

# NATIONAL TALENT SEARCH EXAMINATION(FIRST LEVEL)-2016

(For Students of Class X)

## Scholastic Aptitude Test

08-11-2015

Time : 90 minutes

Max. Marks: 100

1. A car travels 40 kms at an average speed of 80 km/h and then travels 40 kms at an average speed of 40 km/h.

The average speed of the car for this 80 km trip is-

- (1) 40 km/h                      (2) 45 km/h                      (3) 48 km/h                      (4) 53 km/h

Ans. [4]

Sol. Given  $S_1 = 40$  km

$$V_1 = 80 \text{ km/hr}$$

$$S_2 = 40 \text{ km}$$

$$V_2 = 40 \text{ km/hr}$$

then,

$$\text{Average velocity} = \frac{\text{total distance}}{\text{total time take}}$$

$$\text{Then } t_1 = \frac{S_1}{V_1} = \frac{40}{80} = \frac{1}{2} \text{ hr}$$

$$t_2 = \frac{S_2}{V_2} = \frac{40}{40} = 1 \text{ hr}$$

$$\text{so total distance} = S_1 + S_2 = 40 + 40 = 80 \text{ km}$$

$$\text{Average velocity} = \frac{S_1 + S_2}{t_1 + t_2} = \frac{40 + 40}{\frac{1}{2} + 1} \Rightarrow \frac{80}{\frac{3}{2}} = \frac{160}{3} = 53 \text{ km/hr}$$

2. The term 'mass' refers to the same physical concept as

- (1) weight                      (2) inertia                      (3) force                      (4) acceleration

Ans. [2]

Sol. The terms 'mass' refers to the same physical concept as inertia

3. A 5.0 kg object is moving horizontally at 6.0 m/s. In order to change its speed to 10.0 m/s, the net work done on the object must be

- (1) 40 J                      (2) 90 J                      (3) 160 J                      (4) 20 J

**Ans.** [3]

**Sol.** Given, initial velocity ( $u$ ) = 6 m/s  
final velocity ( $v$ ) = 10 m/s  
mass ( $m$ ) = 5.0 kg

work done = change in K.E.

$$= K.E_f - K.E_i$$

$$= \frac{1}{2}mv^2 - \frac{1}{2}mu^2$$

$$= \frac{1}{2}m(v^2 - u^2)$$

$$= \frac{1}{2} \times 5 \left( (10)^2 - (6)^2 \right)$$

$$\text{work done} = \frac{1}{2} \times 5 \times 64 = 160 \text{ J}$$

4. The momentum of an object at a given instant is independent of its

- (1) inertia                      (2) speed                      (3) velocity                      (4) acceleration

**Ans.** [4]

**Sol.** The momentum of an object at a given instant is independent of its acceleration

5. The pressure exerted on the ground by a man is greatest when

- (1) he stands with both feet flat on ground                      (2) he stands flat on one foot  
(3) he stands on the toes of one foot                      (4) all the above yield the same pressure

**Ans.** [3]

**Sol.** The pressure exerted on the ground by a man is greatest when he stands on the toes of one foot.

6. A sound wave has a wavelength of 3.0 m. The distance from a compression centre to the adjacent rarefaction centre is

- (1) 0.75 m                      (2) 1.5 m                      (3) 3.0 m                      (4) 6.0 m

**Ans.** [2]

**Sol.** A sound wave has a wavelength ( $\lambda$ ) = 3.0 m so the distance from a compression centre to the adjacent rarefaction centre is  $\frac{\lambda}{2} = \frac{3.0}{2} = 1.5 \text{ m}$

7. Of the following, the copper conductor that has the least resistance is

- (1) thin, long and hot                      (2) thick, short and cool  
(3) thick long and hot                      (4) thin, short and cool

**Ans.** [2]

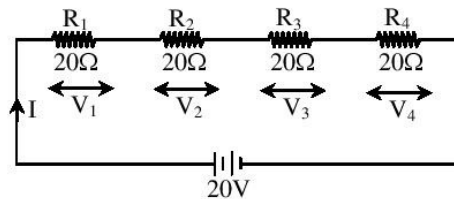
**Sol.** The copper conductor that has the least resistance is thick, short & cool.

8. Four  $20\ \Omega$  resistors are connected in series and the combination is connected a  $20\ \text{V}$  emf device. The potential difference across any one of the resistors is

- (1)  $5\ \text{V}$                       (2)  $2\ \text{V}$                       (3)  $4\ \text{V}$                       (4)  $20\ \text{V}$

**Ans.** [1]

**Sol.** Given 4 Resistance, each of  $20\ \Omega$  connected in series



Equivalent resistance ( $R_{eq}$ ) =  $R_1 + R_2 + R_3 + R_4$

$$= 20 + 20 + 20 + 20$$

$$R_{eq} = 80\ \Omega$$

$$E = I R_{eq}$$

$$I \Rightarrow \frac{E}{R_{eq}} \Rightarrow \frac{20}{80} = \frac{1}{4} \text{ Amp.}$$

So  $V_1 = V_2 = V_3 = V_4$

$$V_1 = I \times R_1$$

$$V_1 \Rightarrow \frac{1}{4} \times 20 \Rightarrow 5\ \text{V}$$

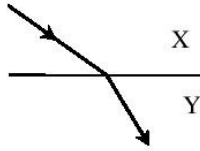
9. The magnetic field lines due to an ordinary bar magnet

- (1) form closed curves  
(2) cross one another near the poles  
(3) are more numerous near the N-pole than near the S-pole  
(4) do not exist inside the magnet.

**Ans.** [1]

**Sol.** The magnetic field lines due to an ordinary bar magnet form closed curves.

10. When light travels from medium X to medium Y as shown

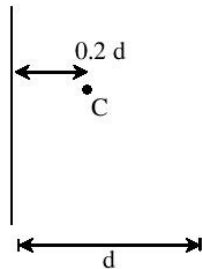


- (1) both the speed and the frequency decrease
- (2) both the speed and the frequency increase
- (3) both the speed and the wavelength decrease
- (4) both the wavelength and the frequency are unchanged.

Ans. [3]

Sol. When light travels from medium x to medium y, its speed & wavelength both decreases because light ray goes from rarer to denser medium.

11. A candle C is kept between two parallel mirrors, at a distance  $0.2 d$  from the mirror 1. Here  $d$  is the distance between mirrors. Multiple images of the candle appear in both mirrors. How far behind mirror 1 are the nearest two images of the candle in that mirror ?



- (1)  $0.2 d, 1.8 d$
- (2)  $0.2 d, 2.2 d$
- (3)  $0.2 d, 0.8 d$
- (4)  $0.2 d, 1.2 d$

Ans. [1]

Sol. According to problem first image is formed at a distance of  $0.2 d$  & second image is formed at a distance of  $1.8 d$ .

12. For a 1 MW wind energy generator, the minimum land area required for establishment of wind energy farm is about

- (1) 100 hectares
- (2) 50 hectares
- (3) 20 hectares
- (4) 2 hectares

Ans. [4]

Sol. For a 1 MW wind energy generator the minimum land area required for establishment of wind energy farm is about 2 hectares.

13. Milk of magnesia is an example of which type of colloid?  
(1) Gel (2) Emulsion (3) Sol (4) Foam

Ans. [3]

Sol. Dispersed phase is solid and dispersium medium is liquid.

14. The number of gram moles of aluminium ions present in 0.051 g of aluminium oxide is  
(1) 0.001 (2) 0.051 (3) 0.102 (4) 2

Ans. [1]

Sol. Given mass of  $\text{Al}_2\text{O}_3$  is 0.051 g & total mass of 1 mole of  $\text{Al}_2\text{O}_3$  is 102 gm.

$$\text{So, } \frac{0.051}{102} \times 2 = 0.001$$

15. Number of valence electrons in Cl atom is  
(1) 16 (2) 7 (3) 17 (4) 18

Ans. [2]

Sol. Atomic no. of chlorine is 17 and electronic configuration is 2, 8, 7 no. of electrons in valence shell is 7.

