



**NATIONAL TALENT SEARCH EXAMINATION  
(NTSE-2017-18) STAGE -1  
STATE : ODISHA PAPER : MAT**

Date: 05/11/2017

Max. Marks: 50

**SOLUTIONS**

Time allowed: 45 mins

1. In a telephone directory, which among the following names will appear in the middle?  
Sajewat, Segvan, Sajevar, Sajewet, Salwar  
A. Sajewat                      B. Segvan                      C. Sajevar                      D. Sajewet

Ans. (D)

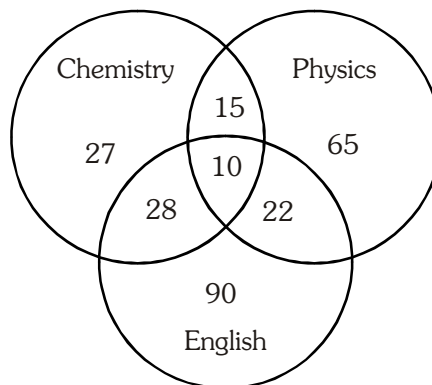
Sol. Sajevar, Sajewat, Sajewet, Salwar, Segvan  
∴ Sajewet

2. Select the series in which letters are not according to a general rule.  
A. CEGIKM                      B. MORTVX                      C. PRTVXZ                      D. ZBDFHJ

Ans. (B)

Sol.  $\begin{matrix} M & O & R & T & V & X \\ +2 & +3 & +2 & +2 & +3 \end{matrix}$

3. In the diagram, the number of those candidates is given who passed in physics, Chemistry and English. Total number of candidates who appeared for the examination was 600, Find the percentage of Candidates who passed in at least two subjects.



- A. 12.5                      B. 1.25                      C. 12.05                      D. 12

Ans. (A)

Sol.  $15 + 28 + 22 + 10 = 75$

$$\frac{75}{600} \times 100 = 12.5$$

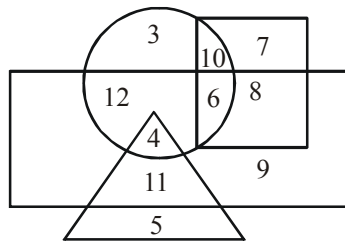
4. Rahul ranked ninth from the top and thirty eighth from the bottom in a class. How many students are there in the class?  
A. 45                      B. 46                      C. 47                      D. 48

Ans. (B)

Sol.  $\begin{array}{c} \longrightarrow 9^{\text{th}} \\ \hline 38^{\text{th}} \longleftarrow \end{array}$

$$\therefore 9 + 38 = 47 - 1 = 46$$

5. Who are the illiterate females who do not live in the village?



- Village Residents Females
- △ Illiterate Women
- Staff
- ▭ Women

- A. 4    B. 11    C. 5    D. 9

**Ans. (B)**

**Sol.** Illiterate female Not live in village = 11

6. If 1.12.91 is the first Sunday then which is the fourth Tuesday of December 1991?

- A. 17.12.91    B. 24.12.91    C. 26.12.91    D. 31.12.91

**Ans. (B)**

**Sol.** 3 Dec. Tuesday

10 Dec. Tuesday

17 Dec. Tuesday

24 Dec. Tuesday

7. There are five books A, B, C, D and E. The book C lies above D. The book E is below A, D is above A, B is below E. Which is at the bottom ?

- A. E    B. B    C. A    D. C

**Ans. (B)**

**Sol.** C,D,A,E,B

8. In a chess tournament each of six players will play every other player exactly once. How many matches will be played during the tournament?

- A. 12    B. 15    C. 30    D. 36

**Ans. (B)**

**Sol.**  $5 + 4 + 3 + 2 + 1 = 15$

9. At a party, there are 43 persons in all. The number of woman is two more than man but the number of children is 4 less than men. How many women are there?

