

## INSTITUTE OF ENGINEERING

## Model Entrance Exam

## (Set-3)

## Instructions:

There are 100 multiple-choice questions, each having four choices of which only one choice is correct.

## Section-A (1 marks)

1) The mother was concerned $\qquad$ the safety of her child.
a) at
b) about
c) for
d) upon
2) You should prepare yourself $\qquad$ this exam.
a) to take
b) taking
c) in taking
d) take
3) The players $\qquad$ here last Friday.
a) arrive
b) have arrived
c) has arrived
d) arrived
4) I wouldn't go there if I $\qquad$ have to.
a) don't
b) will not
c) didn't
d) hadn't
5) The people will make him a leader.
a) He will be made a leader.
b) He will have been made a leader.
c) He will make the people a leader.
d) He will have made a leader.
6) I could see that she was in a bad mood, so I gave her a wide berth.
a) to frighten
b) to express openly
c) to avoid
d) to meditate
7) Which among the following is a complex sentence?
a) He pleaded that he was ignorant of the law.
b) I saw a thrilling football match.
c) You must either pay the bill at once or return the goods.
d) First deserve, then desire.
8) Nepal Oil Corporation $\qquad$ the price of petrol.
a) has raised
b) has risen
c) rises
d) is rising
9) 

a) were
b) was
c) is
d) has been at the party.
10) Decency (Antonym):
a) etiquette
b) politeness
c) decorum
d) ill-mannered
11) Procrastinate (Synonym):
a) postpone
b) remain
c) seasonal
d) abdicate
12) I have a piece of information that he might be interested in. The word 'information' has a stress primarily on its $\qquad$ syllable.
a) first
b) second
c) third
d) fourth
13) Light year is the unit of:
a) distance
b) time
c) speed
d) intensity of light
14) For a particle performing uniform circular motion, choose the incorrect statement from the following:
a) Magnitude of particle velocity (speed) remains constant.
b) Particle velocity remains directed perpendicular to radius vector.
c) Direction of acceleration keeps changing as particle moves.
d) Magnitude of acceleration does not remain constant.
15) Which of the following is a self-adjusting force?
a) static friction
b) Rolling friction
c) Sliding friction
d) Dynamic friction
16) The potential energy of a system increases if work is done:
a) upon the system by a non-conservative force
b) by the system against a conservative force
c) by the system against a non-conservative force
d) upon the system by a conservative force
17) The breaking stress of a wire depends upon:
a) length of the wire
b) radius of the wire
c) material of the wire
d) shape of the cross-section of wire
18) After terminal velocity is reached, the acceleration of a body falling through a viscous fluid is
a) zero
b) equal to $g$
c) less than $g$
d) more than $g$
19) In a cyclic process, which of the following statement is correct?
a) change in internal energy is not zero
b) the system returns to its initial state and it is reversible
c) the total heat absorbed by the system is not equal to work done by the system
d) change in internal energy is zero
20) For transmission of heat from one place to the other, medium is required in:
a) conduction
b) convection
c) radiation
d) both (a) and (b)
21) Speed of sound waves in a fluid is:
a) directly proportional to the square root of bulk modulus of the medium
b) inversely proportional to the bulk modulus of the medium
c) directly proportional to the density of the medium
d) inversely proportional to the density of the medium
22) If dielectric constant and dielectric strength be denoted by K and X respectively, then a material suitable for use as a dielectric in a capacitor must have:
a) high $K$ and high $X$
b) high K and low X
c) low $K$ and high $X$
d) low K and low X
23) With increase in temperature, the conductivity of:
a) metals increases and of semiconductor decreases
b) semiconductor increases and of metals decreases
c) in both metals and semiconductors increases
d) in both metal and semiconductor decreases
24) In a region, uniform electric and magnetic fields are present. These two fields are parallel to each other. A charged particle is released from rest in this region. The path of the particle will be:
a) circle
b) ellipse
c) helix
d) straight line
25) When the rate of change of current is unity, the induced emf is equal to:
a) thickness of coil
b) number of turns in coil
c) coefficient of self-inductance
d) total flux linked with coil
26) The final image in an astronomical telescope with respect to object is:
a) virtual and erect
b) real and erect
c) real and inverted
d) virtual and inverted
27) When the complete Young's double slit experiment is immersed in water, the fringes:
a) remain unaltered
b) become wider
c) become narrower
d) disappear
28) In an unbiased p-n junction, holes diffuse from the p-region to $n$-region because of:
a) the attraction of free electrons of n-region
b) the higher hole concentration in p-region than that in n-region
c) the higher concentration of electrons in the n-region than that in the p-region
d) the potential difference across the p-n junction
29) In the Bohr model of the hydrogen atom, the lowest orbit corresponds to:
a) infinite energy
b) maximum energy
c) minimum energy
d) zero energy
30) The IUPAC name of $\mathrm{CHO}-\mathrm{CHO}$ is:
a) Glyoxal
b) Ethane-1,2-diol
c) Ethane-1,2-dial
d) 2-oxo ethanoic acid
31) Mixture of camphor and sand is purified by:
a) Distillation
b) Sublimation
c) Crystallization
d) Separating funnel
32) Fumes of fuming sulphuric acid is due to:
a) $\mathrm{SO}_{2}$
b) $\mathrm{SO}_{3}$
c) $\mathrm{H}_{2} \mathrm{SO}_{4}$
d) $\mathrm{H}_{2} \mathrm{~S}_{2} \mathrm{O}_{7}$
33) Excess of NaOH reacts with zinc to form:
a) $\mathrm{Zn}(\mathrm{OH})_{2}$
b) ZnO
c) $\mathrm{ZnH}_{2}$
d) $\mathrm{Na}_{2} \mathrm{ZnO}_{2}$
34) Which of the following is correctly arranged in increasing order of atomic size?
a) $\mathrm{F}<\mathrm{O}<\mathrm{C}<\mathrm{Cl}<\mathrm{Br}$
b) $C<O<F<C l<B r$
c) $\mathrm{Cl}<\mathrm{Br}<\mathrm{F}<C<O$
d) $O<F<C<C l<B r$

