216, 49, \_, 81 (1) 20, 72 (2) 25, 512 (3) 30, 64 (4) 32, 63 Ans. (2) **Sol.**  $3^2 = 9, 4^3 = 64, 5^2 = 25, 6^3 = 216, 7^2 = 49, 8^3 = 512, 9^2 = 81$ **17.**  $\frac{B}{5}, \frac{D}{12}, -, \frac{H}{24}, \frac{J}{13}, \frac{L}{36}, -, \frac{P}{48}$ (1)  $\frac{E}{15}, \frac{N}{18}$  (2)  $\frac{F}{18}, \frac{O}{16}$ (3)  $\frac{F}{9}, \frac{N}{17}$ (4)  $\frac{G}{9}, \frac{M}{17}$ Ans. (3) **Sol.** B, D, **F**, H, J, L, **N**, P ×2 +4+4**18**. 121, 144, 169, 196, \_ (3) 227 (1) 223(2) 225 (4) 229 Ans. (2) **Sol.**  $11^2 = 121$ ,  $12^2 = 144$ ,  $13^2 = 169$ ,  $14^2 = 196$ ,  $15^2 = 225$ 

3

19.	216, 343, 512, 72	9, _, 1331		
		(2) 894	(3) 819	(4) 1211
Ans.	(1)			
Sol.	$6^3 = 216, 7^3 = 343$	$3, 8^3 = 343, 8^3 = 51$	$2, 9^3 = 729, 10^3 = 1$	1000, $11^3 = 1331$
20.	78Z, 6C, 15E, _, 3	0J, 25M		
	(1) 24H	(2) 21G	(3) 181	(4) 16H
Ans.	(4)			
Sol.	$78Z \Rightarrow 78 \div 3 = 2$	$26 \rightarrow Z$		
	$6C \Rightarrow 6 \div 2 = 3 - $	→ C		
	$15E \Rightarrow 15 \div 3 = 5$	$5 \rightarrow E$		
	So, Ans is $16H \Rightarrow 1$			
21.	F_UR_OU_FO_RF_			
	(1) OFRUO	(2) FUOOR	(3) FROUO	(4) ROUFO
Ans.				
	FOUR FOUR FOUR			
22.	0, 2, 6, _, 20, 30,		(2) 1.0	(A) 1 $C$
<b>A</b>	(1) 8	(2) 10	(3) 12	(4) 16
Ans.		6, 6 + 6 = 12, 12 +	8 - 20 20 + 10 -	30
	9, 10, 8, 11, _, 12		0 = 20, 20 + 10 =	30.
20.	(1) 7, 13		(3) 7, 12	(4) 8, 12
Ans.		(2) 0, 10	(0) 7, 12	(1) 0, 12
	(-)		_	
	9, 10, 8, 11	, 7, 12, 6,	13 5	
Sol.	-1 +1 -1	+1 -1 +1		
94				
24.	CD, XW, _, VU, GF (1) FE, TS		$(2) \in C \in ST$	(4) EE TS
Ans.	,	(2) DE, UT	(3) FG, ST	(4) EF, TS
A115.				
Sol.	1 <sup>st</sup> Alternate series	: CD, [ <u>EF</u> ], GH, IJ		
	2 <sup>nd</sup> Alternate series	: XW, VU, TS, RC	)	
25.				DDER, what will be code of KITCHEN in same
<b>2</b> J.	language?			SDER, what will be code of RITCHEN in same
	(1) HENTIKC	(2) TIKCNEH	(3) ITKHCNE	(4) TKICNEH
Ans.				
	HUN $\rightarrow$ NUH			$KIT \rightarrow TIK$
	$D \rightarrow D$			$C \rightarrow C$
	$\text{RED} \rightarrow \text{DER}$			$\mathrm{HEN} \rightarrow \mathrm{NEH}$
	So, code is NUHDI	DER		So, code is TIKCNEH

