

MAT-1

NTSE(I)/19

**NATIONAL TALENT SEARCH EXAMINATION
(FIRST LEVEL) 2019**

Roll No.

410-A

**MENTAL ABILITY TEST
(For Students of Class X)**

Time : 120 Minutes

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you open the question booklet.

1. Answers are to be given on a **separate answer sheet (OMR sheet)**.
2. Please write your **Roll Number** as allotted to you in the admission card very clearly on the **test-booklet** and darken the appropriate circles on the **answer sheet** as per instructions given.
3. There are 100 questions in this test. All are compulsory.
4. Please follow the the instructions given on the answer sheet for marking the answers.
5. If you do not know the answer to any question, do not waste time on it and pass on to the next one. Time permitting, you can come back to the questions, which you have left in the first instance and attempt them.
6. Since the time allotted for this question paper is very limited, you should make the best use of it by not spending too much time on any one questions.
7. **Rough work** can be done **on the given blank pages at the back of the booklet** but not on the answer sheet/loose paper.
8. Every correct answer will be awarded one mark. There will be no negative marking.
9. **Please return the Answer sheet (OMR) only to the invigilator after the test.**

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YOUR DREAM OUR AIM, YOUR AIM OUR DREAM

1st terms : $\overset{+1}{\underbrace{A, B}}, \overset{+1}{\underbrace{C, D}}, \overset{+1}{\underbrace{E, F}}, \overset{+1}{\underbrace{G, H}}$

IInd terms : $\overset{+2}{\underbrace{B, D}}, \overset{+2}{\underbrace{F, H}}, \overset{+2}{\underbrace{J, L}}, \overset{+2}{\underbrace{N, P}}$

IIIrd terms : $\overset{+3}{\underbrace{C, F}}, \overset{+3}{\underbrace{I, L}}, \overset{+3}{\underbrace{O, T}}, \overset{+3}{\underbrace{V, Y}}$

IV terms : $\overset{+4}{\underbrace{D, H}}, \overset{+4}{\underbrace{L, P}}, \overset{+4}{\underbrace{R, X}}, \overset{+4}{\underbrace{Z, \underline{?}}}$

Q.7 D, H, L, P, T, ?

- (1) W (2) X (3) Y (4) U

Ans. [2]

Sol. $\overset{+4}{\underbrace{D, H}}, \overset{+4}{\underbrace{L, P}}, \overset{+4}{\underbrace{T, X}}, \overset{+4}{\underbrace{\underline{?}, \underline{?}}}$

Q.8 ZYAB, VUEF, RQIJ, ?, JIQR.

- (1) NMNM (2) MNMN (3) MNNM (4) NMMN

Ans. [4]

Sol. ZYAB, VUEF, RQIJ, NMMN, JIQR

1st terms : $\overset{-4}{\underbrace{Z, V}}, \overset{-4}{\underbrace{R, N}}, \overset{-4}{\underbrace{J, \underline{?}}}$

IInd terms : $\overset{-4}{\underbrace{Y, U}}, \overset{-4}{\underbrace{Q, M}}, \overset{-4}{\underbrace{\underline{?}, \underline{?}}}$

IIIrd terms : $\overset{+4}{\underbrace{A, E}}, \overset{+4}{\underbrace{I, M}}, \overset{+4}{\underbrace{Q, \underline{?}}}$

IVth terms : $\overset{+4}{\underbrace{B, F}}, \overset{+4}{\underbrace{J, N}}, \overset{+4}{\underbrace{Q, \underline{?}}}$

Instruction: in each of the Question Nos. 9 to 16 a number series is given with one term missing shown by question mark (?). This term is one of the four alternatives given under it. Find the correct alternative.

Q.9 1, 2, 6, 15, ?, 56.

- (1) 31 (2) 40 (3) 37 (4) 45

Ans. [1]

Sol. $1, 2, 6, 15, 31, 56,$
 $\overset{+1^2}{\underbrace{1, 2}}, \overset{+2^2}{\underbrace{2, 6}}, \overset{+3^2}{\underbrace{6, 15}}, \overset{+4^2}{\underbrace{15, 31}}, \overset{+5^2}{\underbrace{31, 56}}$

Q.10 100, 50, $33\frac{1}{2}$, 25, 20, ?

- (1) 15 (2) $16\frac{1}{3}$ (3) $17\frac{2}{3}$ (4) $16\frac{2}{3}$

Ans. [4]

Sol.
$$\begin{array}{cccccc} 100, & 50, & 33\frac{1}{3}, & 25, & 20, & 16\frac{2}{3} \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ \frac{100}{1} & \frac{100}{2} & \frac{100}{3} & \frac{100}{4} & \frac{100}{5} & \frac{100}{6} \end{array}$$

Q.11 17, 16, 8, ?, -83.
 (1) -1 (2) -8 (3) -19 (4) -26

Ans. [3]

Sol.
$$\begin{array}{cccc} 17, & 16, & 8, & -19, -83 \\ \hline -1^3 & -2^3 & -3^3 & -4^3 \end{array}$$

Q.12 6, 24, 60, 120, ?.
 (1) 180 (2) 195 (3) 210 (4) 225

Ans. [3]

Sol.
$$\begin{array}{ccccc} 6, & 24, & 60, & 120, & 210, \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 2^2-2 & 3^3-3 & 4^3-4 & 5^3-5 & 6^3-6 \end{array}$$

Q.13 49, 64, 56, 57, 63, ?, 70, 43.
 (1) 64 (2) 50 (3) 52 (4) 57

Ans. [2]

