Tribhuvan University

Institute of Engineering (IOE)

BE Entrance Examination-2079

Attempt all Questions. Time: 2 hrs

Full Marks: 140 Shift: Morning

Select the best alternatives:

a) m/ne $^2 \tau$

c) e^2 /me τ

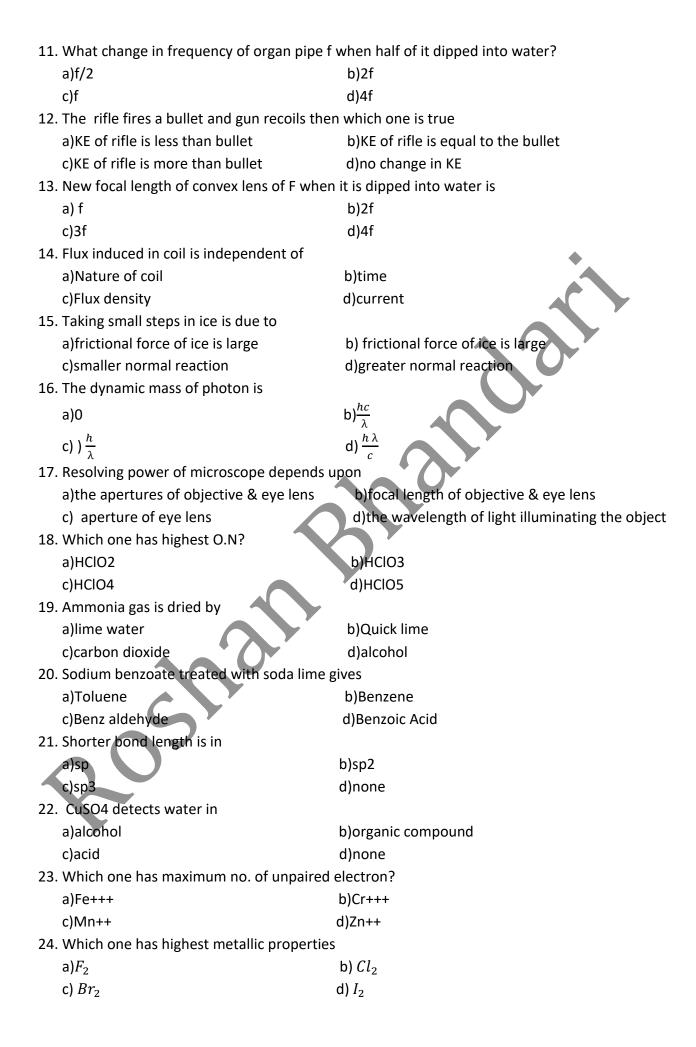
(60*1=60)