20.	language?		is written as Or KT	LDM, what will be code of DROTTLER in same
	(1) ARNTGDQ	(2) CSNSIRE	(3) QAPTEIS	(4) ASHTGFQ
Ans.				
	P - 1 = 0	B – 1 = A		
	O + 1 = P			
	S - 1 = R			
	T = T			
	M - 1 = L			
	A + 1 = B			
	N - 1 = M	R-1 = Q		
	Code is OPRTLBM	Code is ASNTGFQ		
27.			vritten as 43, what wi	ll be code of HOUSE in same language?
	(1) 68	(2) 61	(3) 67	(4) 63
Ans.	(1)			
Sol.	B = 2, L = 12, O =	15, C = 3, K = 11		
	2 + 12 + 15 + 3 +	11 = 43		
	H = 8, O = 15, U =	= 21, S = 19, E = 5		
	8 + 15 + 21 + 19 -	+ 5 = 68		
<b>28</b> .	In a certain code lar	nguage if BOUND is v	written as 112, what w	will be code of WHITE in same language?
	(1) 132	(2) 103	(3) 130	(4) 123
Ans.	(3)			
Sol.	B = 2, O = 15, U =			
	2 + 15 + 21 + 14 -	+ 4 = 56		
	56 ×2 = 112			
	W = 23, H = 8, I =			
	23 + 8 + 9 + 20 +	5 = 65		
20	$65 \times 2 = 130$			
29.	In a certain code lar language?	nguage II-ELEPHAN I	is written as LEPEA	HTN, what will be code of QUESTION in same
	(1) UQSEITNO	(2) SEUQNOTI	(3) UQESTINO	(4) EUQITSON
Ans.			(3) 0 0 2 2 3 1 1 1 0	
Sol.	•••	ir of two letter are inte	er changed and code	formed is
001.	LEPEAHTN	in of two feller are link	er enangea, and code	
30.		nguage if DRIVER is w	vritten as RDERVI. w	hat will be code of WINDOW in same language?
	(1) WIWOND	(2) WIDNOW	(3) WWOIDN	(4) WOWDIN
Ang				
<b>AU3</b> .	(3)			
		$\Rightarrow$ RDERVI		

26. In a certain code language if POSTMAN is written as OPRTLBM, what will be code of BROTHER in same

246551	$\Rightarrow$	123430
WINDOW	$\Rightarrow$	WWOIDN
$2\ 4\ 6\ 5\ 3\ 1$		1 23456

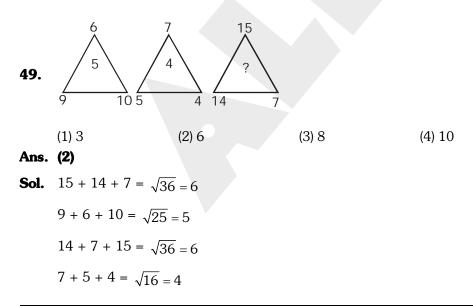
**31.** In a certain code language if FROG is written as 2116, what will be code of NEST in same language? (1) 3262 (2) 3364(3) 3436 (4) 4363 Ans. (2) **Sol.** FROG  $\Rightarrow$  6 + 18 + 15 + 7  $\Rightarrow$  46 46<sup>2</sup>  $\Rightarrow$  2116 NEST  $\Rightarrow$  14 + 5 + 19 + 20  $\Rightarrow$  58  $58^{2}$  $\Rightarrow$  3364 **32.** In a certain code language if COVER is written as EMXCT, what will be code of BIRTH in same language? (1) DJTSJ (2) CGSSI (3) AGSQI (4) DGTRJ Ans. (4) **Sol.** C O V E  $R \Rightarrow E M X C T$ +2 -2 +2 -2 +2  $\mathsf{B} \quad \mathsf{I} \quad \mathsf{R} \quad \mathsf{T} \quad \mathsf{H} \Rightarrow \mathsf{D} \quad \mathsf{G} \quad \mathsf{T} \quad \mathsf{R} \quad \mathsf{J}$ +2 -2 +2 -2 +2 **33.** In a certain code language if XDRL is written as 12296, what will be code of NHTV in same language? (1)72511(2) 1481022 (3) 741011 (4) 7856 Ans. (3) **Sol.**  $X \Rightarrow 24 \div 2 = 12$  |  $N \Rightarrow 14 \div 2 = 7$  $H \Rightarrow 8 \div 2 = 4$  $D \Rightarrow 4 \div 2 = 2$  $T \Rightarrow 20 \div 2 = 10$  $R \Rightarrow 18 \div 2 = 9$  $L \Rightarrow 12 \div 2 = 6$  $V \Rightarrow 22 \div 2 = 11$ 34. In a certain code language if HOCKEY is written as YOKCEH, what will be code of PENCIL in same language? (1) LECNIP (2) LICNEP (3) NCEILP (4) LICNPE Ans. (1) **Sol.** H O C K E Y  $\Rightarrow$  Y O K C E H 6 2 4 3 5 1 1 2 3 4 5 6  $P E N C I L \implies L E C N I P$ 624351 123456 **35.** In a 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) Sol. RUB BER BER : RUB  $\rightarrow$ BUT TER  $\rightarrow$ TER : BUT 36. In a certain code language if SHARP is written as 58034, what will be code of RASH in same language? (2) 3045 (1) 3058(3) 3854 (4) 5384Ans. (1) **Sol.**  $S H A R P \rightarrow R A S H$ 58034 3 0 5 8