## Glauber's salt is:

a) $\mathrm{Na}_{2} \mathrm{CO}_{3} .10 \mathrm{H}_{2} \mathrm{O}$
b) $\mathrm{CuSO}_{4} .5 \mathrm{H}_{2} \mathrm{O}$
c) $\mathrm{Na}_{2} \mathrm{SO}_{4} \cdot 10 \mathrm{H}_{2} \mathrm{O}$
d) $\mathrm{FeSO}_{4} .7 \mathrm{H}_{2} \mathrm{O}$
36) Which has maximum molecules?
a) 7 g N 2
b) $16 \mathrm{~g} \mathrm{O}_{2}$
c) $2 \mathrm{~g} \mathrm{H}_{2}$
d) $16 \mathrm{~g} \mathrm{NO}_{2}$
37) The value of $n$ and $l$ for the last electron of $\mathrm{Fe}^{3+}$ is:
a) 2 and 3
b) 3 and 3
c) 3 and 2
d) 4 and 2
38) The highest oxidation state of Mn is shown by:
a) $\mathrm{K}_{2} \mathrm{MnO}_{4}$
b) $\mathrm{KMnO}_{4}$
c) $\mathrm{MnO}_{4}{ }^{2-}$
d) $\mathrm{Mn}_{2} \mathrm{O}_{2}$
39) The conjugate acid of $\mathrm{HPO}_{4}{ }^{2-}$ is:
a) $\mathrm{H}_{2} \mathrm{PO}_{4}{ }^{-}$
b) $\mathrm{PO}_{4}{ }^{3-}$
c) $\mathrm{H}_{2} \mathrm{PO}_{4}$
d) $\mathrm{H}_{3} \mathrm{PO}_{3}$
40) Solubility of salt $\mathrm{M}_{2} \mathrm{X}_{3}$ is $\mathrm{x} \mathrm{molL}^{-1}$. The solubility product of the salt will be:
a) $x^{5}$
b) $16 x^{2}$
c) $96 x^{5}$
d) $108 x^{5}$
41) In $\triangle \mathrm{ABC}$, right angle at $\mathrm{C}, \tan A+\tan B=$
a) $\frac{b^{2}}{a c}$
b) $a+b$
c) $\frac{a^{2}}{b c}$
d) $\frac{c^{2}}{a b}$
42) The least value of $4 \sin ^{2} \theta+5 \cos ^{2} \theta$ is:
a) 1
b) 2
c) 4
d) 5
43) If $\cos ^{-1}\left(2 x^{2}-1\right)+2 \cos ^{-1} x=360^{\circ}$, then x lies in the interval:
a) $[0,1]$
b) $\left[\frac{1}{2}, \frac{1}{4}\right]$
c) $[-1,0]$
d) $\left[-1,-\frac{1}{2}\right]$
44) If $\vec{a}+\vec{b}+\vec{c}=0$, then the angle between $\vec{b}$ and $\vec{c}$ is given by:
a) $\cos \theta=\frac{a^{2}-b^{2}-c^{2}}{2 b c}$
b) $\cos \theta=\frac{b^{2}+c^{2}-a^{2}}{2 b c}$
c) $\cos \theta=\frac{a^{2}+b^{2}-c^{2}}{2 a b}$
d) $\cos \theta=\frac{a^{2}+c^{2}-b^{2}}{2 a c}$
45) If $\mathrm{a}, \mathrm{b}$ are the roots of the equation $x^{2}-p x+q=0$, then $\frac{1}{a}+\frac{1}{b}=$
a) $\frac{1}{p}$
b) $\frac{1}{q}$
c) $\frac{1}{2 p}$
d) $\frac{p}{q}$