- A. 11    B. 13    C. 17    D. 15

**Ans. (C)**

**Sol.**  $W = M + 2$

$C = M - 4$

$M + W + C = 43$

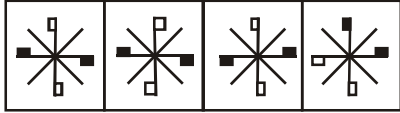
∴  $M = 15$  and women = 17

**Direction (Q.10-11) :** In each question, find the water-image of the Figure (X) from the given choice

10.



(X)

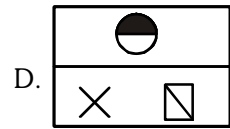
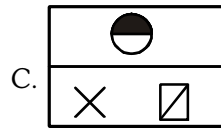
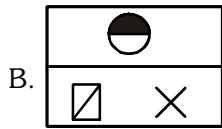
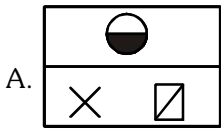
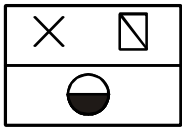


A. B. C. D.

**Ans. (B)**

**Sol.** By observation

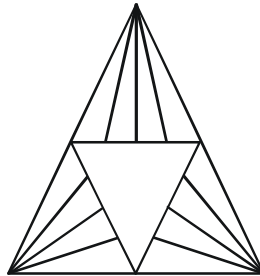
11.



**Ans. (C)**

**Sol.** By observation

12. Find the number of triangles in the diagram given below



A. 32

B. 31

C. 30

D. 29

**Ans. (A)**

**Sol.** By observation

**Direction (Q.13-14) :** Read the following information carefully to answer the questions.

A cube is coloured red on all of its faces. It is then cut into 64 smaller cubes of equal size. The smaller cubes, so obtained are now separated.

13. How many smaller cubes will have at least two surfaces painted with red colour ?

A. 4

B. 18

C. 32

D. 24

**Ans. (C)**

**Sol.** Two surface + Three surface

$$24 + 8 = 32$$

14. How many smaller cubes have two surfaces painted with red colour ?

- A. 24                                      B. 8                                      C. 12                                      D. 20

Ans. (A)

Sol. Two surface painted =  $(n - 2) \times 12 = (4 - 2) \times 12 = 24$ .

15. If CAT = 12, then MAN = ?

- A. 14                                      B. 24                                      C. 16                                      D. 15

Ans. (A)

Sol.  $\frac{13+1+14}{2} = \frac{28}{2} = 14$

16. If 'FLARE' is coded as 21, 15, 26, 9, 22, then how would 'BREIF' be coded in the same language?

- A. 25,9,22,21,18                      B. 5,37,11,19,13                      C. 13,19,11,37,5                      D. 25,9,22,18,21

Ans. (D)

Sol. Reverse position value

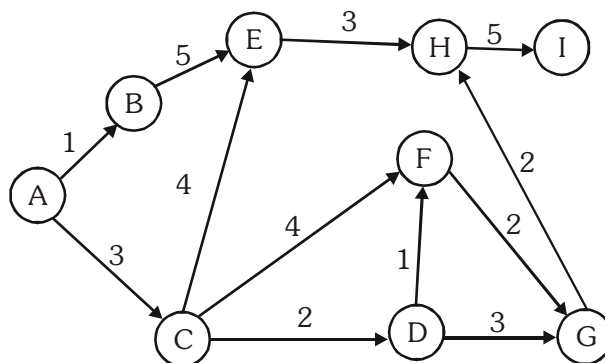
17. If in a certain code MOTHER is coded as NPUIFS, then ZENITH will be coded as

- A. AFOGHJ                                      B. BGPKVJ\                                      C. AFOJUI                                      D. AFOGHI

Ans. (C)

Sol.    Z   E   N   I   T   H  
       +1 +1 +1 +1 +1 +1  
       A   F   O   J   U   I

**Direction (Q.18-20) :** It is an arrow diagram of travel network from A to I . The number alongside the arrows indicate the time it takes in hours to cover the distance between two stations. Study the diagram and answer the following questions.