Sol.
$$\begin{array}{cccccccc} 49, & 64, & 56, & 57, & 63, & 50, & 70, & 43 \\ & \uparrow & & \uparrow\uparrow & & \uparrow\uparrow & & \uparrow \\ & & -7 & & -7 & & -7 & \end{array}$$

Q.14 4, 13, 31, 67, ?, 283.
 (1) 139 (2) 103 (3) 121 (4) 169

Ans. [1]

Sol.
$$\begin{array}{ccccccc} 4, & 13, & 31, & 67, & 139, & 283 \\ \hline -9 & -18 & -36 & -72 \\ \underbrace{\hspace{1.5cm}} & \underbrace{\hspace{1.5cm}} & \underbrace{\hspace{1.5cm}} \\ \times 9 & \times 9 & \times 9 \end{array}$$

Q.15 1, 1, 2, 3, 5, 8, ?, 21.
 (1) 11 (2) 12 (3) 13 (4) 14

Ans. [3]

Sol. 1, 1, 2, 3, 5, 8, (13), 21
 $1 + 1 = 2$
 $1 + 2 = 3$
 $2 + 3 = 5$
 $3 + 5 = 8$
 $5 + 8 = (13)$

Q.16 3, 24, 81, ?, 375, 648.
 (1) 128 (2) 256 (3) 169 (4) 192

Ans. [4]

Sol. 3, 24, 81, (192), 375, 648

$$3 \times 1^3 = 3$$

$$3 \times 2^3 = 24$$

$$3 \times 3^3 = 81$$

$$3 \times 4^3 = (192)$$

$$3 \times 5^3 = 375$$

$$3 \times 6^3 = 648$$

Instruction: Question Nos. 17 to 19 have two statements and two conclusions I and II. You have to assume the given statements as true even if it seems to vary to commonly known facts, Read all the conclusions carefully and decide which of the given conclusions logically follow(s) from the two given statements even disregarding commonly known facts.

Q.17 **Statements :** (i) : All mangoes are trees.
 (ii) : All oranges are trees

Conclusions: (i) : Some mangoes are oranges.
 (ii) : All oranges are mangoes.

(1) Only Conclusion I follows.

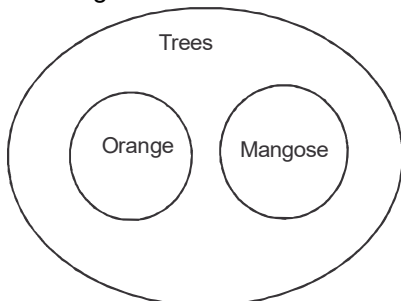
(2) Only Conclusion II follows.

(3) Both conclusion I and II follows.

(4) Neither conclusion I nor II follows.

Ans. [4]

Sol. According to statements



But no relation is mentioned between Mango and Orange Therefore Both conclusions are Possibility but not 100% true

Neither conclusion I nor II follows

Q.18 **Statements :** (i) : Earth is smaller than Moon.
 (ii) : Moon is bigger than Sun.

Conclusions: (I) : Sun is bigger than Earth.
 (II) : Earth and Sun are equal

(1) Only conclusion I follows.

(2) Only conclusion II follows.

(3) Both conclusion I and II follow.

(4) Neither conclusion I nor II follow.

Ans. [4]

Sol. According to statements

Earth < Moon > Sun

So from these statements we cannot do comparison between Earth and sun

Neither conclusion I nor II follows

Q.19 **Statements** : (i) : Some houses are vehicles.

(ii) : Some vehicles are school.

Conclusions: (I) : Some houses are schools.

(II) : Some schools are houses.

(1) Only conclusion I follows.

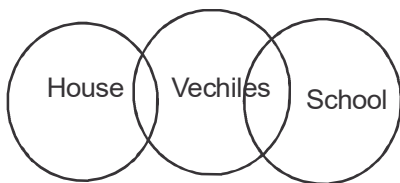
(2) Only conclusion II follows.

(3) Both conclusion I and II follow.

(4) Neither conclusion I nor II follow.

Ans. [4]

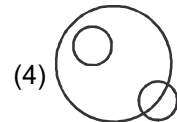
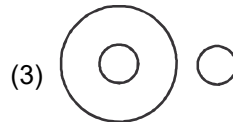
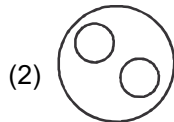
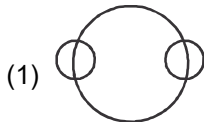
Sol. According to statements



Here also no relation is mentioned between house and school therefore both the conclusion are possibility not 100% ture

Neither Conclusion I and II follows

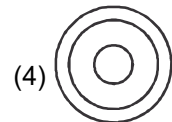
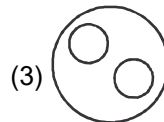
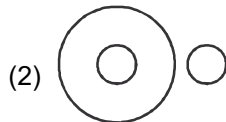
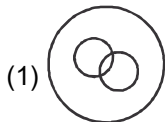
Q.20 Which of the following Venn diagrams correctly represents France, Europe and Canada?



Ans. [3]

Sol. France is a European country Where Canada is not

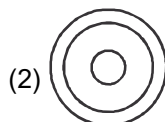
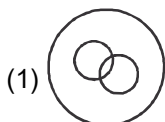
Q.21 Which of the following Venn diagrams correctly represents House, Kitchen and Bathroom?



Ans. [3]

Sol. Kitchen and Boothroom both are inside the hourse but they are different from each other

Q.22 Which of the following Venn diagrams corretly represents Uttar Pradesh, Agra and Taj Mahal?



Ans. [2]

Sol. Tajmahal is in Agra and Agra is in U.P

Q.23 If '<' mean '-', '>' means '+', '=' means 'x' and '@' means '÷' then what will be the value of $7 = 4 < 8 = 3 > 39 @ 3$?