16. Isotopes of an element have  
(1) the same physical properties (2) different chemical properties  
(3) different number of neutrons (4) different atomic number

Ans. [3]

Sol. Isotopes differ in number of neutrons

17. Which of the following hydrocarbons undergoes addition reactions?  
(1)  $\text{C}_2\text{H}_6$  (2)  $\text{C}_3\text{H}_8$  (3)  $\text{C}_3\text{H}_6$  (4)  $\text{CH}_4$

Ans. [3]

Sol. Unsaturated hydrocarbon undergo hydrogenation (addition of hydrogen) reactions

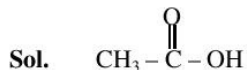
18. Which of the following statements is not a correct statement about the trends when going from left to right across the periods of periodic table?  
(1) The elements become less metallic in nature  
(2) The number of valence electrons increases  
(3) The atoms lose their electrons more easily  
(4) The oxides become more acidic.

Ans. [3]

Sol. On moving from left to right in period ionization energy increases.

19. Acetic acid, with the molecular formula  $\text{CH}_3\text{COOH}$  has  
(1) 8 covalent bonds                      (2) 7 covalent bonds                      (3) 9 covalent bonds                      (4) 10 covalent bonds

Ans. [1]



Total no. of covalent bonds in acetic acid are 8

20. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be  
(1) calcium                      (2) carbon                      (3) silicon                      (4) iron.

Ans. [1]

Sol. Calcium reacts with oxygen to give calcium oxide which is also water soluble.

21. Metals in the middle of the activity series can be easily extracted from their  
(1) Carbonates                      (2) Sulphides                      (3) Nitrates                      (4) Oxides.

Ans. [4]

Sol. Metals in middle of the activity series are easily extracted from their oxides.

22.  $\text{Pb (s)} + \text{CuCl}_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{aq}) + \text{Cu(s)}$   
The above reaction is an example of a  
(1) combination reaction                      (2) neutralization reaction  
(3) decomposition reaction                      (4) displacement reaction.

Ans. [4]

Sol. More reactive lead (Pb) is displacing the less reactive copper (Cu).

23. Adding an alpha particle to the nucleus of sodium atom produces which new element?  
(1) Mg                      (2) P                      (3) Al                      (4) Ne.

Ans. [3]

Sol. Addition of  $\alpha$  particles add 2 protons so, total no. of protons are 13. So, atomic no 13 is of aluminium

24. Which among the following cell organelles is able to make its own proteins?  
(1) Lysosome                      (2) Golgi apparatus                      (3) Plastid                      (4) Endoplasmic reticulum.

Ans. [3]

Sol. 'Plastid' is the cell organelle which produce its own protein

25. Intercalary meristem is present in  
(1) at the base of the leaves and both the sides of node  
(2) in the roots  
(3) at the tip of the leaves  
(4) at the shoot apex.

**Ans.** [1]

**Sol.** Intercalary meristem is present at the base of leaves and both sides of node.

26. Which among the following is an example of fungi?  
(1) Anabaena                      (2) Euglena                      (3) Mycoplasma                      (4) Agaricus.

**Ans.** [4]

**Sol.** Agaricus is the examples of fungi

27. In plants transport of soluble products in the process of photosynthesis occurs in  
(1) xylem                      (2) phloem                      (3) both the these                      (4) none of these.

**Ans.** [2]

**Sol.** In plants transport of soluble product occur through phloem tissue

28. Which among the following hormones is associated with wilting of leaves?  
(1) Abscisic acid                      (2) Gibberellin                      (3) Cytokinin                      (4) Auxin.

**Ans.** [1]

**Sol.** Abscisic acid is responsible for wilting of leaves

29. Seed is modification of  
(1) ovary                      (2) ovule                      (3) thalamus                      (4) all of these

**Ans.** [2]

**Sol.** Seed is the modification of ovule

30. How many types of muscle tissue are found?  
(1) Striated and unstriated                      (2) Striated and cardiac  
(3) Cardiac and unstriated                      (4) Striated, unstriated and cardiac.

**Ans.** [4]

**Sol.** Striated, unstriated and cardiac are the types of muscular tissue

31. Which characters are present in a vertebrate ?  
(1) Notochord, triploblastic, coelomate and bilateral symmetry  
(2) Notochord, diploblastic, coelomate and radial symmetry  
(3) Notochord, triploblastic, acoelomate and bilateral symmetry  
(4) Notochord, triploblastic, acoelomate and radial symmetry

**Ans.** [1]

**Sol.** Notochord, triploblastic, coelomate and bilateral symmetry are the characters of vertebrate

**32.** Synapse is

- (1) gap between two muscle cells                      (2) gap between two bones  
(3) gap between two neurons                              (4) gap between muscle and bone

**Ans.** [3]

**Sol.** Synapse is gap between two neurons

**33.** Regeneration is found in

- (1) tapeworm                      (2) leech                      (3) hydra                      (4) ascaris

**Ans.** [3]

**Sol.** Regeneration is found in hydra.

**34.** Which of the following groups constitutes a correct food chain ?

- (1) Grass → Rabbit → Snake → Eagle                      (2) Grass → Goat → Fox → Lion  
(3) Goat → Grass → Elephant → Snake                      (4) Grass → Wheat → Frog → Goat

**Ans.** [1]

**Sol.** Grass → Rabbit → Snake → Eagle

**35.** Which cell organelle is known as "powerhouse of the cell" ?

- (1) Mitochondria                      (2) Lysosome  
(3) Golgi apparatus                      (4) Endoplamic reticulum

**Ans.** [1]

**Sol.** Mitochondria is the "power house of the cell" because it produces energy in the form of ATP

**36.** If  $(1^2 + 2^2 + 3^2 + \dots + 12^2) = 650$ , then the value of  $(2^2 + 4^2 + 6^2 + \dots + 24^2)$  is

- (1) 1300                      (2) 2600                      (3) 2500                      (4) 42250

**Ans.** [2]

**Sol.**  $1^2 + 2^2 + 3^2 + \dots + 12^2 = 650$

$$2^2 \times (1^2 + 2^2 + 3^2 + \dots + 12^2) = 650 \times 2^2$$

$$\Rightarrow (2^2 + 4^2 + 6^2 + \dots + 24^2) = 2600$$

**37.** The square root of  $x^{b^2} x^{b^2+2ab} x^{a^2-b^2}$  is

- (1)  $x^{2(a+b)}$                       (2)  $x^{\frac{a+b}{2}}$                       (3)  $x^{\frac{(a+b)^2}{2}}$                       (4)  $x^{a+b}$

**Ans.** [3]



**Sol.** Let  $A = x^{b^2} \cdot x^{b^2+2ab} \cdot x^{a^2-b^2}$

$$= x^{b^2+b^2+2ab+a^2-b^2}$$

$$= x^{a^2+b^2+2ab}$$

$$= x^{(a+b)^2}$$

$$\Rightarrow \sqrt{A} = \sqrt{x^{(a+b)^2}} = x^{\frac{(a+b)^2}{2}}$$

- 38.** If  $(x + 2)$  is a factor of  $2x^3 - 5x + k$ , then the value of  $k$  is  
 (1) 6 (2) -6 (3) 26 (4) -26

**Ans.** [1]

**Sol.** Let  $p(x) = 2x^3 - 5x + k$   
 If  $(x + 2)$  is a factor of  $p(x)$   
 $\Rightarrow p(-2) = 0$   
 $2(-2)^3 - 5(-2) + k = 0$   
 $-16 + 10 + k = 0$   
 $k = 6$

- 39.** For which value of  $p$  the following pair of linear equations  $3x + py = 7$ ,  $px + 3y = 15$  will have no solutions ?  
 (1)  $\pm 9$  (2)  $\pm 5$  (3)  $\pm 3$  (4)  $\pm 4$

**Ans.** [3]

**Sol.**  $3x + py = 7$   
 $px + 3y = 15$

For No solution,  $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

$$\frac{3}{p} = \frac{p}{3}$$

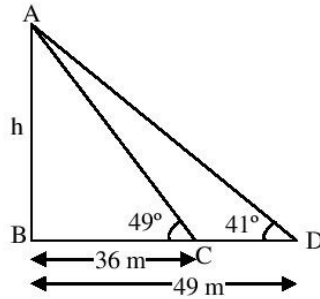
$$p^2 = 9$$

$$p = \pm 3$$

- 40.** A tower is on a horizontal plane. The angles of elevation of top of the tower from two points on a line passing through the foot of the tower at distance 49 m and 36 m are  $41^\circ$  and  $49^\circ$ . The height of the tower is  
 (1) 40 m (2) 42 m (3) 44 m (4) 46 m

**Ans.** [2]

Sol.



$$\tan 41^\circ = \frac{h}{49} \quad \dots(1)$$

$$\tan 49^\circ = \frac{h}{36} \quad \dots(2)$$

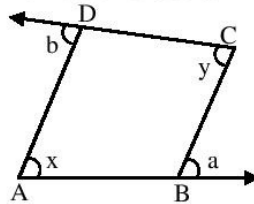
$$(1) \times (2)$$

$$\tan 41^\circ \times \tan 49^\circ = \frac{h^2}{36 \times 49}$$

$$h^2 = 36 \times 49 \quad [ \because \tan 41^\circ \times \tan 49^\circ = 1 ]$$

$$h = 6 \times 7 \\ = 42 \text{ m}$$

41. Sides AB and CD of a quadrilateral ABCD are extended as in figure. Then  $a + b$  is equal to



(1)  $x + 2y$

(2)  $x - y$

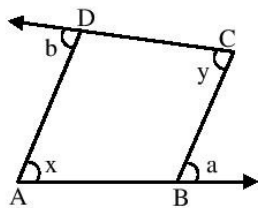
(3)  $x + y$

(4)  $2x + y$

Ans.