18. Which is the shortest path one can take to travel from A to I ?

- A. ACEHI                                      B. ACFGHI                                      C. ACDGHI                                      D. ABEHI

Ans. (D)

Sol. ABEHI

$1 + 5 + 3 + 5 = 14$

shortest path from A to I

19. A person travels to I via A, C, D, F, G and H and returns via H, E, B and back to A. How many hours has he travelled?

- A. 29 hrs                                      B. 31 hrs                                      C. 28 hrs                                      D. 32 hrs

Ans. (A)

Sol.  $3 + 2 + 1 + 2 + 2 + 5 = 15$

$5 + 3 + 5 + 1 = 14$

∴ 29 hours

20. If critical path is defined as the path which takes the longest time, then which is the critical path between A to I?

- A. ABEHI                                      B. ACFGHI                                      C. ACDGHI                                      D. ACDFGHI

Ans. (B)

Sol. A C F G H I

$3 + 4 + 2 + 2 + 5 = 16$

Direction (Q.21-24) : Analyse the given data and answer the following questions.

If  $A = B$ ,  $B = C^2$ ,  $C = D^2$ ,  $D = E^2$ ,  $E = A^2$  and  $A + B^1 E$  then

21.  $B + \frac{C}{2} + \frac{D}{2}$  is equal to

- A. 2                                      B. 4                                      C. 1                                      D. 3/2

Ans. (Bonus)

22. The value of  $A^2 + E^2$  is

- A. a multiple of 2 greater than four                                      B. a multiple of 3  
C. a prime number                                      D. a number greater than 10

Ans. (Bonus)

23. Which of the following is a multiple of 5 ?

- A.  $7C^2 + 3E$                                       B.  $2D^2 + 6A^3$                                       C.  $2E + A + 8B$                                       D.  $A+2B + 6C$

Ans. (Bonus)

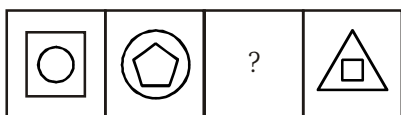
24. Which of the following is the value of A ?

- A.  $B^3$                                       B.  $E^{16}$                                       C.  $B^{10}$                                       D.  $C^5$

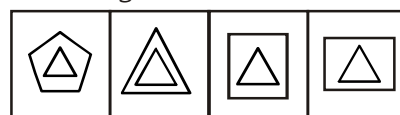
Ans. (Bonus)

Direction (Q.25-27) : In each of these question, a series is given in which one figure is missing. Find the missing figure from the given choice.

25. Problem figure



Answer figure

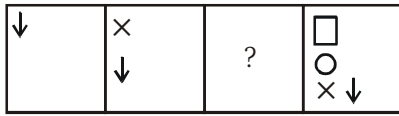


- A. 1                                      B. 2                                      C. 3                                      D. 4

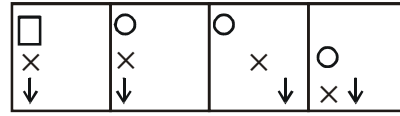
Ans. (A)

Sol. By observation

26. Problem figure



Answer figure



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

A. 1

B. 2

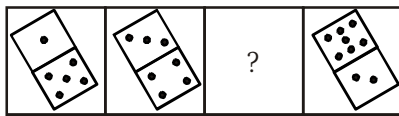
C. 3

D. 4

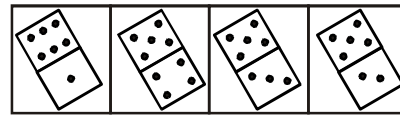
Ans. (B)

Sol. By observation

27. Problem figure



Answer figure



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

A. 1

B. 2

C. 3

D. 4

Ans. (C)

Sol. By observation

Direction (Q.28-31) : In each of these questions, identify the odd one from the given choice.