- (1) 10 (2) 17 (3) 39 (4) 52

Ans. [2]

Sol. Given expression is $7 = 4 < 8 = 3 > 39 @ 3$?

New Expression after given interchanges

$$7 \times 4 - 8 \times 3 + 39 \div 3$$

$$= 28 - 24 + 13$$

$$= 4 + 13 = 17$$

Q.24 In a coded language, 'ACE' is written as '1925' and 'BIG' is written as '48149', then in the same language, 'DOG' will be written as

- (1) 41549 (2) 1622549 (3) 162259 (4) 42249

Ans. [2]

Sol. A C E – 1925

$$\text{Position of A} = 1 \rightarrow 1^2 = 1$$

$$\text{C} = 3 \rightarrow 3^2 = 9$$

$$\text{E} = 5 \rightarrow 5^2 = 25$$

∴ in same way code of DOG is

$$\text{Position of D} = 4 \rightarrow 4^2 = 16$$

$$\text{O} = 15 \rightarrow 15^2 = 225$$

$$\text{G} = 7 \rightarrow 7^2 = 49$$

Q.25 In a coded language, 'SHOULDER' is written as 'TJSNMAGZ' and 'BOXING' is written as 'RSYCPH', then in the same language, 'HORN' will be written as

- (1) JSZP (2) JSNS (3) JNZS (4) JZSP

Ans. [1]

Sol. SHOULDER → T J S N M A G Z

BOXING → R S Y C P H

Direct coding of Each letter is given

∴ Code of HORN → J S Z P

Q.26 In a coded language 'CALLED' is written as 'DELLAC' and 'TIGER' is written as 'REGIT', then in the same language, 'NORTH' will be written as

- (1) PQSUK (2) PTTVL (3) HTORN (4) HTRON

Ans. [4]

Sol. CALLED → D E L L A C

TIGER → REGIT

Here the coding of letter is done by reversing the word

∴ in similar way

Code of NORTH is HTRON

Q.27 In the given question, a statement is followed by two arguments I and II. You have to decide which of the following arguments is 'strong' or weak'.

Statements : (i) : High chimneys should be installed in industries.

Arguments : (I) : Yes, it reduces pollution at ground level.

(II) : No, it increases pollution in upper atmosphere.

(1) Only Argument I is strong.

(2) Only Argument II is strong.

(3) Both Arguments I and II are strong.

(4) Both Arguments I and II are weak.

Ans. [1]

Sol. Only Agreement I is strong

Reason : Pollution at ground level is most hazardous in the way of being injurious to human and animal life.

Q.28 Determine the number of rectangles in the following figure:



(1) 7

(2) 8

(3) 9

(4) 10

Ans. [3]

Sol. Number of rectangles are 9, they are

ABCD

CDEF

BGDH

DHFI

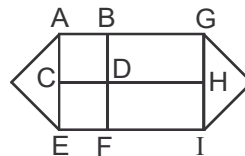
AGCH

CHEI

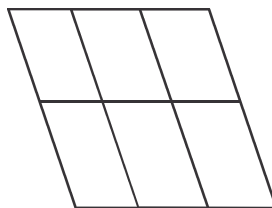
ABEF

BGIF

AGEI



Q.29 Determine the number of parallelograms in the following figure:



(1) 14

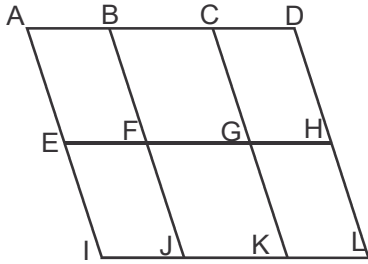
(2) 17

(3) 18

(4) 19

Ans. [3]

Sol.

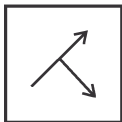


Number of parallelograms are 18

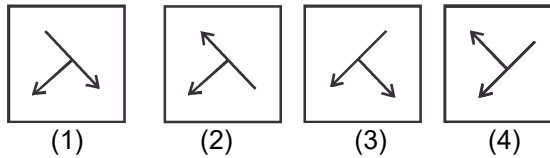
- | | | |
|------|------|------|
| ABFE | ACGE | ABJI |
| BCGF | BDHF | BCKJ |
| CDHG | ADHE | CDLK |
| EFJI | EGKI | ACKI |
| FGKJ | FHLJ | BDLJ |
| GHLK | EHLI | ADLI |

Q.30 In Questions Nos. 30 to 33, Find the correct mirror image of the given figure, when mirror is placed on right side of the figure.

Question Image

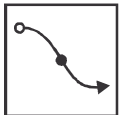


Answer-Image

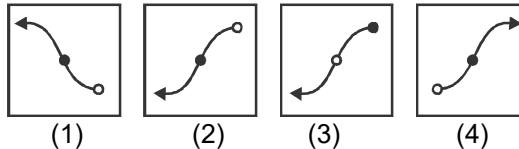


Ans. [2]

Q.31 Question Image



Answer-Image



Ans. [2]

Q.32 QUALITY

- (1) QILATYU (2) YTLIAUQ (3) YTIJAUQ (4) YTIJANQ

Ans. [3]

Q.33 247596

- (1) 695742 (2) 965742 (3) 247596 (4) 965742

Ans. [4]

Instruction: In Question Nos. 34 to 37, find the correct water-image of the given figure.