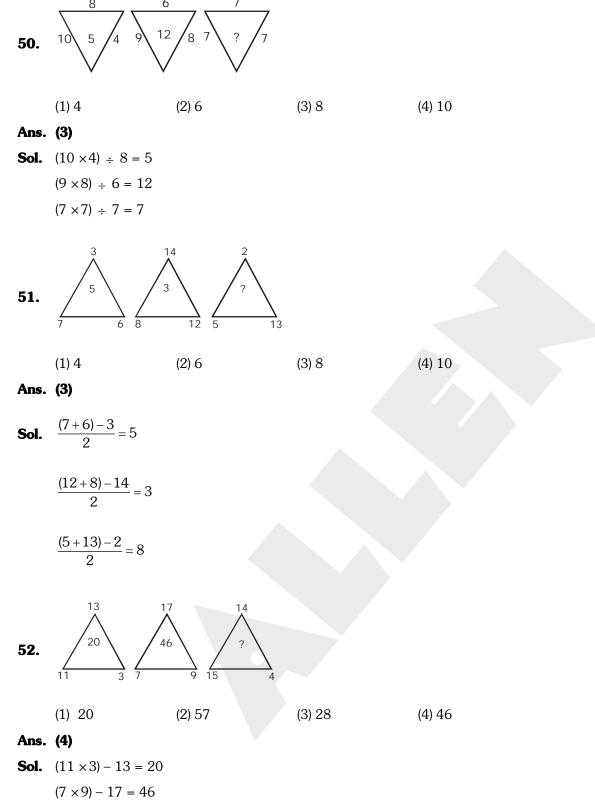
**DIRECTION- In question 37 to 48** the equations have become wrong because of the wrong order of signs. Choose the correct order in signs from the four options given below so as to make the equations correct. Write the alternative number of the correct option on the answer sheet against the corresponding question number-

**37.**  $2 + 40 - 92 = 8 \times 20$  $(2) - + = X \qquad (3) = X + - \qquad (4) + - X =$ (1) x = + -Ans. (1) **Sol.**  $2 \times 40 = 92 + 8 - 20$ 80 = 80**38.**  $34 - 6 = 18 \div 66 + 3$  $(1) = \div + (2) \div + - =$   $(3) + - = \div$   $(4) + \div = -$ Ans. (3) **Sol.**  $34 + 6 - 18 = 66 \div 3$ 22 = 22**39.**  $2 - 21 \times 7 = 17 \div 11$  $(1) \times -= \div \qquad (2) \times = -\div \qquad (3) = -x \div \qquad (4) \times \div = -$ Ans. (4) **Sol.**  $2 \times 21 \div 7 = 17 - 11$ 6 = 6 **40.**  $7 \times 3 = 4 - 6 + 1$  $(1) - + = \times$   $(2) + - = \times$   $(3) - + \times =$  $(4) + - \times =$ Ans. (2) **Sol.**  $7 + 3 - 4 = 6 \times 1$ 6 = 6 **41.**  $63 = 7 \div 44 + 6 - 41$  $(1) \div + = (2) = + \div (3) \div - = +$  $(4) \div = + -$ Ans. (4) **Sol.**  $63 \div 7 = 44 + 6 - 41$ 9 = 9 **42.**  $69 \times 25 = 10 + 6 - 9$  $(1) - + = \times$   $(2) = + \times (3) = \times + (4) \times + - =$ Ans. (1) **Sol.**  $69 - 25 + 10 = 6 \times 9$ 54 = 54**43.** 41 - 32 + 10 = 9 + 54(1) + = - + (2) + - = +(3) = + + - (4) = + - +Ans. (2) **Sol.** 41 + 32 - 10 = 9 + 5463 = 63