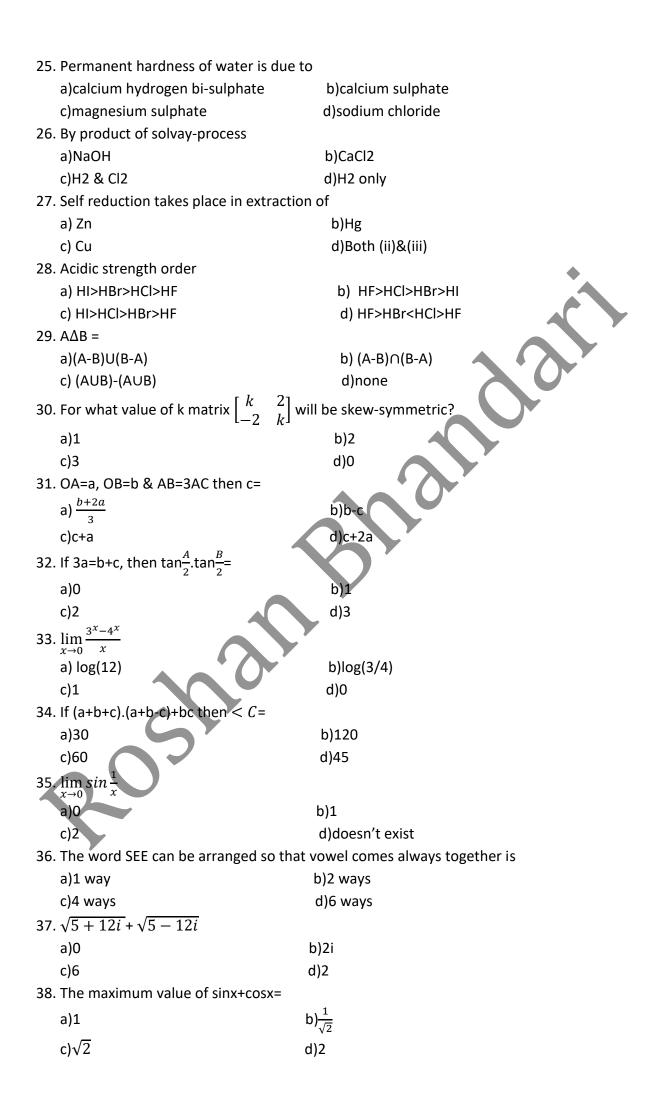
Section-I

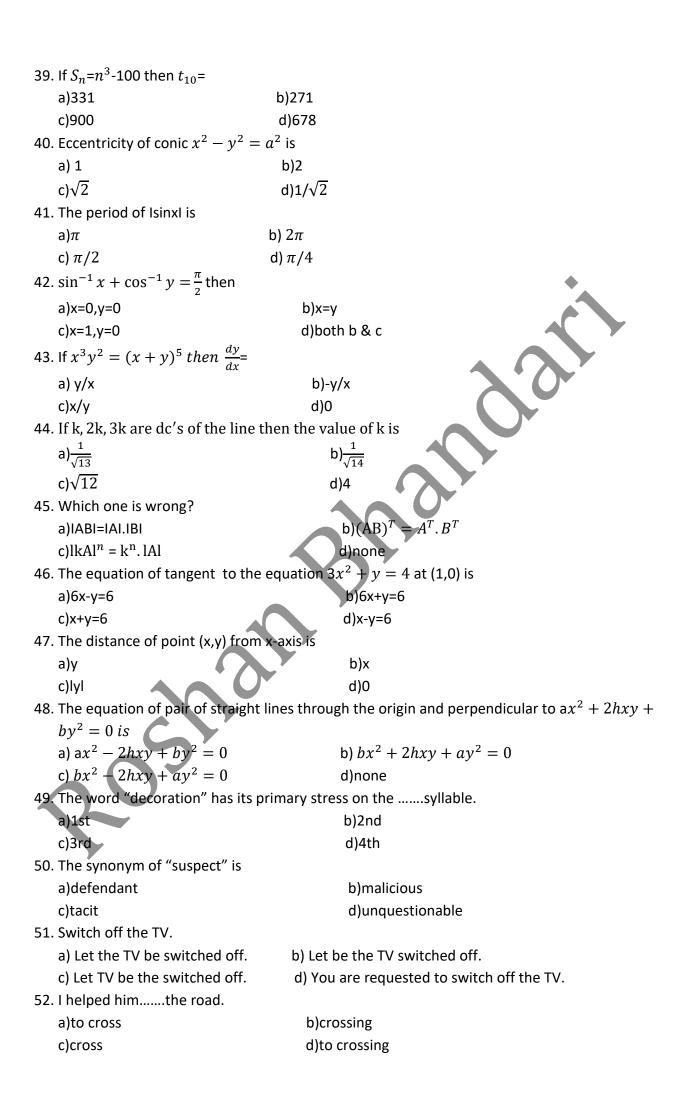
CII	e best atternatives.	(00 1-00)		
n-l				
1.	If the momentum of body is constant ther	n which of the following will be constant?		
	a)force	b)torque		
	c) velocity	d)moment of inertia		
2.	Dimension of G is			
	a) $[M^{-1}L^3T^{-2}]$	b) $[M^{-1}L^3T^2]$		
	c) $[ML^3T^{-2}]$	d)[$ML^{-3}T^{2}$]		
3.	The torque produced in current carrying of	urrent depends upon		
	a)Area	b)Shape of coil		
	c)Nature of the coil	d)Perimeter of the coil		
4.	Pressure exerted by gas molecules is direct	tly proportional to		
	a)No. of molecules	b) No. of molecules per unit volume		
	c)1/3 No. of molecules	d)1/3 No. of molecules per unit volume		
5.	When two moving waves of intensity I mo	ving in opposite direction having same amplitude and		
	frequency superimpose then intensity of r	resultant wave is		
	a)I	b)2I		
	c)I/2	d)0		
6.	Centripetal force from inertial frame is			
	a)along the radius	b)outwards the radius		
	c)Along the direction of velocity	d)opposite to the direction of velocity		
7.	Efficiency of X-ray experiment is			
	a) 99%	b)1%		
	c)less than 1%	d)none		
8.	The reading of voltameter is based on			
	a)P=I2RT	b)V=IR		
	c)P=VI	d)V=V1+V2		
9.	Unit of Heat Capacity is equal to			
	a)Work	b)Specific Heat capacity		
	c)Gas constant	d)Heat		
10.	Term of Resistivity is			