[3]

Sol.



As, ABCD is a quadrilateral, then  $\angle A + \angle B + \angle C + \angle D = 360^\circ \quad \dots(1)$

{ Angle sum property }

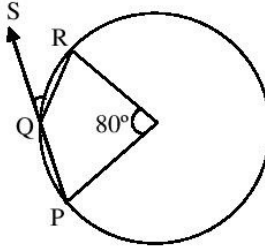
$$x + (180^\circ - a) + y + (180^\circ - b) = 360^\circ$$

$$x + 180^\circ - a + y + 180^\circ - b = 360^\circ$$

$$x + y - (a + b) = 0$$

$$x + y = a + b$$

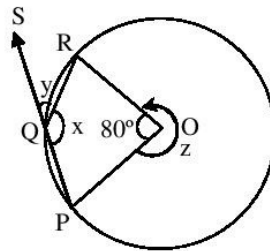
42. In the figure O is the centre of the circle and  $\angle POR = 80^\circ$ . Then  $\angle RQS$  is



- (1)  $30^\circ$                       (2)  $40^\circ$                       (3)  $140^\circ$                       (4)  $50^\circ$

Ans. [2]

Sol.



$$\begin{aligned} \angle z &= 360^\circ - 80^\circ \\ &= 280^\circ \end{aligned}$$

Now,  $\angle z = 2x$  {Angle subtended at centre is twice the angle subtended at arc}

$$280^\circ = 2x$$

$$x = 140^\circ$$

$$x + y = 180^\circ \quad \{\text{linear pair}\}$$

$$140^\circ + x = 180^\circ$$

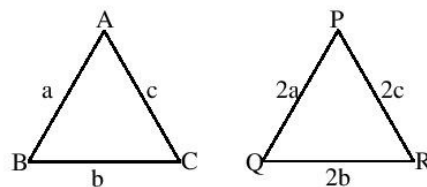
$$x = 40^\circ$$

43. If every side of a triangle is doubled then a new triangle is formed. The ratio of areas of these two triangles is

- (1) 1 : 2                      (2) 1 : 3                      (3) 1 : 4                      (4) 2 : 3

Ans. [3]

Sol.



let the sides of  $\triangle ABC$  be  $a, b, c$  & that of  $\triangle PQR$  be  $2a, 2b, 2c$

$$\text{Now, let } s_1 = \frac{a+b+c}{2} \text{ \& } s_2 = \frac{2a+2b+2c}{2} = 2\left(\frac{a+b+c}{2}\right) = 2s_1$$

$$\text{Area of } \triangle ABC = \sqrt{s_1(s_1-a)(s_1-b)(s_1-c)}$$

$$\begin{aligned} \text{\& Area of } \triangle PQR &= \sqrt{s_2(s_2-2a)(s_2-2b)(s_2-2c)} \\ &= \sqrt{2s_1(2s_1-2a)(2s_1-2b)(2s_1-2c)} \\ &= 4\sqrt{s_1(s_1-a)(s_1-b)(s_1-c)} \end{aligned}$$

$$\text{Now, } \frac{\text{area } \triangle ABC}{\text{area } \triangle PQR} = \frac{\sqrt{s_1(s_1-a)(s_1-b)(s_1-c)}}{4\sqrt{s_1(s_1-a)(s_1-b)(s_1-c)}} = \frac{1}{4}$$

44. If the difference of two numbers is 5 and difference of their square is 300, then sum of the numbers is  
 (1) 1500 (2) 6 (3) 12 (4) 60

Ans. [4]

Sol. Let the two numbers be  $x$  &  $y$ .

$$x - y = 5 \quad (\text{let } x > y)$$

$$\text{\& } x^2 - y^2 = 300$$

$$\Rightarrow (x + y)(x - y) = 300$$

$$(x + y) \times 5 = 300$$

$$x + y = 60$$

45. If the equation  $ax^2 + 2x - 2 = 0$  has real and distinct roots, then the value of  $a$  is

- (1)  $a > \frac{-1}{2}$  (2)  $a \leq \frac{-1}{2}$  (3)  $a \geq \frac{-1}{2}$  (4)  $a = \frac{-1}{2}$

Ans. [1]

Sol.  $ax^2 + 2x - 2 = 0$

for real & distinct roots,

$$D > 0$$

$$(2)^2 - 4(a)(-2) > 0$$

$$4 + 8a > 0$$

$$a > \frac{-1}{2}$$

46. If  $a + b + c = 0$  then the value of  $\frac{(a+b)^2}{ab} + \frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca}$  is

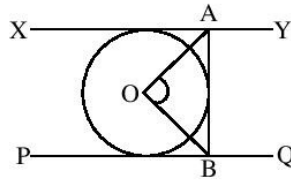
- (1) 1 (2) 2 (3) 3 (4) -3

Ans. [3]

Sol.  $a + b + c = 0$

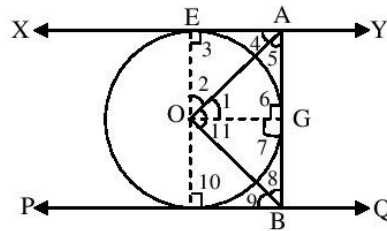
$$\begin{aligned} \text{Now, } & \frac{(a+b)^2}{ab} + \frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca} \\ &= \frac{(-c)^2}{ab} + \frac{(-a)^2}{bc} + \frac{(-b)^2}{ca} \\ &= \frac{c^2}{ab} + \frac{a^2}{bc} + \frac{b^2}{ca} \\ &= \frac{c^3 + a^3 + b^3}{abc} \\ &= \frac{3abc}{abc} \quad \{ \because a + b + c = 0 \Rightarrow a^3 + b^3 + c^3 = 3abc \} \\ &= 3 \end{aligned}$$

47. In the given figure O is the centre of a circle, XY, PQ, AB are tangents of the circle. If  $XY \parallel PQ$ , then the value of  $\angle AOB$  is



- (1)  $80^\circ$                       (2)  $90^\circ$                       (3)  $70^\circ$                       (4)  $100^\circ$

[2]  
Sol.



$\angle 3 = \angle 6 = 90^\circ$   
 $\angle 7 = \angle 10 = 90^\circ$   
 {Tangent is perpendicular to the point of contact}

Since,  $OG = OE$  {radii of same circle}

Now,  $\angle 3 = \angle 6 = 90^\circ$

$\therefore$  OGAE is a square

similarly, OFBG is also a square

Now,  $\angle A = \angle B = 90^\circ$

OA & OB bisects the angle.