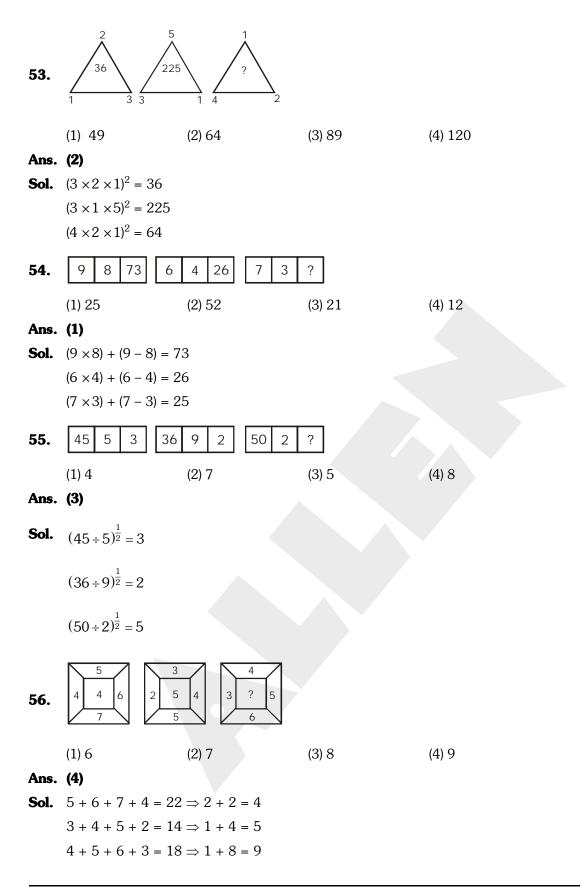
44.	$15 = 5 + 3 \div 17 \times$	:8		
	$(1) \times + = \div$	$(2) + \times \div =$	$(3) \times \div = +$	$(4) + = \div \times$
Ans.	(3)			
Sol.	$15 \times 5 \div 3 = 17 +$	8		
	25 = 25			
45.	38 + 2 - 46 = 33 >	<3		
	$(1) = \times + -$	(2) ×+ = -	(3) ×= + -	$(4) - + = \times$
Ans.	(3)			
Sol.	$38 \times 2 = 46 + 33 -$	- 3		
	76 = 76			
<b>46</b> .	$15 = 7 \times 2 - 5 + 4$			
	(1) ×- + =	(2) ×- + =	$(3) - + = \times$	$(4) + - = \times$
Ans.	· ·			
Sol.	$15 + 7 - 2 = 5 \times 4$			
	20 = 20			
47.	$24 - 6 + 9 \div 2 = 7$			
	$(1) \div = + -$	$(2) + = \div -$	$(3) + = - \div$	$(4) + - = \div$
Ans.	• •			
Sol.	$24 \div 6 = 9 + 2 - 7$	7		
	4 = 4			
<b>48</b> .	$5 = 8 - 29 + 4 \times 13$			
		$(2) + - = \times$	$(3) \times = - +$	$(4) + \times = -$
Ans.				
Sol.	$5 \times 8 = 29 - 4 + 13$	5		
	40 = 40			

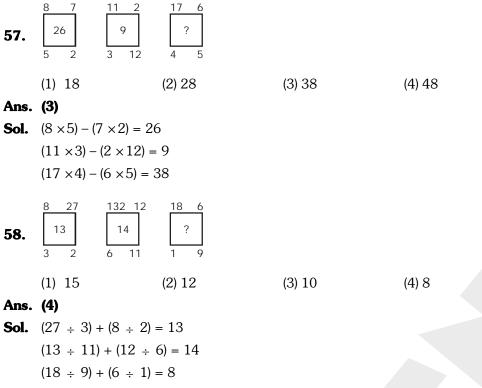
**DEIRECTION- Question no 49 to 58** numbers are placed in figure on the basis of some rules. One place is vacant which is indicated as (?). Find out the correct alternative for the vacant place and write its number against the proper question number on your answer sheet-





 $(15 \times 4) - 14 = 46$ 





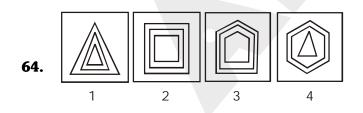
**DIRECTION- Question no. 59 to 63** are based on the following information. Read carefully the information and find out the correct alternative for each question-

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.