b)m/ne τ

d)e/me τ

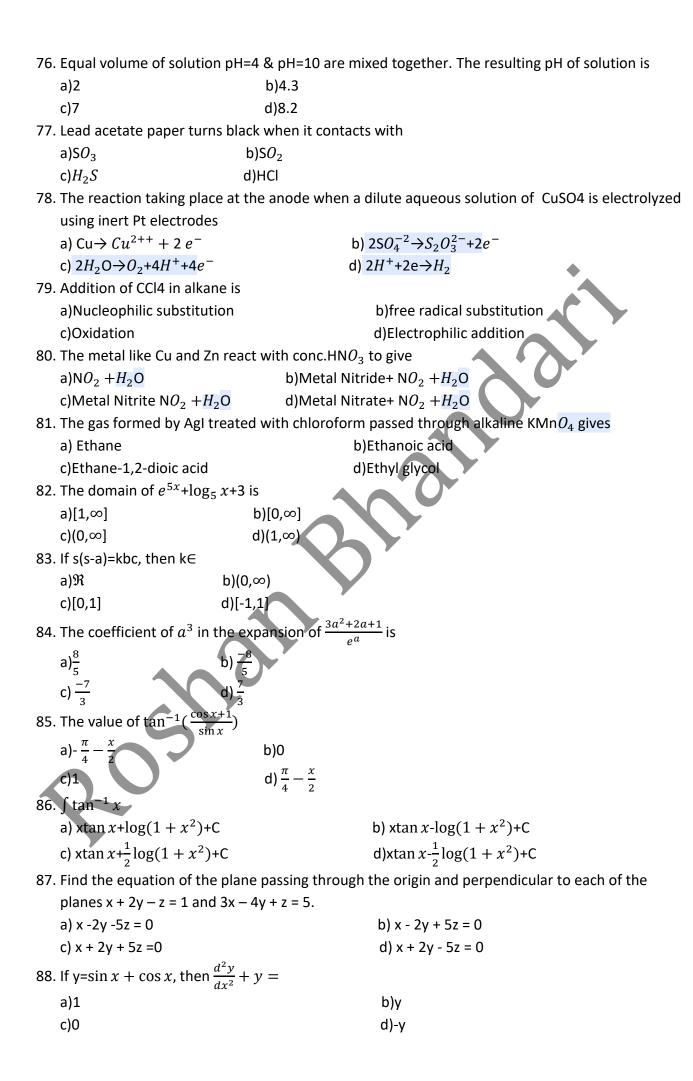






53. Her thinking leansdemocracy.		
a)with	b)towards	
c)for	d)none	
54his principles, he has to be v	ery careful.	
a)with regard of	b) with regard on	
c) with regard to	d)none	
55. He crossed the broken bridge	warning.	
a)in spite of	b)despite of	
c)in spite off	d)on	
56. If she was free, sheto you.	♦	
a)talked	b)can talked	
c)could talked	d)would talked	
57. A number of people at station	amazing.	
a)was	b)is	
c)are	d)none	
58. I hate people laughing at me.		
a) I hate being laughed at.	b) I don't like people laughed at me.	
c) People are being hated by me.	d)none	
59. The pattern for "This is a book"		
a)S+V+O	b) S+V+ adjunct	
c) S+V	d) S+V+ linking verb	
60. Which one of them is incorrec	t?	
a)lay off	b)get off	
c)see off	d)put off	
Section-II	(40×2=80 mark	
61. When momentum of body increase	·	
a)20%	b)40%	
c)100%	d)300%	
	nounted in a rocket. When a rocket accelerates upward with	
$4m/s^2$ & the pendulum makes 2^0 with vertical then the time period of that pendulum is		
a)1.8 sec	b)2 sec	
c)2.3 sec	d)3 sec	
	two solid spheres is in 1:4 and that of diameter is 1:4, then	
what will be the ratio of their mas	•	
a)1:16	b)16:1	
c)1:4	d)4:1	
•	el and copper are made of up same materials having a same	
_	$\gamma_s = \frac{1}{2}\gamma_c$ then ratio of energy stored per unit volume of	
copper to steel wires is	-	
a)1:2	b)2:1	
c)1:4	d)4:1	
•	ector current is 10mA. If the electrons emitted reach the	
collector, then		