28. A. Hard : Soft

B. Long : High

C. Sweet : Sour

D. Pointed : Blunt

Ans. (B)

Sol. By observation

29. A. 8314

B. 2709

C. 1315

D. 2518

Ans. (A)

Sol. First 3 digits sum is the last digit.

30. A. 71,7,3,17

B. 67,71,3,5

C. 41,5,3,47

D. 37,14,19,7

Ans. (D)

Sol. All are not prime numbers.

31. A. DXCLQZ

B. PFZUBM

C. XGKNTY

D. NWMBHJ

Ans. (B)

Sol. Option (B) have vowel

32. In the sequence of numbers 5,8,13, x, 34,55,89 the value of x is

A. 20

B. 21

C. 23

D. 29

Ans. (B)

Sol.  $5 + 8 = 13$ ,  $13 + 8 = 21$

33. Find the missing term in the series  $\frac{3}{\sqrt{4}}, \frac{5}{4}, \frac{7}{4\sqrt{4}}, \frac{9}{6}, ?$

A.  $\frac{12}{16\sqrt{4}}$

B.  $\frac{11}{16\sqrt{4}}$

C.  $\frac{14}{16\sqrt{4}}$

D.  $\frac{15}{16\sqrt{4}}$

Ans. (B)

Sol. Numerators are + 2, Denominators are multiply by  $\sqrt{4}$

34. In the following number series, a number is wrong. Find the that number :

2,3,10,40,172,885,5346

A. 3

B. 885

C. 40

D. 172

Ans. (C)

Sol.  $2, 3, 10, \overset{39}{40}, 172, 885, 5346$   
 $\times 1+1 \quad \times 2+4 \quad \times 3+9$

35. Find out the missing term in the following series W-144, ?, S-100, Q-81, 0-64

A. V-121

B. U-122

C. V-128

D. U-121

Ans. (D)

Sol.  $\underbrace{W - 144}_{-2}, \underbrace{U - 121}_{-2}, \underbrace{S - 100}_{-2}, \underbrace{Q - 81}_{-2}$

36. In the given series of letters a definite rule is followed. Determine the next two letters following the correct order.

AJKTUBILSVCHMRWDGNQXEFO??

A. YZ

B. PY

C. ZA

D. PZ

Ans. (B)

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

37. If P + Q is 'P' is the husband of 'Q'; P ÷ Q means 'P' is the sister of Q and P × Q means 'P' is the son of 'Q', which of the following shows 'A' is the daughter of 'B'?

A. C × B ÷ A

B. B + C × A

C. D × B + C ÷ A

D. A ÷ D × B

Ans. (D)

Sol. 

38. 'P' walks 10 meters in front and 10 meters to the right. Then, every time turning to his left he walks 5, 15 and 15 meters respectively. How far is he now from his starting point?

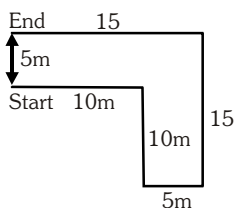
A. 2 meter

B. 4 meter

C. 8 meter

D. 5 meter

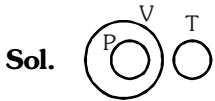
Ans. (D)

Sol. 

39. Potato, tomato and vegetable can be represented by a pattern. Find the best one



Ans. (D)



40. If Republic day was celebrated in 1996 on Friday, on which day in 2000 independence day was celebrated?

- A. Tuesday                                      B. Monday                                      C. Sunday                                      D. Saturday

Ans. (A)

Sol. Number of odd day is 4

$$\therefore \text{friday} + 4 = \text{tuesday}$$

41. In a leap year 1st January is Friday, then what is the first day of the month of March ?

- A. Tuesday                                      B. Wednesday                                      C. Thursday                                      D. Friday

Ans. (A)

Sol. Number of odd days is 4

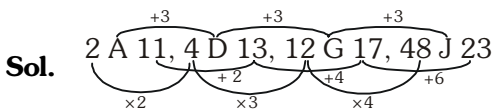
$$\therefore \text{friday} + 4 = \text{tuesday}$$