Q.34 FAMILY

- (1) YLIMAFY (2) YLIMAFY (3) YLIMAFY (4) YLIMAFY

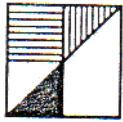
Ans. [4]

Q.35 NhRQSy

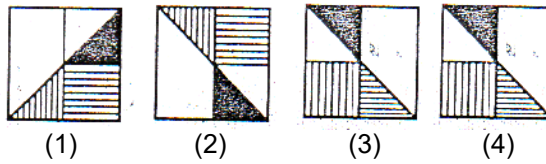
- (1) YzPqRnH (2) YzPqRnH (3) YzPqRnH (4) YzPqRnH

Ans. [1]

Q.36 Question Image

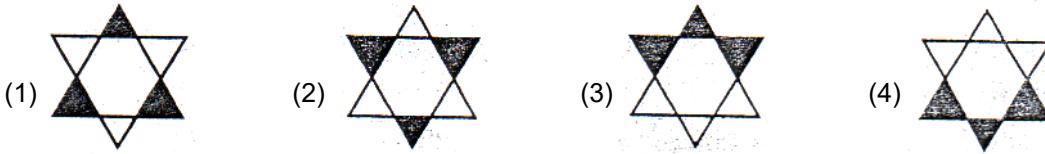


Answer-Image



Ans. [4]

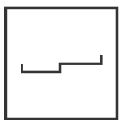
Q.37 Question Figure



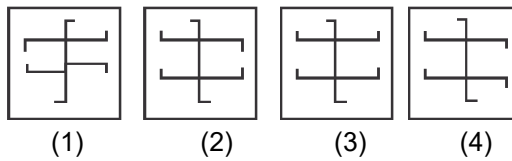
Ans. [2]

Instruction: In the following Question Nos. 38 to 41, there is a question figure, which is embedded in one of the answer figures. Trace out that correct figure.

Q.38 Question Image

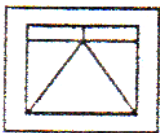


Answer-Image

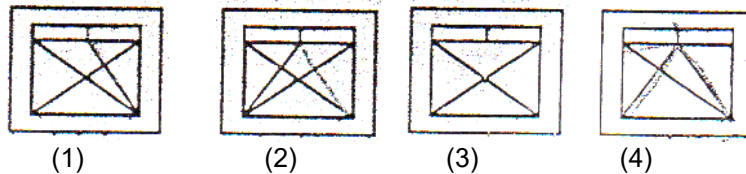


Ans. [1 & 3]

Q.39 Question Image

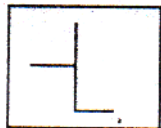


Answer-Image

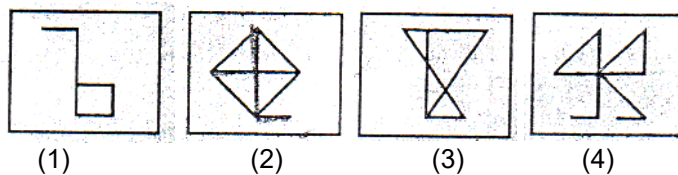


Ans. [4]

Q.40 Question Image

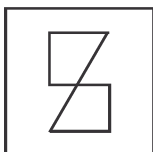


Answer-Image

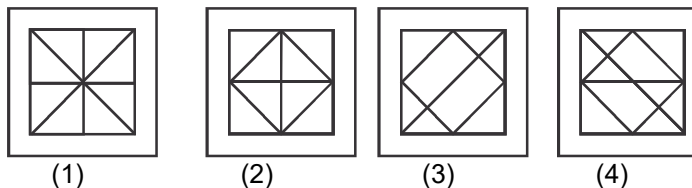


Ans. [2]

Q.41 Question Image

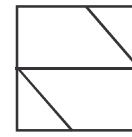
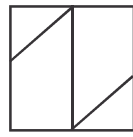
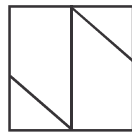
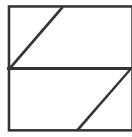
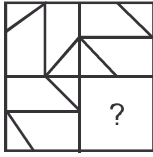


Answer-Image



Ans. [1]

Q.42 Which of the answer figures will complete the given matrix figure?



(1)

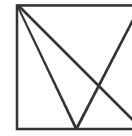
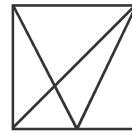
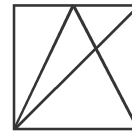
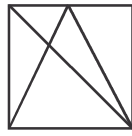
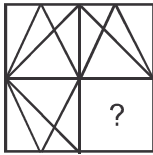
(2)

(3)

(4)

Ans. [3]

Q.43 Which of the answer figures will complete the given matrix figure?



(1)

(2)

(3)

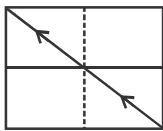
(4)

Ans. [3]

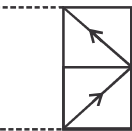
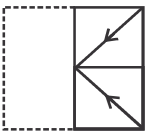
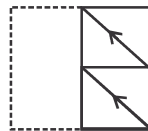
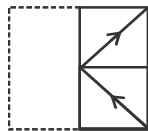
Questions (44- 47)

Instruction: A square transparent sheet with a pattern is folded along the dotted line. which of the following answer figures answer figures is formed after folding the transparent sheet?

