## NATIONAL TALENT SEARCH EXAMINATION-2019-20, ASSAM SCHOLASTIC APTITUDE TEST (SAT) PAPER & HINTS & SOLUTION

## SOCIAL SCIENCE

1.	The branch of Geography in which the study of human activities associated with production. distribution, consumption and exchange of resources is done in spatial and temporal contexts is known as -			
	<ul><li>a) Agricultural Geograp</li><li>c) Industrial Geography</li></ul>		<ul><li>b) Economic Geograph</li><li>d) Transport Geograph</li></ul>	
Ans.	(b)			
2. <b>Ans.</b>	Transport is an example of a) Primary Occupation c) Tertiary Occupation		b) Secondary Occupation d) Quaternary Occupation	
3.	(c) Who is considered as the a) C.F. Jones	ne Father of modern eco	nomic geography? c) George Chisholm d) Zimmermann	
<b>Ans.</b> 4.	(c) Which of the following is a) Rivers	s a man made resource? b) Irrigation canal	c) Mineral oil	d) Forests
Ans.	(b)	b) inigation canal	o) William on	4) 1 6166.6
5.	IUCN was formed in the			
Ans.	a) 1947 <b>(b)</b>	b) 1948	c) 1949	d) 1950
6.	Where is the headquart a) Karimganj	er of North East Frontier b) Bongaigaon	railway located? c) Dhubri	d) Guwahati
<b>Ans.</b> 7.	(d)) How many spheres are	generally recognized by	Earth Sciences?	,
Ans.	a) 3 <b>(b)</b>	b)4	c) 5	d) 6
8. <b>Ano</b>	a) 25%	Earth's land Surface is b) 30%	Desert? C) 35%	d) 40%
<b>Ans.</b> 9.	(b) The lakes, riversk, seas	and oceans together co	onstitute the Earth's	
Ans.	a) Lithosphere <b>(b)</b>	b) Hydrosphere	c) Atmosphere	d) Biosphere
10.	Which ocean occupies a) Pacific Ocean b) Atla		c) Indian Ocean	d) Southern Ocean
<b>Ans.</b> 11.	(d)) How many countries are a) 196	e there in the world? b) 197	c) 198	d) 199
<b>Ans.</b> 12.	(b) How many districts are	there in the state of Assa	am?	•
Ans.	a) 31 <b>(c)</b>	b)32	c) 33	d)34
13.	a) NH 31	tional highway in Assam b) NH 31 B	? c) Nil 36	d) NH 37
<b>Ans.</b> 14.	(d)) How many stages are that a) 3	nere through which mone b)4	ey has evolved? c) 5	d)6
<b>Ans.</b> 15.	(c) The historic Jonbeel Me	•	•	•
Ans.	a) Golaghat (c)	b) Sibsagar	c) Morigaon	d) Kamrup (Rural)