$\Rightarrow \angle 4 = \angle 5$  &  $\angle 8 = \angle 9 \Rightarrow \angle 4 + \angle 5 = 90^\circ$

$\Rightarrow 2 \angle 5 = 90^\circ$

$$\Rightarrow \angle 5 = \frac{90^\circ}{2} = 45^\circ$$

Also,  $\angle 8 = 45^\circ$

Now, In  $\triangle OAB$ ,

$$\angle 5 + \angle 8 + \angle AOB = 180^\circ \quad \{\text{angle sum property}\}$$

$$45^\circ + 45^\circ + \angle AOB = 180^\circ$$

$$\angle AOB = 90^\circ$$

48.  $\frac{\cos \theta}{1 - \tan \theta} - \frac{\sin \theta}{\cot \theta - 1}$  is equal to

- (1)  $\sin \theta + \cos \theta$       (2)  $\cos \theta - \sin \theta$       (3)  $2 \sin \theta$       (4)  $\frac{1}{\cos \theta - \sin \theta}$

Ans. [1]

Sol. 
$$\begin{aligned} & \frac{\cos \theta}{1 - \tan \theta} - \frac{\sin \theta}{\cot \theta - 1} \\ &= \frac{\cos \theta}{1 - \frac{\sin \theta}{\cos \theta}} - \frac{\sin \theta}{\frac{\cos \theta}{\sin \theta} - 1} \\ &= \frac{\cos^2 \theta}{\cos \theta - \sin \theta} - \frac{\sin^2 \theta}{\cos \theta - \sin \theta} \\ &= \frac{\cos^2 \theta - \sin^2 \theta}{\cos \theta - \sin \theta} \\ &= \frac{(\cos \theta - \sin \theta)(\cos \theta + \sin \theta)}{\cos \theta - \sin \theta} \\ &= \sin \theta + \cos \theta \end{aligned}$$

49. A card is drawn from a well shuffled pack of 52 cards. The probability that card is a red ace is

- (1)  $\frac{1}{13}$       (2)  $\frac{1}{26}$       (3)  $\frac{3}{52}$       (4)  $\frac{1}{2}$

Ans. [2]

Sol.  $P(\text{red Ace}) = \frac{2}{52} = \frac{1}{26}$

50. Value of  $\tan 20^\circ \tan 40^\circ \tan 50^\circ \tan 70^\circ$  is

- (1) 0      (2)  $\frac{1}{\sqrt{3}}$       (3)  $\sqrt{3}$       (4) 1

**Ans.** [4]

**Sol.**  $\tan 20^\circ \tan 40^\circ \tan 50^\circ \tan 70^\circ$   
 $= \tan 20^\circ \tan 40^\circ \tan (90^\circ - 40^\circ) \tan (90^\circ - 20^\circ)$   
 $= \tan 20^\circ \tan 40^\circ \cot 40^\circ \cot 20^\circ$   
 $= 1$

**51.** Sum of last two terms of an A.P. is 60. If first term is 11 and common difference is 2, then the number of terms in the A.P. is

- (1) 22                      (2) 20                      (3) 11                      (4) 19

**Ans.** [3]

**Sol.** Let the last two terms be  $a_n$  &  $a_{n-1}$ .  
Here  $a = 11$  &  $d = 2$   
Also,  $a_n + a_{n-1} = 60$   
 $a + (n - 1)d + a + (n - 1 - 1)d = 60$   
 $2a + (2n - 3)d = 60$   
 $2 \times 11 + (2n - 3)2 = 60$   
 $(2n - 3)2 = 38$   
 $2n - 3 = 19$   
 $2n = 22$   
 $n = 11$

**52.** If the difference of circumference and diameter of a circle is 60 cm, then the area of the circle is

- (1)  $49 \pi \text{ cm}^2$                       (2)  $14 \pi \text{ cm}^2$                       (3)  $196 \pi \text{ cm}^2$                       (4)  $\frac{49}{4} \pi \text{ cm}^2$

**Ans.** [3]

**Sol.** Circumference - Diameter = 60

$$\pi d - d = 60$$

$$d(\pi - 1) = 60$$

$$d = \frac{60}{\pi - 1}$$

$$d = \frac{60}{\frac{22}{7} - 1}$$

$$d = \frac{60}{\frac{22 - 7}{7}}$$

$$d = \frac{60 \times 7}{15}$$

$$d = 28$$

$$\therefore r = 14 \text{ cm}$$

$$\Rightarrow \text{Area of circle} = \pi r^2$$

$$= \pi(14)^2 \text{ cm}^2$$

$$= 196 \pi \text{ cm}^2$$

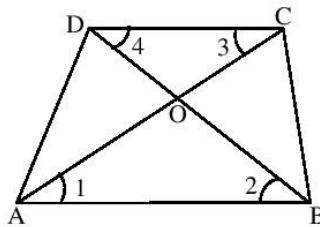
53. If the areas of three adjoining faces of a cuboid are  $a^2$ ,  $b^2$  and  $c^2$  respectively, then the volume of the cuboid is  
 (1)  $a^2b^2c^2$                       (2)  $abc$                       (3)  $a^3b^3c^3$                       (4)  $\sqrt{abc}$

Ans. [2]

Sol. Let length  $\times$  breadth =  $a^2$  ..... (1)  
 breadth  $\times$  height =  $b^2$  ..... (2)  
 height  $\times$  length =  $c^2$  ..... (3)  
 (1)  $\times$  (2)  $\times$  (3) we get  
 (length  $\times$  breadth  $\times$  height)<sup>2</sup> =  $a^2 \times b^2 \times c^2$   
 length  $\times$  breadth  $\times$  height =  $abc$   
 $\Rightarrow$  volume =  $abc$

54. [4]

Sol.



$$\frac{AB}{DC} = \frac{3}{2}$$

AB  $\parallel$  DC

In  $\triangle AOB$  &  $\triangle COD$

$$\angle 1 = \angle 3 \quad [\text{Alternate interior angles are equal}]$$

$$\angle 2 = \angle 4$$

$\therefore \triangle AOB \sim \triangle COD$  [by AA similarity rule]

$\Rightarrow \frac{\text{ar.} \triangle AOB}{\text{ar.} \triangle COD} = \left(\frac{AB}{DC}\right)^2$  [If two triangles are similar, then the ratio of their areas are equal to the ratio of square of their corresponding sides]

$$\frac{\text{ar.} \triangle AOB}{\text{ar.} \triangle COD} = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$$

55. If the mean of 5, 9, x, 7, 4, y is 7, then relation between x and y is

- (1)  $x + y = 42$                       (2)  $x + y = 17$                       (3)  $x - y = 10$                       (4)  $x - y = 42$

Ans. [2]



**Sol.** 5, 9, x, 7, 4, y

$$\text{mean} = \frac{\text{sum of all observation}}{\text{Total number of observation}}$$

$$7 = \frac{5+9+x+7+4+y}{6}$$

$$25 + x + y = 42$$

$$x + y = 17$$

**56.** Tithe is

- (1) religious tax                      (2) implied tax                      (3) taille tax                      (4) feudal tax.

**Ans.** [1]

**Sol.** France under Louis (XVI) has 2 types of taxes levied on the third estate: Tithe & Taille, tithe was the religious tax given to the church & Taille was the direct tax.

**57.** Who was Rasputin ?

- (1) King                      (2) Monk                      (3) Revolutionary                      (4) Prime Minister

**Ans.** [2]

**Sol.** Rasputin was an ascetic monk in Russia around 1869. Failing as a monk, also known as 'Mad Monk'.

**58.** The railway line which was to be constructed between Multan and Sukkur was

- (1) North Valley Railway  
(2) Indus Valley Railway  
(3) Southern State Railway  
(4) West Valley Railway

**Ans.** [2]

**Sol.** Indus Valley Railway is between Multan & Sukkur North Valley Railways. Rest are of Britain, Australia etc

**59.** Who adopted the 'Scorched Earth Policy' ?

- (1) Portuguese                      (2) French                      (3) Dutch                      (4) German

**Ans.** [3]

**Sol.** Scorched Earth Policy was followed by Dutch in Java, Indonesia against Japanese invasion on the forests of Java.

**60.** Raikas belong to the state of

- (1) Rajasthan                      (2) Bihar                      (3) Uttar Pradesh                      (4) Karnataka

**Ans.** [1]

**Sol.** Rajasthan has postoral communities of aikas. Raikas & Maru aikas of Rajasthan.

**61.** Young Italy, a secret society was formed by -  
(1) Metternich (2) Giuseppe Mazzini (3) Bismarck (4) Hitler

**Ans.** [1]

**Sol.** Giuseppe Mazzini formed two secret revolutionary society's Young Italy in Marseillaise and young Europe in Berne.