46) If $x=1+\frac{1}{1!}+\frac{4}{2!}+\frac{8}{3!}+\cdots$, then $x^{-1}$ is equal to:
a) $\sqrt{e}$
b) $e^{2}$
c) $e^{-2}$
d) $e^{-1}$
47) The $\mathrm{n}^{\text {th }}$ term of a GP is 128 and the sum of its n terms is 255 . If its's common ratio is 2 , then its first term is:
a) 1
b) 2
c) 3
d) 4
48) The complex number $\frac{1+2 i}{1-i}$ lies in:
a) first quadrant
b) second quadrant
c) third quadrant
d) fourth quadrant
49) If A and B are square matrices such that $A B=B$ and $B A=A$, then $A^{2}+B^{2}$ is equal to:
a) 2 AB
b) 2 BA
c) $\mathrm{A}+\mathrm{B}$
d) AB
50) If $f(x)=\frac{1-x}{1+x}$, then $f[f(\cos 2 \theta)]=$
a) $\tan 2 \theta$
b) $\sec 2 \theta$
c) $\cos 2 \theta$
d) $\cot 2 \theta$
51) Which one of the following is a void set?
a) $A=\left\{x: x \in R, x^{2}-1=0\right\}$
b) $B=\left\{x: x \in R, x^{2}+1=0\right\}$
c) $C=\left\{x: x \in R, x^{2}-9=0\right\}$
d) $D=\left\{x: x \in R, x^{2}=x+2\right\}$
52) $\lim _{x \rightarrow 1}(1-x) \tan \frac{\pi x}{2}=$
a) $\frac{\pi}{2}$
b) $\frac{2}{\pi}$
c) $\pi$
d) $\frac{1}{\pi}$
53) If $y=x+e^{x}$, then $\frac{d^{2} y}{d x^{2}}=$
a) $y-x$
b) $x / y$
c) $y / x$
d) $x-y$
54) $x^{3}-3 x^{2}+6 x+7$ has:
a) a maximum but no minima
b) a minima but no maxima
c) both maxima and minima
d) no maxima and no minima
55) $\int_{0}^{\pi} \cos ^{3} x d x=$
a) -1
b) 0
c) 1
d) $\pi$
56) If a line with $y$-intercept 2 is perpendicular to the line $3 x-2 y=6$, then its $x$-intercept is:
a) 1
b) 2
c) 3
d) 4
57) If the circles $x^{2}+y^{2}+a x+1=0$ and $x^{2}+y^{2}-3 x+y+5=0$ intersect orthogonally, the value of a is:
a) -4
b) 4
c) -2
d) 2
58) If ( $\pm 1,0$ ) and ( $\pm 2,0$ ) are respectively the foci and vertices of an ellipse, then the length of its minor axis is:
a) 2
b) 4
c) $2 \sqrt{3}$
d) $2 \sqrt{5}$
59) The eccentricity of the hyperbola whose asymptotes are $3 x+4 y=2$ and $4 x-3 y+5=0$ is:
a) 1
b) 2
c) $\sqrt{2}$
d) 3
60) Dc's of line joining points $(4,3,-5)$ and $(-2,1,-8)$ are:
a) $6,2,3$
b) $2,4,-13$
c) $6 / 7,2 / 7,3 / 7$
d) $5 / 12,7 / 12,11 / 12$