16	The manay that is recognized	by the levy of the l	and as valid for novemen	at of dobt in known on
16.	The money that is recognised			
A	a) Commodity money b) To	ken money	c) Dear Money	d) Legal tender money
Ans.	(d))		4-61-6-4-6-4-6-4	
17.	In India, the first bank, Bank of		-	1) 4700
_	a) 1760 b) 17	70	c) 1780	d) 1790
Ans.	(b)			
18.	The Reserve Bank of India wa			
	a) 1925 b) 19	35	c) 1945	d) 1955
Ans.	(b)			
19.	Who is the chairman of NITI A	\ayog?		
	a) Union Home Minister		b) Any union Minister of	f Cabinet Rank
	c) L.t. Governor of Delhi		e) Prime Minister	
Ans.	(d))		,	
20.	In India. the governments fina	ncial vear runs fro	m	
	a) 1st January to 31st Decem		b) 1st March to 28th Fe	hruary
	c) 1st July to 30th June	001	d) 1st April to 31st Marc	
Ans.	(d))		a) 13t April to 0 13t Mark	511
21.		kov dimension of	human davalanment in t	the Human Development Index
۷۱.		i key dimension or	numan development in t	the Human Development index
	(HDI)		h) Doing knowledgeshi	•
	a) A long and healthy life		b) Being knowledgeable	
_	c) A decent standard of living		d) Political participation	
Ans.				
22.	The first bank that was establ			
	a) Central Bank b) SII	DBI	c) IDBI	d) Guwahati Bank
Ans.	(d))			
23.	The 42nd amendment of the			
	integrity of the Nation" were ir	ncorporated in the	preamble was enacted ir	า
	a) 1975 b) 19	76	c) 1977	d) 1978
Ans.	(b)		•	•
24.	How many principal organs ar	e there in the Unit	ed Nations?	
	a) 4 b)5		c) 6	d)7
Ans.	(c)		, -	,
25.	How many member States are there in the United Nations'?			
	a) 192 b) 19		c) 194	d) 195
Ans.	(b)		0) 10 1	a) 100
A113.	(5)			
26.	The Protection of human Righ	nts hill received the	assent of the President	of India in
20.	a) 1992 b) 19		c) 1994	d) 1995
Ans.	,	33	C) 199 <del>4</del>	u) 1995
	(b) When wee the United Nations	ootoblished?		
27.	When was the United Nations		-) 4046	4) 4047
	a) 1944 b) 19	45	c) 1946	d) 1947
Ans.	(b)			•
28.	Who was the Chairman of the			
_		awaharlal Nehru	c) Rajendra Prasad	d) M. Madhab Rao
Ans.	(a)			
29.	The UN Charter, consists of a			
		1 articles	c) 112 articles	d) 113 articles
Ans.	(b)			
30.	Which city was made the Cap		Eastern Bengal and As	
	a) Jorhat b) Ka	rimganj	c) Silchar	d) Dhaka
Ans.	(d))			
31.	When was the Rowlatt Act pa	ssed by the Imperi	ial Legislative Council?	
	a) 1917 b) 19	•	c) 1919	d) 1920
Ans.	(c)	-	-,	-,
32.	The 'Chauri Chaura' incident occured in			
	The 'Chauri Chaura' incident of	occurea in		
02.			c) Bombay	d) Madras
Ans.	a) Uttar Pradesh b) Be		c) Bombay	d) Madras