<b>59</b> .	9. Which subject is liked by most of the boys?							
	(1) Science	2	(2) En	glish		(3) Hindi		(4) Maths
Ans.	(3)							
Sol.	Ramesh	_	Н	Е	М			
	Suresh	_	Н	Е		S		
	Ahmed	_		Е	М		G	
	Bobby		Н		М	S		
	Gopal		Н					
60.	How many	v boys lik	e Englisł	h?				
	(1) One		(2) Tu	0		(3) Three		(4) Five
Ans.	(3)							
Sol.	Ramesh	_	Н	Е	М			
	Suresh	_	Н	Е		S		
	Ahmed	_		Е	М		G	
	Bobby		Н		М	S		
	Gopal		Н					

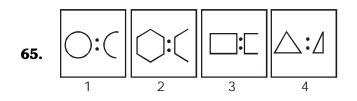
61.	How many	y boys lik	e Scienc	ce?				
	(1) One		(2) Tu	VO		(3) Three		(4) Five
Ans.	(2)							
Sol.	Ramesh	-	Н	E	М			
	Suresh	-	Н	Е		S		
	Ahmed	-		E	М		G	
	Bobby		Н		М	S		
	Gopal		Н					
<b>62</b> .	Which sub	ject is lik	ed by le	ast of the	e boys	s?		
	(1) Geogra	aphy	(2) En	ıglish		(3) Sciene	ce	(4) Maths
Ans.	(1)							
Sol.	Ramesh	-	Н	E	М			
	Suresh	-	Н	E		S		
	Ahmed	-		E	М		G	
	Bobby		Н		М	S		
	Gopal		Н					
63.	How many	y boys lik	e Maths	?				
	(1) Four		(2) Th	nree		(3) Two		(4) One
Ans.	(2)							
Sol.	Ramesh	_	Н	E	М			
	Suresh	_	Н	E		S		
	Ahmed	_		E	М		G	
	Bobby		Н		М	S		
	Gopal		Н					

**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 on your answer sheet against the proper question number-



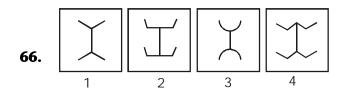
#### Ans. (4)

Sol. Different number of sides



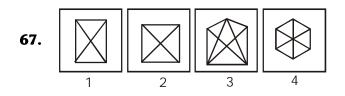
## Ans. (4)

**Sol.** Complete shape



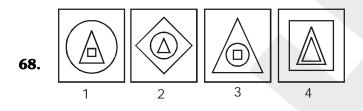
# Ans. (2)

Sol. Upper and lower part in same direction



# Ans. (3)

**Sol.** Unequal diagonals



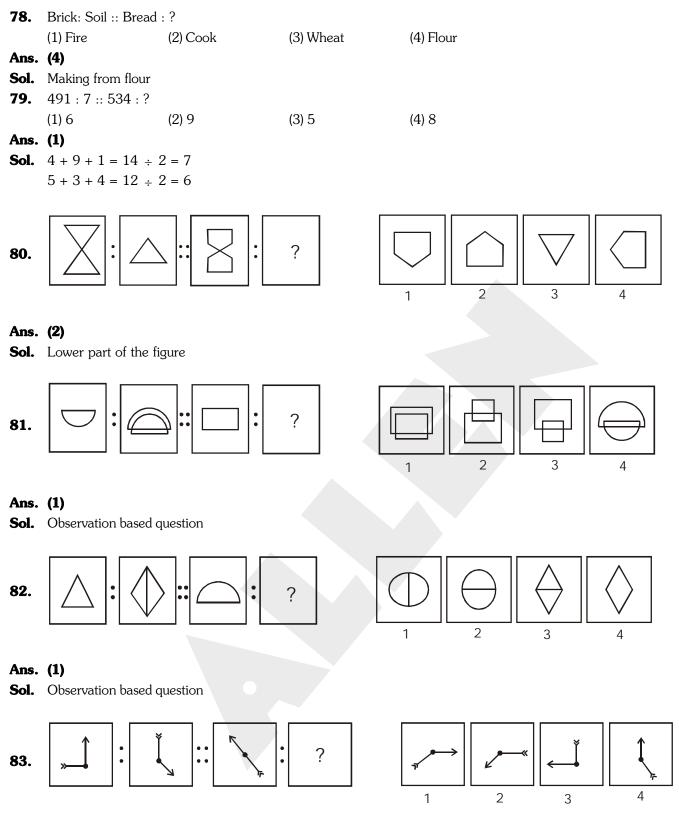
# Ans. (4)