Q.44 **Transparent sheet**



Answer-Image



(1)

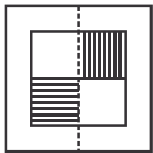
(2)

(3)

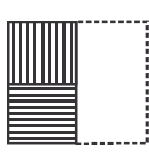
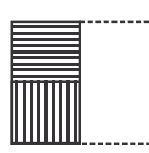
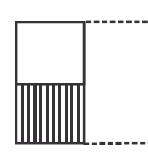
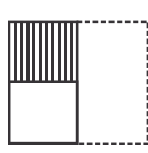
(4)

Ans. [1]

Q.45 **Transparent sheet**



Answer-Image



(1)

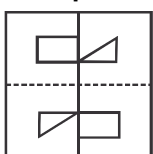
(2)

(3)

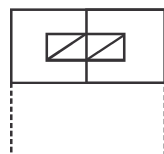
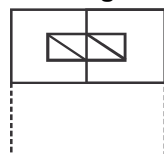
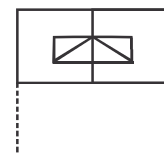
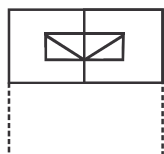
(4)

Ans. [4]

Q.46 **Transparent sheet**



Answer-Image



(1)

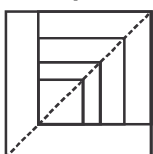
(2)

(3)

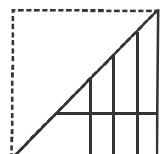
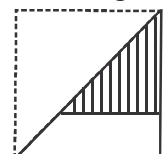
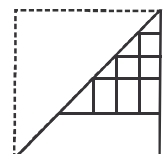
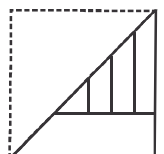
(4)

Ans. [1]

Q.47 **Transparent sheet**



Answer-Image



(1)

(2)

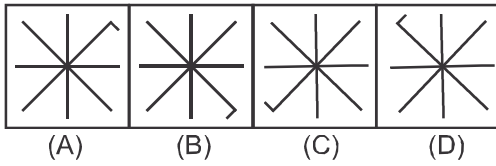
(3)

(4)

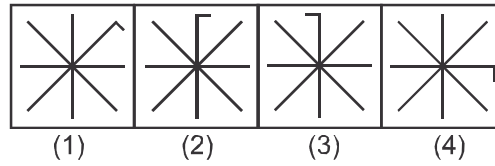
Ans. [1]

Instruction: In Questions Nos. 48 to 55, there are two sets of figures. One set contains problem figures while the other has answer figures. There is a sequence according to which the problem figures are arranged. You have to select an answer figure which can be added in sequence with the problem figures. Choose the correct answer figure.

Q.48 **Problem Figures**

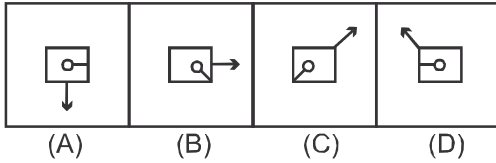


Answer-figures

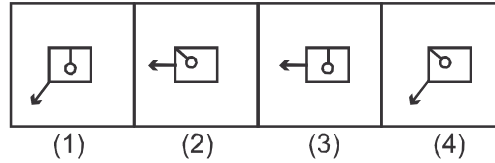


Ans. [1]

Q.49 **Problem Figures**

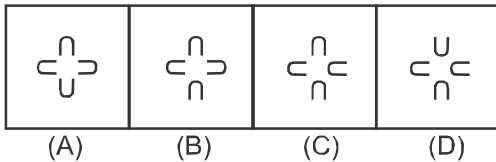


Answer-figures

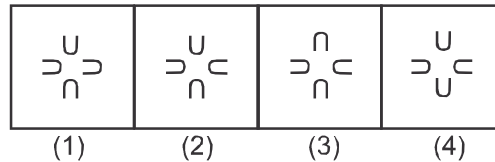


Ans. [3]

Q.50 **Problem Figures**

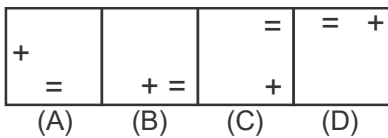


Answer-figures

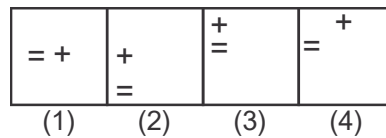


Ans. [2]

Q.51 **Problem figures**

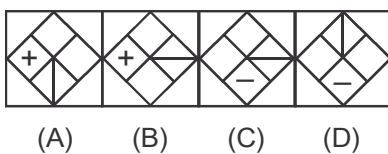


Answer figures

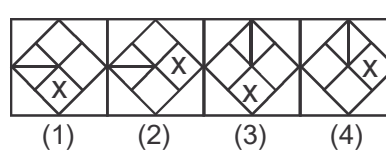


Ans. [4]

Q.52 **Problem figures**

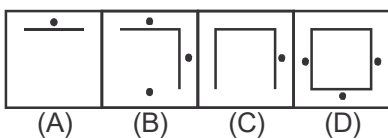


Answer figures

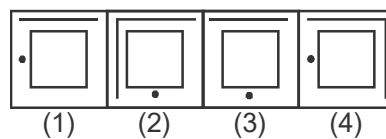


Ans. [4]

Q.53 **Problem figures**

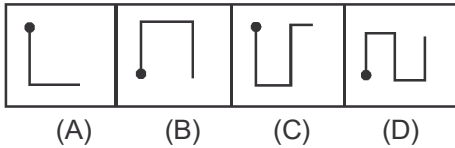


Answer figures

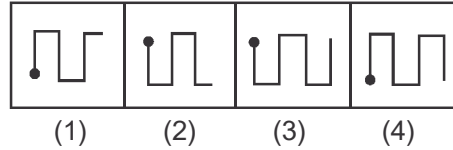


Ans. [3]

Q.54 **Problem figures**

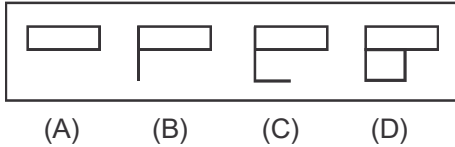


Answer figures

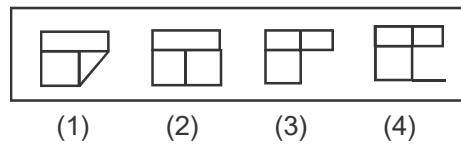


Ans. [2]

Q.55 **Problem figures**



Answer figures



Ans. [3]

Q.56 A family has a man, his wife, their four sons and their wives. Each son has 3 sons and 1 daughter. How many male members are there in the whole family?