33.	The mantra 'Do or Die' was given by Mahatma Gandhi to launch the					
	a) Swadeshi movemer	nt	b) Non Cooperation m	ovement		
	c) Civil Disobedience r	movement	d) Quit India movemer			
Ans.	(d))		,			
34.		mitted a memorandum to	Moffat Mills in 1853 and	ponted out that the		
			on the assamese people			
	a) Kandarpeswar Sing		b) Lakshmi Nath Bezh			
	c) Maniram Dewan		d) Anandaram Dhekial			
Ans.	(d))		a) /aa			
35.		anised neasant's movem	nent of Assam take place	.?		
55.	a) Rangia	b) Lachima	c) Patharughat	d) Phulaguri		
Ans.	(d))	b) Lacilina	c) i atriarugilat	a) i ilalagan		
36.		ahha' was etahlished hy	Anandaram Dhekiyal Phi	ukan and Gunaviram Barua in		
50.	a) 1855	b) 1856	c) 1857	d) 1858		
Ans.		b) 1030	C) 1837	u) 1030		
37.	(c)	Accamaca diationary 'L	lomkoch Abbidban''2			
37.		S Assamese dictionary 'F		h		
	a) Hemchandra Goswa		b) Hemchandra Barua			
<b>A</b>	c) Lakshminath Bezba	rua	d) Chandra Kumar Aga	arwaia		
Ans.	(b)	sident of Assembly Durates	0:			
38.	vvno was the first pres	sident of Assam Pradesh	Congress Committee?			
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		1.) 14. 1. 11. 01. 121			
	a) Nabin Chandra Aga	irwaia	b) Kuladhar Chaliha			
	c) Bishnuram Medhi		d) Siddhinath Sarma			
Ans.	(b)					
39.		Which martyr was hanged during the Quit India Movement for his involvement in train				
	derailment at Borpathar, Assam?					
	a) Kanaklata			b) Sankar Chandra Barua		
	c) Kushal Konwar		d) Mahendranath Haza	arika		
Ans.	(c)					
40.	Who was the founder	of Indian National Congr	ess?			
	a) Mahatma Gandhi		b) Allan Octavian Hum	ie		
	c) Jawaharlal Nehru		d) Subhash Chandra Bose			
_	•		d) Submasii Chandia L	0036		
Ans.	(b)					
		MATHE	EMATICS			
4.4	Mileiale of the fall accions	maticus al movembra a la casta ann		0		
41.	which of the following	rational number has terr	minating decimal expansi	on ?		
	(=) 64	<sub>(b)</sub> 13	(5) 29	(4), 77		
	(a) $\frac{64}{455}$	(b) $\frac{13}{3125}$	(c) $\frac{29}{343}$	(d)) $\frac{77}{210}$		
		0120	040	210		
Ans.	(b)					
	13 13					
Sol.	$\frac{13}{3125} = \frac{13}{5^5}$ denominator is in the form of $2^n \times 5^m$ .					
	0120 5					
40	3. <del>27</del> is					
42.						
	(a) an integer	(b) a rational number	(c) a natural number	(d)) an irrational number		
Ans.	(b)					
, u.o.	,					
Sol.	$3.\overline{27} = \frac{327 - 3}{99} = \frac{324}{99} =$	$\frac{36}{}$ = rational				
JU1.	99 - 99 -	11				

43. If 
$$\alpha$$
 and  $\beta$  are the zeros of the polynomial  $f(x) = x^2 + px + q$ , then a polynomial having  $\frac{1}{\alpha}$  and  $\frac{1}{\beta}$  as its

zeros is

(a) 
$$x^2 + qx + p$$

(b) 
$$x^2 - px + q$$

(c) 
$$qx^2 + px + 1$$

(d)) 
$$px^2 + qx + 1$$

Ans.

**Sol.** 
$$F(x) = x^2 + px + q$$

$$\therefore \alpha + \beta = -p \quad \alpha\beta = q$$

So, 
$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha \beta} = \frac{-p}{q}$$

$$\frac{1}{\alpha\beta} = \frac{1}{\alpha}$$

Polynomial= 
$$x^2 - \left(-\frac{p}{q}\right)x + \frac{1}{q} = qx^2 + px + 1$$

44. If zeros of the polynomial 
$$f(x) = x^3 - 3px^2 + qx - r$$
 are in A.P., then

(a) 
$$2p^3 = pq - r$$

(b) 
$$2p^3 = pq + r$$

(c) 
$$p^3 = pq - r$$

(d)) 
$$p^3 = pq + r$$

Sol. (a)

Let the roots are a - d, a & a + d

$$a - d + a + a + d = 3p$$

$$a = p$$

$$(a - d) (a) + a(a + d) + (a - d) (a + d) = q$$
  
 $a^2 - ad + a^2 + ad + a^2 - d^2 = q$ 

$$3a^2 - d^2 = q$$

Now

$$(a - d) a(a + d) = r$$
  
 $a(a^2 - d^2) = r$ 

$$a^2 - d^2 = \frac{r}{a}$$

$$d^2 = a^2 - \frac{r}{a}$$
 ... (3)

From eq. (2) & (3)

$$3a^2 - \left(a^2 - \frac{r}{a}\right) = q$$

$$2a^2 + \frac{r}{a} = q$$

So

$$2p^2 + \frac{r}{p} = q$$

$$2p^3 + r = pq$$

$$2p^3 = pq - r$$

45. The value of K for which the system of equations x + 2y - 3 = 0 and 5x + ky + 7 = 0 has no solution, is

Ans. (a)