42. Find the missing term in the series

2A11, 4D13, 12G17, \_\_\_\_\_

- A. 36J21                                      B. 48J21                                      C. 48J23                                      D. 36A19

Ans. (C)



43. What will be the angle between hour hand and minute hand, if clock shows 8 : 30 p.m.?

- A. 90°                                      B. 75°                                      C. 60°                                      D. 85°

Ans. (B)

Sol.  $\theta = \left| \frac{11}{2} \times 30 - 30 \times 8 \right| = 75^\circ$

44. The sum of the ages of 5 children born at the intervals of 3 year each is 50 year. What is the age of the youngest child?

- A. 4 year                                      B. 8 year                                      C. 10 year                                      D. None of these

Ans. (A)

Sol.  $x + x + 3 + x + 6 + x + 9 + x + 12 = 50$

$$x = 4$$



45. Given that :

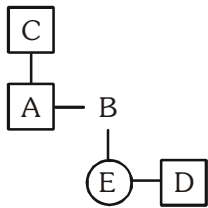
- i. A is the brother of B
- ii. C is the father of A
- iii. D is the brother of E
- iv. E is the daughter of B

Then, uncle of D is

- A. A
- B. B
- C. C
- D. E

Ans. (A)

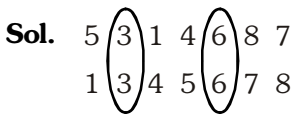
Sol.



46. The positions of how many digits in the number '5314687' will remain unchanged after the digits are rearranged in ascending order within the number?

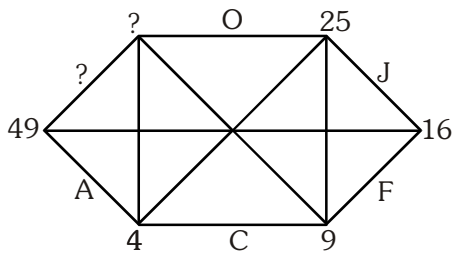
- A. None
- B. One
- C. Two
- D. Three

Ans. (C)



Direction (Q.47-49) : In each question find out the missing numbers and letters?

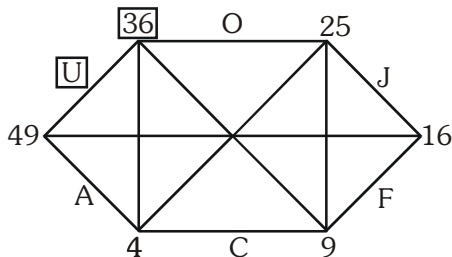
47.



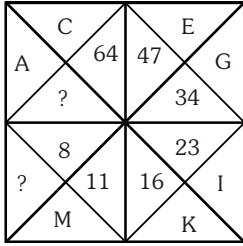
- A. Y and 40
- B. U and 36
- C. W and 64
- D. X and 81

Ans. (B)

Sol.



48.



A. J and 80

B. O and 83

C. N and 74

D. P and 85

Ans. (B)

Sol. Number difference is prime number. Letters difference is +2, +2, ...

49.

DL	10	14	FR
RX	23	18	SM
KM	?	?	PV

A. 18,34

B. 14,21

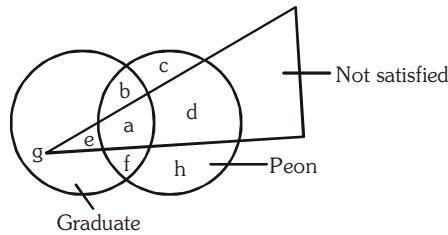
C. 56,84

D. 12,18

Ans. (B)

Sol.  $\frac{\text{Position's sum} + 4}{2}$

50. Study the following figure and find the area which represents the persons who are graduate and peon but not satisfied



A. b

B. e

C. a

D. f

Ans. (C)

Sol. By observation