- (1) 5 (2) 8 (3) 16 (4) 17

Ans. [4]

Sol. Total male members are

$$1 \text{ Father} + 4 \text{ sons} + 12 \text{ grand sons} = 17$$

Questions (57-60) Read the information given below carefully :

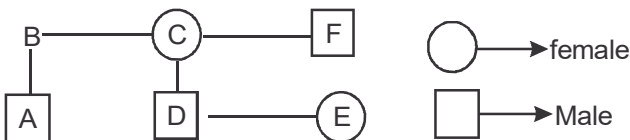
A is the son of B. B's sister C has a son D and a daughter E. F is maternal uncle of D.
Answer Question Nos. 57 to 60 based on this information.

Q.57 How is A related to D?

- (1) Cousin (2) Nephew (3) Brother (4) Uncle

Ans. [1]

Sol. According to Blood relation



Q.58 How is E related to F?

- (1) Sister (2) Daughter (3) Niece (4) Wife

Ans. [3]

Q.59 How many nephews does F have?

- (1) 0 (2) 1 (3) 2 (4) 3

Ans. [3]

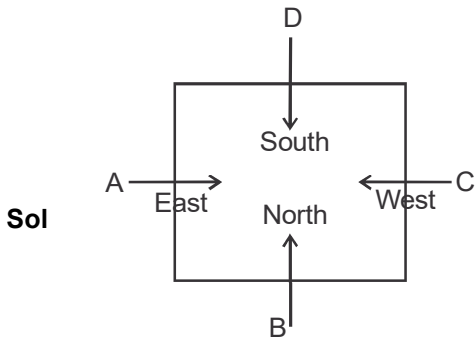
Q.60 How is B related to F?

- (1) (Brother/Sister) (2) Husband (3) Father (4) Cousin

Ans. [1]

Q.61 A, B, C and D are playing carrom. C, A and D, B are partners. D is to the right of C. C is facing west. Then, B is facing which direction?
 (1) North (2) South (3) East (4) West

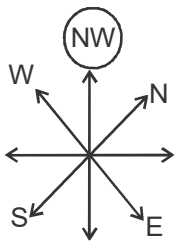
Q.61 [1]



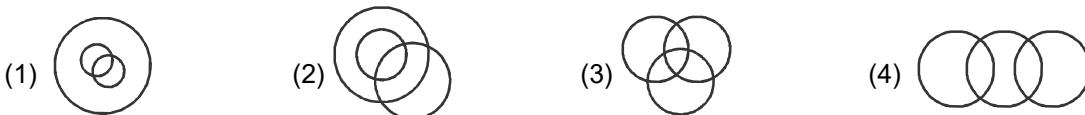
Q.62 If 'South-east' is called 'East', 'North-west' is called 'West', 'South-west' is called 'South', then in the same way, 'North' will be called as
 (1) East (2) North-East (3) North-west (4) West

Ans. [3]

Sol. According to information given in question, direction chart is



Q.63 Which of the following Venn diagrams correctly represents Males, Father and doctors?



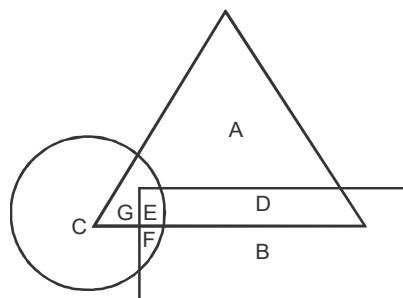
Ans. [2]

Sol. All fathers are males and some Doctors are males who can be fathers also

Questions (64-67)

Instruction : Answer Questions Nos. 64 to 67 based on the diagram given below :

In above figure, triangle shows rural women, rectangle shows unemployed women and circle shows educated women.



Q.64 Educated, employed and rural women are represented by
 (1) D (2) E (3) F (4) G

Ans. [4]

Q.65 What does D represent?
 (1) Educated rural women
 (2) Uneducated, unemployed and rural women
 (3) Educated unemployed women
 (4) Educated employed women

Ans. [2]

Q.66 Educated, unemployed and rural women are represented by
 (1) A (2) B (3) D (4) E

Ans. [4]

Q.67 Educated unemployed women are represented by
 (1) B, C (2) D, E (3) E, F (4) G, E

Ans. [3]

Q.68 How many numbers from 1 to 100 are there which are completely divisible by 4 and also has 4 as digit?
 (1) 7 (2) 10 (3) 20 (4) 25

Ans. [1]

Q.69 How many odd numbers are there in the sequence each of which is immediately followed by an odd number?
 5 1 4 7 3 9 8 5 7 2 6 3 1 5 8 6 3 8 5 2 2 4 6 4 9 6
 (1) 2 (2) 5 (3) 6 (4) 7

Ans. [3]

Sol. Such odd pairs are
 51, 73, 39, 57, 31, 15

Q.70 An integer is greater than 3 but less than 8. Also it is greater than 6 but less than 10. This number is equal to
 (1) 4 (2) 6 (3) 7 (4) 8

Ans. [3]

Sol. Let integer be x
 $3 < x < 8 \rightarrow (1)$
 $6 < x < 10 \rightarrow (2)$
 by (1) and (2)
 $x = 7$