**Sol.**  $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ 

$$\frac{1}{5} = \frac{2}{k} \neq \frac{-3}{7}$$

$$k = 10$$

46. The value of  $\sqrt{6+\sqrt{6+\sqrt{6}+\dots}}$  is

$$(c) - 2$$

Ans. (b)

**Sol.** Let  $\sqrt{6 + \sqrt{6 + \sqrt{6 + \dots}}} = t$ 

$$\sqrt{6+t}=t$$

$$6 + t = t^2$$

$$t^2 - t - 6 = 0$$

$$t^2 - 3t + 2t - 6 = 0$$

$$t(t-3) + 2(t-3) = 0$$

47. If x = 1 is a common root of the equations  $ax^2 + ax + 3 = 0$  and  $x^2 + x + b = 0$  then ab = ?

$$(a) - 3$$

Ans. (d))

**Sol.** x = 1 is root of  $ax^2 + ax + 3 = 0$ 

$$a(1)^2 + a(1) + 3 = 0$$

$$a + a + 3 = 0$$

$$2a = -3$$

$$a = -3/2$$

x = 1 is also root of  $x^2 + x + b = 0$ 

$$(1)^2 + 1 + b = 0$$

a.b = 
$$\left(-\frac{3}{2}\right)\left(-2\right) = 3$$

48. If  $\frac{1}{x+2}$ ,  $\frac{1}{x+3}$ ,  $\frac{1}{x+5}$  are in A.P., then x = ?

Ans. (c)

**Sol.** 
$$\frac{1}{x+2}, \frac{1}{x+3}, \frac{1}{x+5}$$
 are in A.P

$$\Rightarrow \frac{2}{x+3} = \frac{1}{x+2} + \frac{1}{x+5}$$

$$\frac{2}{x+3} = \frac{2x+7}{(x+2)(x+5)}$$

$$2(x + 2) (x + 5) = (2x + 7) (x+3)$$

$$2(x^2 + 7x + 10) = (2x^2 + 7x + 6x + 21)$$

$$2x^2 + 14x + 20 = 2x^2 + 13x + 21$$

$$x = 1$$

49. If the sum of 1st n terms of an A.P. is  $3n^2 + n$  then its common difference is

(a) (

- (b) 4
- (c) 14
- (d)) 10

Ans. (a)

Sol.

$$S_n = 3n^2 + n$$

- n = 1
- $S_1 = a_1 = 4$

 $a_1 = 4$ 

- n =2
- $S_2 = a_1 + a_2 = 14$

 $a_2 = 10$ 

 $d = a_2 - a_1$ 

 $\Rightarrow$  10 –4 = 6

50. Sides of two similar triangles are in the ratio 4:9. Areas of these triangles are in the ratio

- (a) 2:3
- (b) 4:9
- (c) 81:16
- (d)) 16:81

Ans. (d))

**Sol.** 
$$\frac{\Delta_1}{\Delta_2} = \left(\frac{4}{9}\right)^2 = \frac{16}{81}$$

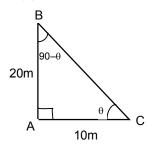
51. A vertical stick 20 m long casts a shadow 10 m long on the ground. At the same time, a tower casts a shadow 50 m long on he ground. The height of the tower is

- (a) 100 m
- (b) 120 m
- (c) 25 m
- (d)) 200 m

Ans. (a)

Sol.