**62.** The thinker Confucius belonged to the country-  
(1) England (2) America (3) China (4) Japan

**Ans.** [3]

**Sol.** Confucius was a chinese teacher (551 BC to 479 BC),. Founder of confucianism.

**63.** Jallianwalla Bag incident took place on -  
(1) 10<sup>th</sup> April, 1919 (2) 13<sup>th</sup> April, 1919 (3) 14<sup>th</sup> April, 1919 (4) 18<sup>th</sup> April, 1919

**Ans.** [2]

**Sol.** Jalliawala Bagh Massacre took place on 13 th april 1919 after Rowlatt Act.

**64.** Dandi is located in -  
(1) Gujarat (2) Rajasthan (3) Maharashtra (4) Punjab

**Ans.** [1]

**Sol.** Dandi where salt law was broken by Mahatma Gandhi is in Gujrat. It a coastal village in Gujarat.

**65.** The great Depression began in -  
(1) 1927 AD (2) 1929 AD (3) 1930 AD (4) 1931 AD

**Ans.** [2]

**Sol.** Great economic depression started in most countries from 1929-1932

**66.** Which island was known as Amindiv whose name was changed in 1973 ?  
(1) Lakshadweep (2) Maldives (3) New Moore island (4) Car-Nicobar

**Ans.** [1]

**Sol.** Laccadive and Amindiv are presently the Union territory of Lakshadweep.

**67.** Match List-I with List II correctly and choose the correct code from the following -

	<b>List-I</b>		<b>List-II</b>
(A)	Kaveri	(i)	Nasik
(B)	Godavari	(ii)	Betul
(C)	Tapi	(iii)	Brahmagiri
(D)	Krishna	(iv)	Mahabaleshwar

**Code :**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(1)	i	ii	iii	iv
(2)	iii	i	ii	iv
(3)	ii	iii	i	iv
(4)	iv	iii	ii	i

**Ans.** [2]

**Sol.** Godavari → Nasik

Tapi → Betul

Kaveri → Mahabaleshwar

Krishna → Brahmagiri

**68.** Stalagmite and Stalactite caves are located in -

- (1) Mawsynram                      (2) Cherrapunji                      (3) Shimla                      (4) Jammu and Kashmir

**Ans.** [2]

**Sol.** Cherrapunji is having stalagmites and stalactite caves, Belum caves M.P. and Mawsmi caves, Cherrapunji (Meghalaya).

**69.** Which state (s) has/have the highest reserved forest ratio ?

- (A) Kerala                      (B) West Bengal                      (C) Jammu and Kashmir (D) Maharashtra  
(1) Only B                      (2) A and D                      (3) A and C                      (4) All of these

**Ans.** [2]

**Sol.** Highest reserved forest ratio is in Kerala and Maharashtra.

Kerala → 28.8 %

Maharashtra → 20.75 %

West Bengal → 13.38 %

Jammu and Kashmir → 9.08 %

**70.** With reference to water availability per person per year India's rank in the world is -

- (1) 131<sup>st</sup>                      (2) 133<sup>rd</sup>                      (3) 137<sup>th</sup>                      (4) 157<sup>th</sup>

**Ans.** [2]

**Sol.** 133<sup>rd</sup> is Rank of India in per capita availability of water.

**71.** Roof water harvesting system is a compulsory structure in which state ?

- (1) Bihar                      (2) Meghalaya                      (3) Tamil Nadu                      (4) Karnataka

**Ans.** [3]

**Sol.** Tamil Nadu government made it Mandatory to have roof top rain water harvesting in all the houses.

72. Match List-I and List-II and choose the correct code from the following -

	<b>List-I</b>		<b>List-II</b>
(A)	Waler	(i)	Jharkhand
(B)	Dahiya	(ii)	Himalayan region
(C)	Khil	(iii)	Madhya Pradesh
(D)	Kuruwa	(iv)	S.E. Rajasthan

**Code :**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(1)	i	ii	iii	iv
(2)	iv	iii	i	ii
(3)	ii	i	iii	iv
(4)	iv	iii	ii	i

**Ans. [4]**

**Sol.** Dahiya is Rajput community of S.E. Raj. Kuruwa is a village in Jharkhand

73. Rubber is related to which type of vegetation ?

- (1) Tundra                      (2) Tropical rain forest      (3) Mountain forest      (4) Tropical deciduous forest

**Ans. [2]**

**Sol.** Rubber is a tropical rainforest vegetation very hot & very wet climate.

74. Koderma mines located in Jharkhand is rich in which minerals ?

- (1) Bauxite                      (2) Mica                      (3) Iron ore                      (4) Copper

**Ans. [2]**

**Sol.** Koderma mines in Jharkhand is rich in Mica.

75. Which of the following states is not connected with Hajira-Vijaypur-Jagdishpur pipeline ?

- (1) Madhya Pradesh      (2) Maharashtra      (3) Gujarat      (4) Uttar Pradesh

**Ans. [2]**

**Sol.** Hajira- Gujarat

Vijaypur- Madhya Pradesh

Jagdishpur – Uttar Pradesh

76. Which among the following is not correctly matched ?

- (1) Popular unit                      – Salvador Alende  
 (2) Solidarnosc or solidarity                      – Lech Walesa  
 (3) National League for Democracy                      – Augusto Pinochet  
 (4) Bath party                      – Saddam Hussein

**Ans. [3]**

**Sol.** National league for democracy was founded by Aun Saan Su Kyi in Myanmar.

77. Identify the correct order regarding the granting of universal adult franchise -
- (1) Argentina, India, Malasiya, Greece                      (2) Malaysia, Greece, India, Argentina  
(3) India, Argentina, Greece, Malasiya                      (4) Greece, Malasiya, India, Argentina

**Ans.** [3]

**Sol.** India -1950  
Argentina – 1951  
Greece – 1952  
Malasiya - 1955

78. Find out the wrong explanation of function of United Nations :
- (1) Who lends money to governments when they need it ? International Monetary Fund (I.M.F.) does so  
(2) What happens when a country attacks another country in an unjust manner ? The N.N. Security Council, an organ of U.N. is responsible for maintaining peace and security among countries  
(3) The weightage of vote of every member of International Monetary Fund equal  
(4) Each permanent member of Security Council has veto power

**Ans.** [3]

**Sol.** 188 members of IMF -24 are founder members and 15 have special powers IMF president of World Bank US president or ambassador .

79. Find out the correct explanation -
- (1) Referendum - Only used for a specific government policy  
(2) Coup - A coup is legal system, in which system the government hands over all rights and powers to the military  
(3) Martial law - A system of rules, that takes effect when a military authority takes control of the normal administration of justice  
(4) Communist State - In communist state all political parties have complete liberty to compete for power

**Ans.** [3]

**Sol.** Martial law - A system of rules, that takes effect when a military authority takes control of the normal administration of justice

80. Pay attention on the following points :
- (A) A democratic government is a better government because it is a more accountable form of government  
(B) Democracy improves the quality of decision making  
(C) Democracy provides a method to deal with the differences and conflicts  
(D) Democracy enhances the dignity of citizens

Which are the factors involved in comprising Indian democracy ?

- (1) A and B                      (2) A and C                      (3) A, B and C                      (4) A, B, C and D

**Ans.** [4]

**Sol.** All are correct democracy is accountable, improves decision making deals with difference & conflicts, above all enhances the dignity of the citizen

**81.** Which among the following statements is a moral reason regarding the desirability of power sharing ?

- (1) Power sharing is good because it helps to reduce the possibility of conflict between social groups
- (2) Social conflict often leads to violence and political instability. Hence power sharing is a good way to ensure the stability of political order
- (3) Tyranny of the majority is not just oppressive for the minority, it often brings ruin to the majority as well
- (4) A democratic rule involves sharing power with those affected by its exercise and who have to live with its effect

**Ans.** [4]

**Sol.** Major policy decisions are taken by those who are elected by the people is a moral reason or basic feature of democracy.