Q.71 A has 18th rank in a class of 49 students. What is his rank from the last?
 (1) 18 (2) 19 (3) 31 (4) 32

Ans. [4]

Sol. $(49 - 18) + 1 = 32$

Q.72 If it was Saturday on 17th December, 2002, then what was the day on 22nd December, 2004?
 (1) Monday (2) Sunday (3) Friday (4) Tuesday

Ans. [2]

Sol. Given 17 Dec 2002 → Saturday
 17 Dec 2004 → Tuesday
 22 Dec 2004 → Sunday

Q.73 If number of days are not considered, which two months in a year have same calendar?
 (1) June, October (2) April, November (3) April, July (4) October, December

Ans. [3]

Sol. Option (3) because from April to June the total no of odd days are zero The calendar of April can again be repeated in July

Q.74 If 25th August in a year is Thursday, then number of Monday in that month is
 (1) 3 (2) 4 (3) 5 (4) 6

Ans. [3]

Sol. Dates in August, on which Monday is weekday are 1 Aug, 8 Aug, 15 Aug, 22 Aug, 29 Aug

Q.75 If (+) stands for (×), (−) stands for (÷), (×) stands for (−) and (÷) stands for (+), then value of $[26 + 72 - 4 \times 5 \div 2]$ is
 (1) 108 (2) 465 (3) 471 (4) 488

Ans. [2]

Sol. Given Expressions $[26 + 72 - 4 \times 5 \div 2]$

After given changes new expression is $[26 + 72 \div 4 - 5 + 2] = 465$

Q.76 If $A + B > C + D$ and $D + A < B + C$, then
 (1) $D > B$ (2) $C > D$ (3) $A > D$ (4) $B > D$

Ans. [4]

Sol. Given $A+B>C+D \rightarrow (1)$
 $B+C>D+A \rightarrow (2)$
 add (1) and (2)

$$\begin{array}{l} A+2B+C > C+2D+A \\ \cancel{A} \quad \cancel{C} \\ \underline{2B > 2D} \\ \boxed{B > D} \end{array}$$

Q.77 Arrange the following in a meaningful sequence :
 A = Birth, B = Death, C = Funeral, D = Marriage, E = Result
 (1) AEDBC (2) ADECB (3) ACBDC (4) ADEBC

Ans. [1]

- Q.78 Arrange the following in a meaningful sequence :
 A = Study, B = Service, C = Examination, D = Earning, E = Result
 (1) EACDB (2) ABECD (3) ACEBD (4) AECBD

Ans. [3]

- Q.79 A solid cube of white material is painted black on all its surface. If its is cut into 125 smaller cubes of same size, then how many cubes will have two sides painted black?
 (1) 32 (2) 36 (3) 42 (4) 40

Ans. [2]

Sol. According to formulae no of cubes have 2 sides painted black = $12(n - 2)$

Where value of $n = 5 = (\sqrt[3]{125})$

$$12(n - 2) = 12(5 - 2)$$

$$= 12 \times 3 = 36$$

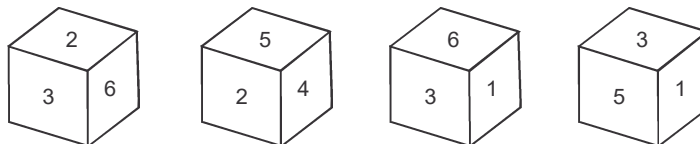
- Q.80 A cube painted red on all faces is cut into 27 small cubes of equal size. How many cubes are not painted on any face?
 (1) 1 (2) 3 (3) 4 (4) 6

Ans. [1]

Sol. 27 small cubes $n = \sqrt[3]{27} = 3$

no face painted cubes are = $(n - 2)^3$
 $= (3 - 2)^3 = 1$

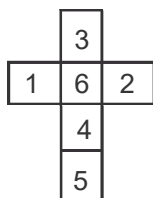
- Q.81 The four different positionof a die are given below. Which number is on the face opposite to 3 ?



- (1) 6 (2) 4 (3) 2 (4) 5

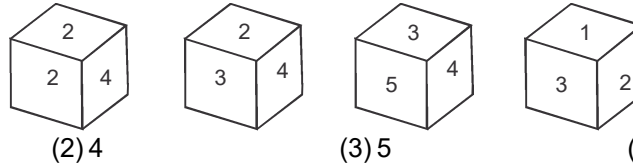
Ans. [2]

Sol. Unfolded dice is



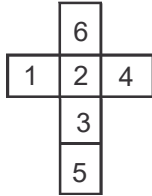
Opposite to 3 in unfolded dice is 4

Q.82 The four different positions of the die are given below. Which number is on the face opposite to 2 ?



- (1) 3 (2) 4 (3) 5 (4) 6

Ans. [3]



Sol. Opposite to 2 in unfolded dice is 5

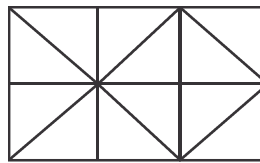
Q.83 How many two-digit numbers can be formed from numbers 2, 5, 6, 8, 7, 1 such that each number has digit 8 always ?