Sol. (a)



Р 50m F

ΔABC ~ ΔPQR.

$$\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$$

$$\frac{20}{h} = \frac{10}{50} \Rightarrow h = 100m$$

- 52. If the centroid of the triangle formed by the points (a, b), (b, c) and (c, a) is at the origin then  $a^3 + b^3 + c^3 = ?$ 
  - (a) abc
- (b) 0
- (c) a + b + c
- (d)) 3abc

Ans. (d))

- **Sol.** Centroid  $\rightarrow \left(\frac{a+b+c}{3}, \frac{a+b+c}{3}\right) = (0,0)$ 
  - $\therefore \frac{a+b+c}{3} = 0 \implies a+b+c = 0$
  - $a^3 + b^3 + c^3 = 3abc$
- 53. The coordinates of the point P dividing the line segment joining the points A(1, 3) and B(4, 6) in the ratio 2:1 are
  - (a) (2, 4)
- (b) (3, 5)
- (c) (4, 2)
- (d))(5,3)

Ans. (b)

- Sol.  $x = \frac{2(4) + 1(1)}{2 + 1} = 3$ 
  - $y = \frac{2(6) + 1(3)}{2 + 1} = 5$

So, p(3, 5)

- 54. If  $\sin\theta + \sin^2\theta = 1$  then  $\cos^{12}\theta + 3\cos^{10}\theta + 3\cos^{8}\theta + \cos^{6}\theta + 2\cos^{4}\theta + 2\cos^{2}\theta 2 = ?$ 
  - (a) 1
- (b) 2
- (c) 3
- (d)) 0

Ans. (a)

- Sol.  $\sin\theta = 1 \sin^2\theta$ 
  - $\sin\theta = \cos^2\theta$

Now  $\cos^{12}\theta + 3\cos^{10}\theta + 3\cos^{8}\theta + \cos^{6}\theta + 2\cos^{4}\theta + 2\cos^{2}\theta - 2$ 

 $\cos^6\theta \left(\cos^6\theta + 3\cos^4\theta + 3\cos^2\theta + 1\right) + 2\left(\cos^4\theta + \cos^2\theta - 1\right)$ 

 $\sin^3\theta \left[ (\cos^2\theta + 1)^3 \right] + 2(\sin^2\theta + \sin\theta - 1)$ 

 $\sin^{3}\theta(1 + \sin\theta)^{3} + 2[1 - \cos^{2}\theta + \sin\theta - 1]$ 

 $\sin\theta \cdot \sin^2\theta (1 + \sin\theta)^3 + 2[-\sin\theta + \sin\theta]$ 

 $\sin\theta(1-\cos^2\theta)(1+\sin\theta)^3+0$ 

 $\sin\theta(1-\sin\theta)(1+\sin\theta)(1+\sin\theta)^2$ 

 $\sin\theta(1-\sin^2\theta)(1+2\sin\theta+\sin^2\theta)$ 

 $\sin\theta \cdot \cos^2\theta (1 + 2\sin\theta + 1 - \cos^2\theta)$ 

 $\sin\theta \cdot \sin\theta(2 + 2\sin\theta - \sin\theta)$ 

 $\sin^2\theta(2 + \sin\theta)$ 

 $(1 - \cos^2\theta) (2 + \sin\theta)$ 

 $(1 - \sin\theta) (2 + \sin\theta)$ 

 $2 + \sin\theta - 2\sin\theta - \sin^2\theta$ 

 $2 - \sin\theta - \sin^2\theta$ 

 $2 - (\sin\theta + \sin^2\theta) = 2 - 1 = 1$ 

55. The value of 
$$\sin^2 29^\circ + \sin^2 61^\circ$$

Ans. (d))

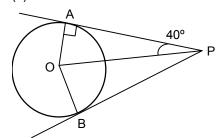
Sol. 
$$\because \sin\theta = \cos(90^{\circ} - \theta)$$

$$\sin^2 29^\circ + \sin^2 61^\circ = \sin^2 29^\circ + \cos^2 29^\circ = 1$$

56. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 80° then ∠POA is equal to

$$(c) 70^{\circ}$$

Ans. (a)