**82.** Let us look at some of the key features of federalism -

- (A) There are two or more levels (or tiers) of government
- (B) Different tiers of government govern the same citizens, but each tier has its own jurisdiction
- (C) The existence and authority of each tier of government is constitutionally guaranteed
- (D) All states in the Indian Union have identical powers

Which facts are correct regarding Indian Federalism -

- (1) B and D                      (2) A and D                      (3) A, B and C                      (4) A, B, C and D

**Ans.** [3]

**Sol.** Since all state in the Indian Union Do not have equal powers eg J&K & Delhi.

**83.** Find the correct sequence of languages in the ascending order according the proportion of speakers as described in 8th Schedule of the Constitution of India -

- (1) Hindi, Marathi, Telugu, Bangla
- (2) Hindi, Bangla, Telugu, Marathi
- (3) Hindi, Telugu, Bangla, Marathi
- (4) Hindin, Bangla, Marathi, Telugu

**Ans.** [2]

**Sol.** Hindi → 41.1%  
Bangla → 8.11 %  
Telugu → 7.19 %  
Marathi → 6.99 %

84. Match the following and choose the correct answer from the code -

	<b>List-I</b>		<b>List-II</b>
(A)	Power is shared among different organs of government such as the legislature, executive and judiciary	(i)	Community Government
(B)	Power is shared among different social groups	(ii)	Horizontal distribution of power
(C)	The fundamental provisions of the constitution cannot be unilaterally changed by one level of government	(iii)	In 1992
(D)	The constitutionalisation of 3rd tier of Indian democratic system	(iv)	Federalism

**Code :**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(1)	ii	i	iv	iii
(2)	i	ii	iii	iv
(3)	i	iii	ii	iv
(4)	ii	iv	i	iii

**Ans. [1]**

**Sol.** Power is shared among different organs of government such as the legislature, executive and judiciary - Community Government

Power is shared among different social groups - Horizontal distribution of power

The fundamental provisions of the constitution cannot be unilaterally changed by one level of government - Federalism

3rd tier of Indian democratic system of local government were amended - In 1992

85. Match the following and choose the correct answer from the given code -

	<b>List-I</b>		<b>List-II</b>
(A)	Union list	(i)	Computer software
(B)	State list	(ii)	Banking
(C)	Concurrent list	(iii)	Education
(D)	Residuary powers	(iv)	Police

**Code :**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(1)	iii	ii	i	iv
(2)	ii	iii	iv	i
(3)	iii	i	ii	iv
(4)	ii	iv	iii	i

**Ans. [4]**

**Sol.** Union list - Banking

State list - Police

Concurrent list - Education

Residuary powers - Computer software

**86.** Which one of the following is an activity of the tertiary sector ?  
(1) Mining                      (2) Tourism                      (3) Dairy                      (4) Agriculture

**Ans.** [2]

**Sol.** Tourism is a tertiary sector activity rest all are primary

**87.** In which state of India, is Amul Dairy situated ?  
(1) Rajasthan                      (2) Bihar                      (3) Gujarat                      (4) Karnataka

**Ans.** [3]

**Sol.** Amul is a cooperative of Gujarat.

**88.** The 'National Consumers Day' is celebrated on  
(1) 24<sup>th</sup> December                      (2) 24<sup>th</sup> November                      (3) 24<sup>th</sup> September                      (4) 24<sup>th</sup> October

**Ans.** [1]

**Sol.** 24<sup>th</sup> December is celebrated as National Consumers Day -

**89.** National income of any country is divided by its total population, we get  
(1) personal income                      (2) gross domestic product  
(3) private income                      (4) per capita income

**Ans.** [4]

**Sol.** Per capita income =  $\frac{\text{National income}}{\text{Total Population}}$

**90.** Among the following which is the method to estimate the poverty line ?  
(1) Investment method                      (2) Income method  
(3) Capital method                      (4) All of these

**Ans.** [2]

**Sol.** Poverty line is calculated by two methods  
1. Income or expenditure.  
2. Consumption

**91.** Which of the following statement is correct ?  
(1) Centre of curvature of a concave mirror lies in front of it whereas that of convex mirrors lies behind the mirror  
(2) Centre of curvature of a concave mirror lies behind it whereas that of convex mirror lies in front of the mirror  
(3) Centre of curvature of both concave and convex mirrors lie in front of the mirror  
(4) Centre of curvature of both concave and convex mirrors lie behind the mirror

**Ans.** [1]

**Sol.** Centre of curvature of a concave mirror lies in front of it whereas that of convex mirrors lies behind the mirror



**92.** Element X forms a chloride with the formula  $XCl_2$  which is solid with a high melting point. X would belong to the same group of periodic table as -

- (1) Na                      (2) Mg                      (3) Al                      (4) Si

**Ans.** [2]

**Sol.** Mg reacts with chlorine to give magnesium chloride- $MgCl_2$

**93.** Calculate the number of molecules in 8g  $O_2$

- (1)  $8 \times 10^{23}$                       (2)  $6.02 \times 10^{23}$                       (3)  $1.51 \times 10^{23}$                       (4) 8

**Ans.** [3]

**Sol.** Given mass of  $O_2$  molecule is 8 gm  
actual mass of  $O_2$  molecules is 32

$$= \frac{\text{Given mass}}{\text{Molar mass}} \times \text{Avogadro number}$$

$$= \frac{8}{32} \times 6.022 \times 10^{23}$$

$$= 1.51 \times 10^{23}$$

**94.** Which of the following is correct for Fungi ?

- (1) Prokaryotic and saprophytic                      (2) Eukaryotic and autotrophic  
(3) Prokaryotic and autotrophic                      (4) Eukaryotic and saprophytic

**Ans.** [4]

**Sol.** Fungi is Eukaryotic and Saprophytic (eats dead & decay that's why it is called decomposer)

**95.** Iodine is essential for the synthesis of which hormone ?

- (1) Adrenaline                      (2) Thyroxine                      (3) Insulin                      (4) Oxytocin

**Ans.** [2]

**Sol.** Thyroxine is hormone which requires Iodine presence.

**96.** 'Oriental Cricket Club' the first Indian Cricket Club was founded at

- (1) Madras                      (2) Bombay                      (3) Kanpur                      (4) Calcutta

**Ans.** [2]

**Sol.** Bombay, the first cricket club was founded by Parsis - the oriental cricket club.

**97.** Which of the following is not associated with Coriolis force ?

- (1) Cyclones                      (2) Ocean currents                      (3) Prevailing winds                      (4) Jet streams

**Ans.** [4]

**Sol.** Jet Streams are not affected by the earth's rotation that's why coriolis force will not be applicable.

**98.** The local government structure goes right up to the ..... level

- (1) village                      (2) Ward                      (3) State                      (4) District

**Ans.** [4]

**Sol.** Gram sabha to panchayat Samiti to Zila Parishad at district level under District Majistrate.

**99.** In which state of India maximum fair price shops are run by the co-operatives ?

- (1) Maharashtra                      (2) Delhi                      (3) Tamil Nadu                      (4) Gujarat

**Ans.** [3]

**Sol.** Tamil Nadu has 14 fair price shops run by co-operatives.

**100.** Informal sources of credit do not include

- (1) moneylenders                      (2) cooperatives                      (3) traders                      (4) friends

**Ans.** [2]

**Sol.** Cooperative are formal sources of credit.

# NATIONAL TALENT SEARCH EXAMINATION(FIRST LEVEL)-2016

(For Students of Class X)  
**Language Comprehensive Test**  
**Subject : English**

08-11-2015

Time : 45 minutes

Max. Marks : 50

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There are 50 questions in this paper. Each question carries 1 mark.

1. Earlier Vivek ..... on 17th floor of a multi-storeyed building. So, he knows how to use a lift -  
(1) live                      (2) lived                      (3) lives                      (4) is living

Ans. [2]

2. Sonali ..... an English newspaper daily -  
(1) reads                      (2) read                      (3) was reading                      (4) were reading

Ans. [1]

3. Himani ..... this test recently -  
(1) pass                      (2) passed                      (3) have passed                      (4) has passed

Ans. [4]

4. Look before you .....  
(1) leap                      (2) leapt                      (3) are leaping                      (4) leaps

Ans. [1]

5. The senior staff ..... bonus by the company last year -  
(1) is given                      (2) will be given                      (3) was given                      (4) has given

Ans. [3]

6. A long bridge ..... over the village river presently -  
(1) is being built                      (2) was being built                      (3) was built                      (4) will be built

Ans. [1]

7. 'Vande Matram' song ..... by Bankim Chandra Chatterjee -  
 (1) is being written (2) was being written (3) had written (4) was written  
**Ans.** [4]
8. Second-hand books ..... on this foot-path every Sunday -  
 (1) bought and sold (2) is bought and sold  
 (3) are bought and sold (4) will be bought and sold  
**Ans.** [3]
9. The watchman said to the lady, "I cannot stay here all the time."  
 The watchman told the lady that ..... all the time -  
 (1) he cannot stay there (2) he could not stay there  
 (3) he could not stay here (4) he cannot stay here  
**Ans.** [2]
10. My sister said to me, "Please bring me a sketch-pen set".  
 My sister requested me ..... a sketch-pen set -  
 (1) that I should bring her (2) if I bring her  
 (3) to bring her (4) to brought her  
**Ans.** [3]
11. The old lady said, "I am going on a holiday".  
 The old lady said ..... on a holiday -  
 (1) that she was going (2) if she was going (3) that I am going (4) that I was going  
**Ans.** [1]
12. Lencho said to the post-office clerks, "You are a band of cheats."  
 Lencho blamed the post-office clerks that ..... a band of cheats -  
 (1) you are (2) you were (3) they are (4) they were  
**Ans.** [4]
13. It is a difficult puzzle. You ..... also try it -  
 (1) could (2) may (3) shall (4) will  
**Ans.** [2]
14. Smoking is prohibited in schools too. Nobody ..... use tobacco products there -  
 (1) may (2) will (3) can (4) could  
**Ans.** [3]
15. We..... love our country -  
 (1) should (2) may (3) will (4) can  
**Ans.** [1]