- **Sol.** 2 Triangle and no circle
- **Direction-In question 69 to 84** there are four terms in each question. The relation that exist between the terms left to the symbol :: is the same between the terms right 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 question. Find out the correct alternative and write its number on your answer sheet against the proper question-
- **69.** RSTU : YXVW :: GHIJ : ?

(1) NMLK (2) MLKJ (3) NLMK (4) MKJL

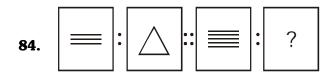
- Ans. (1)
- Sol. Reverse alphabet

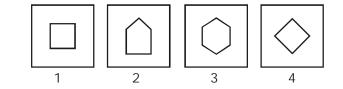
70.	$\frac{16}{3}$ : 4096 :: $\frac{22}{2}$ ?			
	(1) 448	(2) 484	(3) 243	(4) 231
Ans.	(2)			
Sol.	$(16)^3 \rightarrow 4096$			
	$(22)^2 \rightarrow 484$			
71.	DGK : 462 :: NIF?			
	(1) 648	(2) 630	(3) 540	(4) 756
Ans.	(*)			
Sol.	*			
72.	Cold : Hot :: Life : ?	)		
	(1) Age	(2) Death	(3) Pleasure	(4) Health
Ans.	(2)			
Sol.	Opposite			
73.	Lock : Key :: Needle	e : ?		
	(1) Cloth	(2) iron	(3) Tailor	(4) Thread
Ans.	(4)			
Sol.	Pair			
74.	Cricket : Run :: Hoo	ckey : ?		
	(1) Field	(2) Goal	(3) Ball	(4) Player
Ans.	(2)			
Sol.	Relation of game			
75.	MAN : REHTAF :: V	VOMAN : ?		
	(1) RAHTOM	(2) RETHAM	(3) REHTAM	(4) REHTOM
Ans.	•••			
Sol.		everse order REHTAF ER reverse order REF		
76.	Ice : Water:: Water:	?		
	(1) Steam	(2) River	(3) Rain	(4) Sea
Ans.	(1)			
Sol.	Change of state			
77.	$\frac{2}{6}:36::\frac{3}{2}:?$			
	(1) 9	(2) 8	(3) 6	(4) 5
Ans.	(2)			
Sol.	$(6)^2 = 36$			
	$(2)^3 = 8$			