So 
$$\angle AOP = 180^{\circ} - (90^{\circ} + 40^{\circ}) = 50^{\circ}$$

57. The length of the diameter of a circle whose area and circumference are numercally equal, is

(a) 
$$\frac{\pi}{2}$$

Ans. (d))

**Sol.** 
$$2\pi r = \pi r^2$$

So diameter (2r) = 4

58. The mean of the first n natural number is 15. Then n = ?

Ans. (d))

**Sol.** Sum of first n - natural no =  $\frac{n(n+1)}{2}$ 

Mean = 
$$\frac{n(n+1)}{\frac{2}{n}}$$
  $\Rightarrow \frac{n+1}{2} = 15$ 

$$n = 29$$

59. The median of first 10 prime number is

Ans. (b)

**Sol.** 2,3,5,7,11,13,17,19,23,29

Median = 
$$\frac{11+13}{2}$$
 = 12

60.	Which of the following cannot be the probability of an event ?				
	(a) $\frac{2}{3}$	(b) – 1.5	(c) 0.8	(d)) 0.5	
Ans.	(b)				
Sol.	Probability lie between	een 0 to 1.			
		<u>B</u>	IOLOGY		
61.	In autotrophic orgar (a) Photosynthesis	nism energy requirement (b) Respiration	is fulfilled by - (c) Digestion	(d)) Transpiration	
Ans.	(a)				
62.	Which of the following maintains the opening and closing of stomatal proe ?  (a) Guard cell  (b) Chlorophyll  (c) Oxygen  (d)) Rate of Photosynthesis			·	
Ans.	(a)		(d)) Nate of Frieto	Synthesis	
63.	Which of the following method is used for vegeta (a) Grafting (c) Budding		(b) Artificial Repro	ative propagation of sugarcane ? (b) Artificial Reproduction (d)) Tissue culture	
Ans.	(a)				
64.	Example of unisexu			<del>-</del>	
Ans.	(a) Hibiscus (c)	(b) Mustard	(c) Papaya	(d)) Rose	
65.	The process by which the plant embryo develops into seedling under appropriate condition known as -				
Ans.	(a) Germination (a)	(b) Reproduction	(c) Fertilization	(d)) Plantation	
66.		of terrestrial ecosystem	n, which of the following	ng is peresent at the bottom of the	
	pyramid ? (a) Primary consum	ier	(b) Producer		
Ans.	(c) Top carnivores (b)			(d)) Secondary consumer	
67.	Kulh in Himachal Pradesh is associated to - (a) Water management (b) Air Pollution Control				
Ans.	(c) Wild life protection (a)	on	(d)) River Dams		
68.	The technique that is used ot grow ornamental plant from one parent is known as -  (a) Tissue culture  (b) Vegetative propagation				
Ans.	(c) Hybrid (b)		(d)) Budding		
69.		In muscle cells the break down of pyruvate in absence of oxygen produces - (a) Ethanol + $CO_2$ + Energy (b) Lactic acid + Energy			
Ans.	(b) (d) CO <sub>2</sub> • Water • Energy (d) CO <sub>2</sub>				