16. Religion helps us keep to the right path in life. So, we ..... follow our religion -  
(1) could (2) may (3) must (4) shall  
Ans. [3]
17. A bunch of grapes ..... all that the fox wanted -  
(1) is (2) am (3) was (4) were  
Ans. [3]
18. Coffee and biscuits ..... a refreshing snack -  
(1) is (2) was (3) were (4) are  
Ans. [1]
19. One of the soliders ..... wounded last night -  
(1) is (2) am (3) was (4) were  
Ans. [3]
20. A good number of patients ..... diagnosed of Dengue last year -  
(1) is (2) are (3) was (4) were  
Ans. [4]
21. 'Have you any sugar ?'  
'Yes. But I don't have .....'  
(1) many (2) more (3) much (4) some  
Ans. [3]
22. The athletes were prepared to face ..... challenge -  
(1) a (2) all (3) every (4) several  
Ans. [3]
23. I quietly went out ..... the door to see the snake -  
(1) into (2) to (3) from (4) through  
Ans. [4]
24. The rich man promised the warden to pay ..... the poor girls -  
(1) in (2) on (3) for (4) of  
Ans. [3]
25. We lived in an ancestral house made ..... limestone -  
(1) in (2) of (3) from (4) by  
Ans. [2]

26. Kishore was looking all ..... for his lost ATM card -  
 (1) in (2) near (3) around (4) about  
 Ans. [3]
27. The king lost all his resources ..... his courage helped him regain his kingdom -  
 (1) as (2) and (3) yet (4) so  
 Ans. [3]
28. .... of all his supports, he was left all alone in his odd times -  
 (1) Besides (2) Because (3) Despite (4) Instead  
 Ans. [3]
29. Raghu had better ..... at a boarding school -  
 (1) study (2) to study (3) studying (4) studied  
 Ans. [4]
30. She went to the village market ..... the necessary commodities -  
 (1) for buy (2) to buy (3) buying (4) to be bought  
 Ans. [2]
31. Add a question tag :  
 I sold all my notes, .....  
 (1) ain't I ? (2) didn't I ? (3) did I ? (4) aren't I ?  
 Ans. [2]
32. Add a question tag :  
 Never betray anyone, .....  
 (1) shall we ? (2) should we ? (3) shall they ? (4) should they ?  
 Ans. [2]
33. to Anil / should / I / back / go  
 (a) (b) (c) (d) (e)  
 (1) (c) (b) (e) (d) (a) (2) (b) (c) (d) (e) (a)  
 (3) (a) (b) (d) (c) (e) (4) (d) (b) (c) (e) (a)  
 Ans. [1]
34. two dollars / down to / the bargain / he / managed  
 (a) (b) (c) (d) (e)  
 (1) (b) (a) (c) (d) (e) (2) (d) (e) (c) (b) (a) (3) (b) (c) (d) (e) (a) (4) (a) (e) (c) (b) (d)  
 Ans. [2]

**For Question Nos. 35 - 36 select the word that best expresses the meaning of the given word :**

35. Stifled  
(1) tough                      (2) suffocated                      (3) hard                      (4) free  
Ans. [2]

36. Conceit  
(1) pride                      (2) shame                      (3) hate                      (4) joy  
Ans. [1]

**For Question Nos. 37 - 38 select the word which means the opposite to the given word :**

37. Temporary  
(1) stable                      (2) fix                      (3) permanent                      (4) mobile  
Ans. [3]

38. Kindle  
(1) light                      (2) put out                      (3) put in                      (4) put up  
Ans. [2]

**For Question Nos. 39 - 40 select the meaning of the given phrasal verbs :**

39. Break away  
(1) escape                      (2) split                      (3) end relationship                      (4) stop working  
Ans. [3]

40. Look out  
(1) check                      (2) be careful                      (3) search                      (4) bring  
Ans. [2]

41. Put the most suitable word  
Can you tell me ..... you found my keys ?  
(1) how                      (2) whose                      (3) which                      (4) who  
Ans. [1]

42. Fill in the blank with correct determiner :  
..... student in the class had a book -  
(1) All                      (2) Every                      (3) Neither                      (4) Few  
Ans. [2]

43. Fill in the blank with correct modal :  
I ..... get there on time. ( determination )  
(1) can                      (2) may                      (3) could                      (4) will  
Ans. [4]
44. Use the appropriate preposition to complete the given sentence :  
When the doctor arrived the patient was lying ..... the floor.  
(1) under                      (2) above                      (3) on                      (4) over  
Ans. [3]
45. She is seeking admission ..... any of the management colleges -  
(1) by                      (2) at                      (3) for                      (4) to  
Ans. [4]
46. Choose the correctly punctuated sentence -  
(1) hari, latif, ali and a I saw an old, lean weak bullock on the road.  
(2) Hari Latif Ali and I saw an old lean weak bullock on the road.  
(3) Hari, Latif, Ali and I saw an old, lean, weak bullock on the road.  
(4) Hari, Latif, Ali and I saw an old lean weak bullock on the road.  
Ans. [3]
47. Choose the correct Negative sentence of the given Affirmative sentence :  
Ram is the cleverest boy in the school.  
(1) No boy in the school is as clever as Ram.  
(2) Ram is as clever as other boys.  
(3) No boy is cleverest in school as Ram is.  
(4) Ram is cleverest of all.  
Ans. [1]
48. Fill in the blank with proper word from the options given below :  
The bus has ..... arrived, now the passengers are getting down.  
(1) while                      (2) just                      (3) since                      (4) because  
Ans. [2]
49. Choose the correct noun form of the given adjective :  
                    'Pure'  
(1) purify                      (2) purely                      (3) purification                      (4) purified  
Ans. [3]
50. Give synonym of the given word :  
                    Pious  
(1) evil                      (2) holy                      (3) ill-will                      (4) vulgar  
Ans. [2]





5. 8, 27, 64, ?, 216, 343.  
(1) 125 (2) 81 (3) 100 (4) 196

Ans. [1]

6. 5, 11, 19, ?, 41.  
(1) 28 (2) 29 (3) 30 (4) 35

Ans. [2]

7. 120, ?, 24, 6, 0.  
(1) 100 (2) 70 (3) 60 (4) 20

Ans. [3]

8. 729, 81, 9, 1,  $\frac{1}{9}$ , ?,  $\frac{1}{729}$ .  
(1)  $\frac{1}{27}$  (2)  $\frac{1}{81}$  (3)  $\frac{1}{243}$  (4)  $\frac{1}{486}$

Ans. [2]

---

### Questions (9–11)

**Direction :** In each of the questions below are given two statements and two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements.

---

9. **Statements** (i) : All pencils are pens.  
(ii) : All pens are markers.  
**Conclusions** (I) : All pencils are markers.  
(II) : Some pens are pencils.  
(1) Only conclusion I is true (2) Only conclusion II is true  
(3) Both conclusions I and II are true (4) Neither conclusion I nor conclusion II is true.

Ans. [3]

10. **Statements** (i) : Some players are singers.  
(ii) : All singers are tall.  
**Conclusions** (I) : Some players are tall.  
(II) : All players are tall.  
(1) Only conclusion I is true (2) Only conclusion II is true  
(3) Both conclusions I and II are true (4) Neither conclusion I nor conclusion II is true.

Ans. [1]



---

**Questions (16–19)**

**Direction :** In questions 16 to 19 three alternatives are alike in a certain way but the rest one is different. Find out the odd one and write correct answer.