- (1) 9 (2) 10 (3) 11 (4) 12

Ans. [3]

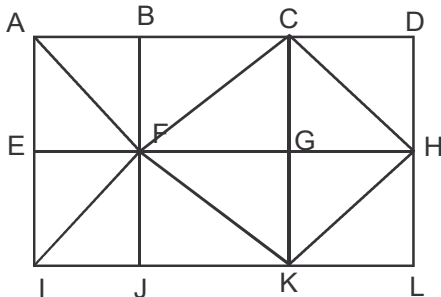
Sol. 82, 85, 86, 87, 81, 88, 28, 58, 68, 78, 18, are such numbers

Q.84 Determine the number of squares in the following figure -



- (1) 7 (2) 8 (3) 9 (4) 10

Ans. [3]



Sol. no of squares are 9 they are

- | | | |
|------|------|------|
| ABFE | EFJI | ACKI |
| BCGF | FGKJ | BDLJ |
| CDHG | GHLK | CHKF |

Q.85 If '+' stands for 'x', '-' stands for '÷', 'x' stands for '-' and '÷' stands for '+', then value of $\frac{(36 \times 4) - 8 \times 4}{4 + 8 \times 2 + 16 \div 1}$ is

- (1) 8 (2) 12 (3) 0 (4) 4

Ans. [3]

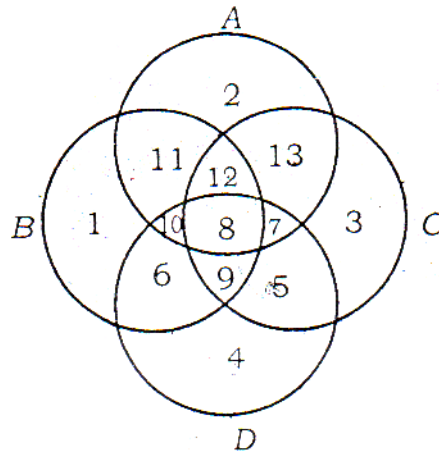
Sol. new expression according to given changes is $\frac{(36 - 4) \div 8 - 4}{4 \times 8 - 2 \times 16 + 1} = \frac{32 \div 8 - 4}{32 - 32 + 1} = \frac{0}{1} = 0$

Q.86 In a row of students, A is sixth from the left and B is tenth from the right. If there are 8 students between A and B, the total number of students in the row is
 (1) 23 (2) 24 (3) 25 (4) 26

Ans. [2]

Sol. Arrangement of students in row is 5 A 8 B 9 total students are 24

Instructions : Answer question no. 87 to 90 based on the diagram given below.



Circle A represents men having TV, Circle B represents men having scooter, circle C represents men having laptop and circle D represents men having car.

Q.87 Men having scooter, TV, Laptop but not car are represented by which number ?
 (1) 4 (2) 7 (3) 11 (4) 12

Ans. [4]

Q.88 Men having only car (no other item) are represented by which number ?
 (1) 4 (2) 5 (3) 6 (4) 7

Ans. [1]

Q.89 Men having neither scooter nor car are represented by which number ?
 (1) 13 only (2) 2 only (3) 3 only (4) 2, 13, 3

Ans. [4]

Q.90 Men having car and laptop only are represented by which number ?
 (1) 9 (2) 8 (3) 7 (4) 5

Ans. [4]

Q.91 As 'circle' is related to its 'circumference', in the same way, 'square' is related to which of the following ?
 (1) Volume (2) Area (3) Diagonal (4) Perimeter

Ans. [4]

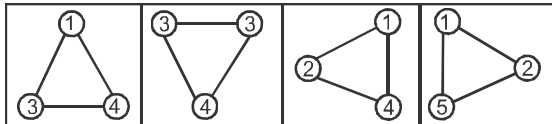
Q.92 As 'walking' is related to 'running', in the same way, 'smiling' is related to which of the following ?
 (1) feeling (2) weeping (3) laughing (4) watching

Ans. [3]

Q.93 As 'college' is related to its 'student' in the same way, 'hospital' is related to which of the following ?
 (1) Doctor (2) Patient (3) Nurse (4) Treatment

Ans. [2]

Q.94 One of these figures does not correlate with rest of the figures. Select that odd figure.

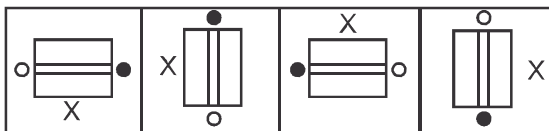


(1) (2) (3) (4)

Ans. [2]

Sol. Sum of numbers is 8 except option (2)

Q.95 One of these figures does not correlate with rest of the figures. Select that odd figure.

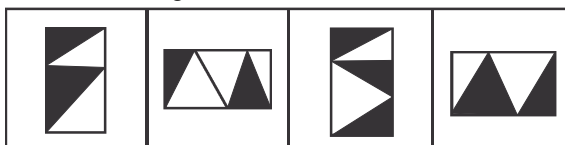


(1) (2) (3) (4)

Ans. [4]

Sol. Considering anticlockwise rotation arrangement of symbols O → X → • in all figure except option (4)

Q.96 One of these figures does not correlate with rest of the figures. Select that odd figure.



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

Ans. [2]

Sol. Alternate coloring of black & white in cells except option (2)

Q.97 Three alternatives are alike in a certain way but the rest one is different. Select the odd one.
 (1) Radish (2) Carrot (3) Pea (4) Turnip

Ans. [3]

Sol. All are root vegetables except option (3)

Q.98 Three alternatives are alike in a certain way but the rest one is different. Select the odd one.
 (1) 105 (2) 91 (3) 65 (4) 117

Ans. [1]

Sol. All are divisible by 13 except option (1)

Q.99 Three alternatives are alike in a certain way but the rest one is different. Select the odd one.
(1) OVO (2) CUU (3) TTA (4) AFA

Ans. [3]

Sol. All have 2 vowels and 1 consonant except option (3)

Q.100 Three alternatives are alike in a certain way but the rest one is different. Select the odd one.
(1) Football (2) Carrom (3) Hockey (4) Cricket

Ans. [2]

Sol. All are outdoor games except option (2)