70.			(b) Right ventricle to lung (d)) Brain to left auricle	
Ans.	(c)			
71.	The structure of kidney that collects the filtrate is (a) Bowman's capsule (b) Capillaries		s known as - (c) Nephron	(d)) Urinary bladder
Ans.	(a)	(1)	(-)	(-,, ,
72.		ons of human body is con	rolled by -	(d)) Tissue
Ans.	(a) Fore brain (b)	(b) Hind brain	(c) Heart	
73.		rowth hormone from pitui		
Ans.	(a) Dwarfism (a)	(b) Gigantism	(c) Acromegaly	(d)) Anaemia
74.	The life span of human		== .	
Ans.	(a) 24 hours (a)	(b) 48 hours	(c) 76 hours	(d)) 90 hours
75.		Mendel's monohybrid cro		
Ans.	(a) 3 : 1 (b)	(b) 1 : 2 : 1	(c) 9:3:3:1	(d)) 2 : 1
76.	structure is known as - (a) Molecular phylogen	·	ce of organisms on the basis of their DNA  (b) Fossil study	
Ans.	(c) Embryology s. (a)		(d)) Histology	
		<u>PHY</u>	<u>SICS</u>	
77.	If a plane mirror is rotate	ted by an angle 15° then	the reflected light will be	rotated by :
Ans.	(a) 15° (b)	(b) 15°	(c) 45°	(d)) 7.5°
78.				rror, then the image would be :
	<ul><li>(a) Magnified, real inve</li><li>(c) Diminshed, virtual, or</li></ul>		<ul><li>(b) Climinished, real erect</li><li>(d)) Diminished, real, inverted</li></ul>	
Ans.	(d))			
79.	(a) Two times the angle		e reflected ray and the incident ray is : (b) Equal to the angle of incidence (d)) 90°	
Ans.	(c) Zero(0°) (a)			
80.	If an object is placed of (a) At focus on the other (b) At the centre of curve (c) At infinity		lens then the image will	be formed :
	(d)) In between focus a	and centre of curvature		
Ans.	(c)			

81. Ans.	The correct sequence in the increasing order of (a) Violet, Yellow, Orange (c) Blue, Yellow, Violet		f frequency is : (b) Red, Orange, Violet (d)) Blue, Red, Orange		
82.	<ul><li>(b)</li><li>A person can see distant object clearly but find i</li><li>(a) Astigmatism</li><li>(c) Hypermetropia</li></ul>		if difficult to read a book. The person is suffering from :   (b) Myopia   (d)) Prebyopia		
Ans. 83.	(c) If a conductor is folded	8 times then the resistan	ice will be :		
	(a) 8 time	(b) 4 times	(c) $\frac{1}{8}$ times	(d)) $\frac{1}{64}$ times	
Ans.	$(d))$ $R^2 = n^2 \times R_1$		C	04	
	$R_2 = \frac{R}{64}$				
84.	If R is the resistance, I is the current flowing and V is the potential difference across a conductor at constant temperature, then Ohm's law is:				
Ans.	<ul><li>(a) I = VR</li><li>(c)</li><li>Using Ohm's Law V = I</li></ul>	(b) R = VI R	(c) V= IR	(d)) $V = I^2R$	
85.	How much energy us Kilowatt hour is consumed in operating two 200 watt bulb for 10 hours per day in a month (30 days)?				
Ans.	(a) 60 KWH (Bonus)	(b) 6 KWH	(c) 30 KWH	(d)) 200 KWH	
86.	Particles released from Uranium atom in the increasing order of their velocity:  (a) Alpha, Gamma, Beta(b) Alpha, Beta, Gamma  (c) Gamma, Beta, Alpha(d)) Beta, Gamma, Alpha				
Ans.	(b)				
87.	We can write on a black board because of the formula (a) Viscous force		orce called : (b) Frictional force		
	(c) Gravitational force		(d)) Nuclear force		
Ans.	(b)				
88.	The energy released by sun is due to :				
	(a) Fission reaction	ion reaction	<ul><li>(b) Fusion reaction</li><li>(d)) Chemical reaction</li></ul>		
Ans.	<ul><li>(c) Both fission and fusion reaction</li><li>(b)</li></ul>		(a)) Cheffical reaction		