## Ans. (1)

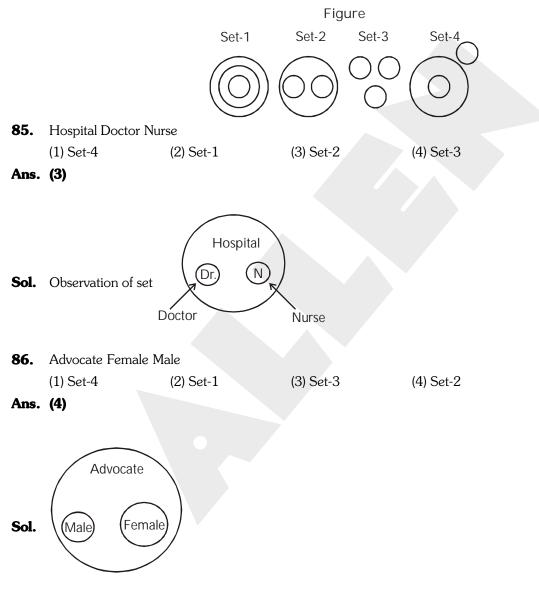
**Sol.** Observation based question

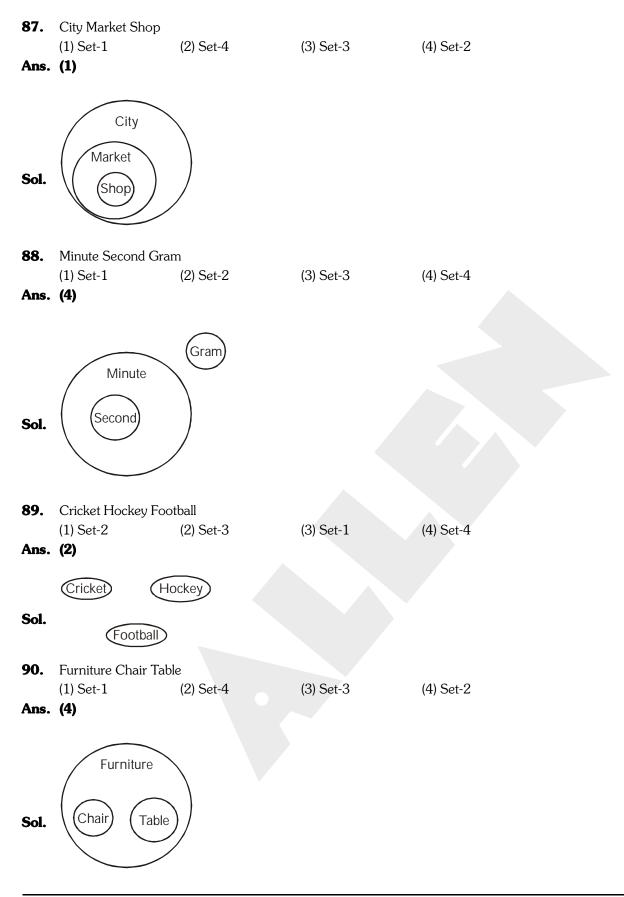


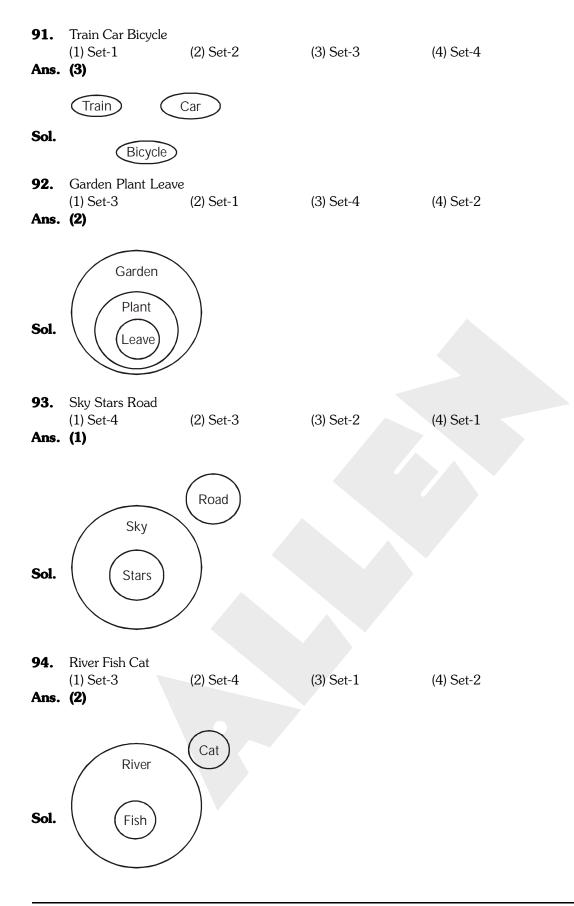


#### Ans. (2)

- **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 question number on your answer sheet-

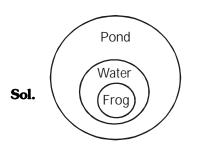






<b>95</b> .	Pond Water Frog			
	(1) Set-3	(2) Set-2	(3) Set-1	(4) Set-4

Ans. (3)



**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-

<b>96</b> .	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.	$Sam = \frac{Ali}{4}$					
	Sam = 11 + Rahul					
	Deepak = Rahul – 5					
<b>98.</b>	If Deepak's age is n	ine years, what is the	age of Ali?			
	(1) 85 yrs	(2) 90 yrs	(3) 97 yrs	(4) 100 yrs		
Ans.	(4)					
Sol.	Rahul = 14					
	Sam = 25					
	Ali = 100					

<b>99</b> .	What is the difference between the age of Sam and Deepak?					
	(1) 16 yrs	(2) 9 yrs	(3) 11 yrs	(4) 5 yrs		
Ans.	(1)					
Sol.	Sam = Deepak + 1	6				
100.	If Deepak's age is e	ight years, how many	years is Ali elder to I	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