---

16. (1) ABNO (2) CDPQ (3) EFRS (4) GHUT

Ans. [4]

17. (1) 144, 12 (2) 121, 11 (3) 80, 9 (4) 100, 10

Ans. [3]

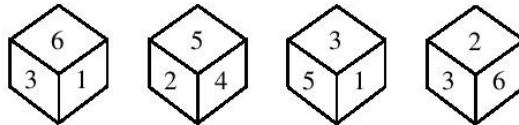
18. (1) Pen (2) Pencil (3) Chalk (4) Blackboard

Ans. [4]

19. (1) Haryana (2) Gujarat (3) Rajasthan (4) Shimla

Ans. [4]

20. In the given dice the opposite side of the 3 face is having which number?



(1) 2

(2) 3

(3) 4

(4) 6

Ans. [3]

21. In the given two positions of a dice, when 2 is below the dice which number is on the dice?



(1) 3

(2) 5

(3) 1

(4) 6

Ans. [4]

---

**Questions (22–23)**

**Direction :** Answer the questions on the basis of cube :

---

22. A cube of side 6 cm is divided in the cubes of side 2 cm. Then the total number of cubes is -

(1) 9

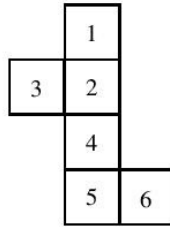
(2) 27

(3) 81

(4) 216

Ans. [2]

23. In the given figure of cube which is opposite face of 3 ?



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

Ans. [4]

24. If in a coded language the word 'REKHA' is written as 'AHKER' then in the same code language 'HEMA' will be written as -

- (1) AMEH                      (2) EMAH                      (3) MAHE                      (4) EAMH

Ans. [1]

25. If in a coded language the word CHILDREN is written as EJKNFTGP then TEACHER will be written as -

- (1) VGCEJTG                      (2) VGCEJGT                      (3) VGCJEGT                      (4) VGCGEJT

Ans. [2]

26. In a coded language the given alphabets are written in special codes.

A B C D E S U V M N  
7 9 1 3 4 2 0 6 5 8

Then code 973578 will be -

- (1) BADMAN                      (2) BACMAN                      (3) DUEMAN                      (4) MANSDE

Ans. [1]

27. In a coded language 'RUSTY' is written as 96872. Then in the same coded language 'ZXWV' will be written as -

- (1) 1354                      (2) 1543                      (3) 1345                      (4) 1534

Ans. [3]

28. A is uncle of B, B is daughter of C, C is the wife of D's son. Then how is A related to D?

- (1) Son                      (2) Brother                      (3) Father                      (4) Maternal uncle

Ans. [1]

29. Ram travels 8 km to south, then moves to right and travels 6 km and at the end he again moves right and travels 8 km. Then the distance of Ram from initial point is.

- (1) 6 km                      (2) 8 km                      (3) 10 km                      (4) 14 km

Ans. [1]

30. If the meaning of  $\Delta$  is '+',  $\theta$  is 'x',  $\square$  is ' $\div$ ' and  $\phi$  is '-', then the value of  $24 \square 6 \Delta 5 \theta 6 \phi 14$  is -

- (1) 34                      (2) 20                      (3) 14                      (4) 2

Ans. [2]

**Questions (31–34)**

**Direction :** In questions 31 to 34 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 in the problem-figures. Choose the correct figure.

31. 

Problem-figures				
$\Delta$	$\Delta \square$	$\Delta \square \circ$	$\Delta \square \circ -$	$\Delta \square \circ -$

Answer-figures			
$\Delta \square \circ$	$\square \Delta \circ$	$\times \Delta \square$	$\Delta \square \circ$
$\begin{matrix} + \\ \times - \end{matrix}$	$\begin{matrix} - \\ \times + \end{matrix}$	$\begin{matrix} \circ \\ + - \end{matrix}$	$\begin{matrix} - \\ \times + \end{matrix}$

(A)    (B)    (C)    (D)    (E)                      (1)    (2)    (3)    (4)

Ans. [4]

32. 

Problem-figures				
$\times \uparrow \uparrow$	$\uparrow \times \uparrow$	$\times \uparrow \uparrow \uparrow$	$\uparrow \uparrow \times \uparrow$	$\times \uparrow \uparrow \uparrow$

Answer-figures			
$\uparrow \uparrow \uparrow \times$	$\uparrow \uparrow \uparrow \uparrow$	$\uparrow \times \uparrow \uparrow$	$\uparrow \uparrow \uparrow \times$

(A)    (B)    (C)    (D)    (E)                      (1)    (2)    (3)    (4)

Ans. [1]

33. 

Problem-figures			
			?

Answer-figures			

(A)    (B)    (C)    (D)                      (1)    (2)    (3)    (4)

Ans. [4]

34. 

Problem-figures			
		?	

Answer-figures			

(A)    (B)    (C)    (D)                      (1)    (2)    (3)    (4)

Ans. [3]

**Questions (35–37)**

**Direction :** In questions 35 to 37 there are four figures given. One of these does not correlate with the rest of the figures. Find out that odd figure.

35. 

=	//		\
---	----	--	---

  
(1)      (2)      (3)      (4)

Ans. [4]

36. 

⊖	⊕	⊗	⊘
---	---	---	---

  
(1)      (2)      (3)      (4)

Ans. [3]

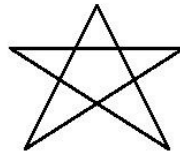
37. 

↻	↺	↻	↺
---	---	---	---

  
(1)      (2)      (3)      (4)

Ans. [2]

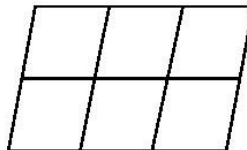
38. How many triangles are there in the figure below ?



- (1) 5                      (2) 6                      (3) 8                      (4) 10

Ans. [4]

39. How many parallelograms are there in the figure below?



- (1) 14                      (2) 15                      (3) 16                      (4) 18

Ans. [4]

**Questions (40–42)**

**Direction :** In questions 40 to 42 find the correct mirror image of the given figure.

40. Question-figure



Answer-figures



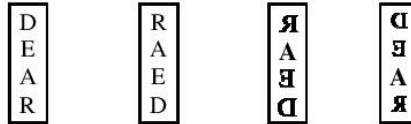
(1) (2) (3) (4)

Ans. [1]

41. Question-figure



Answer-figures



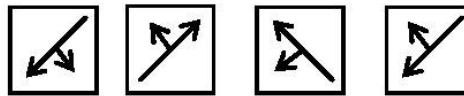
(1) (2) (3) (4)

Ans. [4]

42. Question-figure





Answer-figures




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



Ans. [3]

43. The water image of the given figure  is -

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

Ans. [4]

44. The water image of the given figure  is

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

Ans. [1]

**Questions (45–46)**

**Direction :** In the following Questions 45 – 46, figures showing a sequence of folding a paper are given. Which could resemble the figure in the Answer-figure?



45. Question-figures



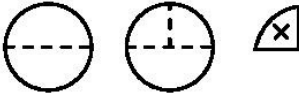
Answer-figures



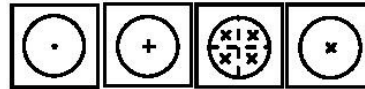
(1) (2) (3) (4)

Ans. [2]

46. Question-figure



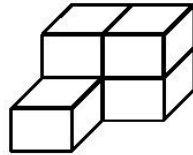
Answer-figures



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

Ans. [3]

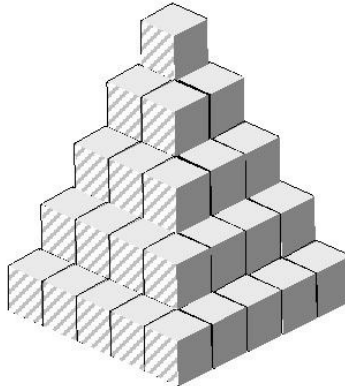
47. Find the number of blocks when the given stack of blocks is separated :



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

Ans. [3]

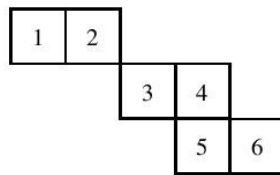
48. In the given figure, the total number of cubes is



(1) 25 (2) 55 (3) 85 (4) 35

Ans. [2]

49. In the given figure squares are folded and a cube is formed. Then the number opposite to 2 is -



(1) 1

(2) 3

(3) 5

(4) 6

Ans. [3]

50. In the standard die the sum of opposite faces always remains -

(1) 8

(2) 7

(3) 6

(4) 5

Ans. [2]