## **CHEMISTRY**

89.	Which of the following are exothermic processes ?					
	(i) Reaction of water with lime		(ii) Dilution of an ac	(ii) Dilution of an acid		
	(iii) Evaporation of water		(iv) Sublimation of	(iv) Sublimation of Camphor		
	(a) (i) and (ii)	(b) (ii) and (iii)	(c) (i) and (iv)	(d)) (iii) and (iv)		
Ans.	(a)					
		- A reaction which is acu	•			
	Eg. Reaction of water with lime $CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(aq.) + Energy$					
	Eq. Dilution of an acid	$d \rightarrow Exothermic proces$	S.			
	Ans. (i) and (ii)					
90.	Which of the following (a) CO <sub>2</sub> or O <sub>2</sub>	g gases can be used for $(b) N_2$ or $O_2$	storage of fresh sampl	e of an oil for a long time ? (d)) He of $N_2$		
Ans.	(d))					
	Rancidity can be pre	evented by packing fat	and oil containing food	s in nitrogen or noble gas because		
	there are unreactive	and inert.				
91.	An aqueous solution turns red litmus solution blue. Excess addition of which of the following will reverse the change ?					
	(a) Baking powder		(b) Lime			
	(c) Ammonium hydro	xide solution	(d)) Hydrochloric ad	cid		
Ans.	(d))		<b>.</b>			
	·	Aquious solution turns red litmus to blue $\rightarrow$ Basic solution.				
	Basic solution pH > 7					
	Excess addition of a will shift in reverse, the		nange the basic nature	of solution to acidic nature and pH		
92.	Silver articles becom	e black on exposure to a	air for longer time which	n may be due to the formation of:		
· -	(a) AgCN	(b) Ag <sub>2</sub> O	(c) Ag <sub>2</sub> S	(d)) Ag₂S and AgCN		
Ans.	(c)	( ) 3-	( / 0-	<i>\' //</i>		
	Due to formation of a coating of black silver sulphide ( $Ag_2S$ ) on its surface by the action of $H_2S$ present					
	in air.					
	$2Ag(s) + H2S(g) \rightarrow Ag2S(s) + H2(g))$					
93.	Black Which of the followi metals?		pe displaced from the	solution of its salts by other three		
	(a) Mg	(b) Cu	(c) Zn	(d)) Fe		
Ans.	(b)					
	A more active metal will Displace a less active metal from it's salt					
	Here Reactivity of metal $\rightarrow$ Mg> Zn > Fe > Cu Cu is least reactive. So other 3 metals can displace Cu metal from it's salt.					

94.	Which of the following is not required to find the pH of a solution?						
	(a) pH paper	(b) Litmus paper	(c) Universal indicator	(d)) Standard pH chart			
Ans.	(b)						
95.	Soaps are :						
	(a) Calcium Salt of acids						
	(b) Magnesium sal						
		tassium salts of long cha	in fatty acids				
	(d)) Salts of bases						
Ans.	(c)	ia andiona no matanatona		andia anfatto Asida			
		•	salt of some long chain carbo	oxylic of fally Acids.			
		Na → Sodium Soap.					
		$K \rightarrow Potassium Soap.$					
96.	-	•	resents the alkyl group is:	( II) DOOOD			
۸	(a) ROH	(b) RCOR	(c) RCOOH	(d)) RCOOR			
Ans.	(d))						
97.		ne same homologus series?					
	(a) CH₄	(b) $C_2H_6$	(c) $C_3H_8$	(d)) $C_3H_6$			
Ans.	(d))						
98.	. Which of the following elements would lose an electron easily?						
	(a) Mg	(b) Na	(c) Rb	(d)) Ca			
Ans.	(c)						
	Ionisation energy (IE).						
	In general the value of ionization energy decreases while, moving from top to bottom in a grow.						
	This is because ef	fective nuclear charge de	ecrease.				
99.	Upto which elemer	nt the law of octaves was	found to be applicable?				
	(a) O	(b) Ca	(c) Co	(d)) K			
Ans.	(b)						
	Ca → According to	law of Octaves					
100.	Where would your	Where would your locate the element with electronic configuration 2,8 in the modern periodic table ?					
	(a) group 8	(b) group 2	(c) group 15	(d)) group 18			
Ans.	(d))						
	Group $18 \rightarrow 2 + 8$	electrons → Neon Ne					