a)the emitter current will be 9mA	b) the base current will be 9mA		
c) the emitter current will be 11.1mA	d) the base current will be 11.1mA		
66. An air bubble in a glass slab with refra	An air bubble in a glass slab with refractive index 1.5 (near normal incidence) is 8 cm deep when		
viewed from one surface and 6 cm de	ep when viewed from the opposite face. The thickness		
(in cm) of the slab is			
a)24 cm	b)12 cm		
c)10 cm	d)8 cm		
67. The power rate of photoelectric device is 100KW and emitted the frequency of 10Hz the			
a) $2 \times 10^{19} e^{-}/s$ b) 2	$2 \times 10^{-19} e^{-}/\text{s}$		
c)1.7× $10^{17}e^-$ /s d) 1	$1.7 \times 10^{-17} e^{-}/s$		
68. If a 50kg person having efficiency 60% is provided 90kJ energy provided by food. The height that			
he can climb is			
a)290m b)300m			
c)310m d)310m			
69. The force between two identical charge separated by 1m is 10N.At what distance the force will			
be 4N?			
a)0.29m b)0.31m			
c)0.5m d)0.9m			
70. At what temperature the c.rms value of N_2 is same as H_2 at $0^{\circ}C$?			
a)3258° <i>C</i> b)3120	0°C		
c)3430° <i>C</i> d)3458	3° <i>€</i>		
71. Second overtone of the closed organ pipe and third overtone of the organ pipe are equal. If the			
length of the open organ pipe is 16cm	then length of closed organ pipe is		
a)25.6cm b)18cn	1		
c)10cm d)3.33			
72. A transformer with efficiency 80% works at 4kW and 100V. If the secondary voltage is 200V,			
then the primary and secondary currents are respectively			
a)40A and 16A b) 16A and 40A		
c) 20A and 40A d) 40A and 20A		
	connected in series with 490 $\!\Omega$ and 2V battery. If 0.2V/cm		
is the potential gradient, then resistance of the potentiometer wire is			
a)4.9Ω b)7.9Ω			
c)5.9 Ω d)6.9 Ω			
	8mm separation between the slits and the screen is		
placed 1.4m away. 1.2cm is the distance between the central bright fringe and the fourth bright			
fringe. Determine the wavelength of I			
a)60nm b)600nr			
c)70nm d)700nr			
75. At 80°C distilled water has H_3O^+ concentration equal to 1 x 10^{-6} mol/L. The value of K_w at this temperature will be a) 1×10^{-12} b) 1×10^{-15}			
c) 1×10^{-6} d) 1×10^{-6}	10 '		



- 89. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, then A^2 -5A is equal to
 - a)2I

b)-21

c)31

- d)null matrix
- 90. A person has got 12 acquaintances whom of 8 are relatives. In how many ways can he invite 7 guests so that 5 of them may be relatives?
 - a) 336

b)420

c)720

d)900

- 91. $\lim_{x \to \frac{\pi}{4}} \frac{\tan x 1}{x \frac{\pi}{4}}$
 - a)1

b)1/2

c)2

- d)4
- 92. Find the area bounded by the line, y=2x-4, y=1 and y-axis
 - a) $\frac{25}{4}$

b) $\frac{7}{3}$

c) $\frac{-25}{4}$

- d) $\frac{15}{4}$
- 93. If a,b,c are in A.P. then the value of $\frac{(a-b)^2}{(b^2-ac)^2}$
 - a) 1

b)2

c)3

- d)4
- 94. The length of latus rectum of the ellipse $4x^2 + 9y^2 = 36$ is
 - a)4/3

b)3/4

c)8/3

- d)3/8
- 95. Find two numbers whose sum is 15 and when the square of one multiplied by the cube of the other is maximum
 - a)10 & 5

b)8 &7

c)8 & 7

d)6 & 9

A. Read the passage carefully and check the best option:

The achievement of science in the twentieth century has been very great. Its influence can be felt in every sphere of life. From the small pins and needles to the huge iron sheets and joints, most of the things we require for our everyday use, come out of factories where scientific principles are utilized for practical ends. Science has enabled man to bring forces of nature under control and to use them for his own advantage. It has brought the distant parts of the world close together. Our knowledge of the universe has been much widened on account of the untiring efforts of the astronomers like Jeans and Eddington. Remarkable cures of human diseases have been possible owing to the discovery of some wonderful medicines.

97. What is the main idea of the given passage?

- A. The impact of science can be felt in every sphere of life
- B. Science is an anathema
- C. Nothing is beyond the purview of science
- D. Science can work miracles

98. The mode of approach is

A. logical

- B. anatomical
- C. descriptive
- D. expository

99. Science has proved a great boon for

- A. scientists
- B. artists
- C. explorers
- D. mankind

100. What is the most appropriate title for the given passage?

- A. Science is a curse
- B. Science, a great boon
- C. Achievements of science
- D. None of these