## Section-B (2 marks)

Read the following passages and answer the questions given below.
An earthquake comes like a thief in the night, without warning. It was necessary, therefore to invent instruments that neither slumbered nor slept. Some devices were quite simple. One, for instance, consisted of rods of various lengths and thicknesses which would stand up on end like ninepins. When a shock came it shook the rigid table upon which these stood. If it were gentle, only the more unstable rods fell. If it were severe, they all fell. Thus, the rods by falling and by the direction in which they fell, recorded for the slumbering scientist, the strength of a shock that was too weak to waken him and the direction from which it came. But, instruments far more delicate than that were needed if any really serious advance was to be made.
The ideal to be aimed at was to devise an instrument that could record with a pen on paper the movements, of the ground or of the table, as the quake passed by. While I write my pen moves but the paper keeps still. With practice, no doubt, I could, in time, learn to write by holding the pen still while the paper moved. That sounds a silly suggestion, but that was precisely the idea adopted in some of the early instruments (seismometers) for recording earthquake waves. But when table, penholder and paper are all moving how is it possible to write legibly? The key to a solution of that problem lay in an everyday observation. Why does a person standing in a bus or train tend to fall when a sudden start is made ? It is because his feet move on, but his head stays still.
61) Why was it necessary to invent instruments to observe an earthquake?
a) Because the earthquake comes like a thief in the night
b) To make people alert about earthquake during their conscious as well as unconscious hours
c) To prove that we are technically advanced
d) To experiment with the control of man over nature
62) A simple device which consisted of rods that stood up on end like ninepins was replaced by a more sophisticated one because it failed:
a) to measure a gentle earthquake
b) to measure a severe earthquake
c) to record the direction of earthquake
d) to record the facts with a pen or paper
63) The everyday observation referred to in the passage relates to:
a) a moving bus or train
b) the sudden start of a bus
c) the tendency of a standing person to fall when a bus or train moves suddenly
d) people standing in a bus or train
64) The early seismometers adopted the idea that in order to record the earthquake, it is:
a) the pen that should move just as it moves when we write on paper
b) the pen that should stay still and the paper should move
c) both pen and paper that should move
d) neither pen nor paper that should move
65) A 175 m long train is travelling along a straight track with a velocity of $72 \mathrm{~km} / \mathrm{hr}$. A bird is flying parallel to the train in opposite direction with a velocity $18 \mathrm{~km} / \mathrm{hr}$. The time taken by the bird to cross the train is:
a) 35 s
b) 27 s
c) 11.6 s
d) 7 s
66) A solid cylinder of mass 20 kg and radius 20 cm rotates about its axis with an angular speed of 100 rad s${ }^{-1}$. The angular momentum of the cylinder about its axis is:
a) 40 J s
b) 400 J s
c) 20 J s
d) 200 J s
67) A block of wood floats in water with $\left(\frac{4}{5}\right)^{t h}$ of its volume submerged. If the same block just floats in a liquid, the density of the liquid (in $\mathrm{kg} \mathrm{m}^{-3}$ ) is:
a) 1250
b) 600
c) 400
d) 800
68) A body of mass 20 g connected to a spring of spring constant k , executes simple harmonic motion with a frequency of $(5 / \pi) \mathrm{Hz}$. The value of spring constant is:
a) $4 \mathrm{~N} \mathrm{~m}^{-1}$
b) $3 \mathrm{Nm}^{-1}$
c) $2 \mathrm{~N} \mathrm{~m}^{-1}$
d) $5 \mathrm{~N} \mathrm{~m}^{-1}$
69) A policeman blows a whistle with a frequency of 500 Hz . A car approaches him with a velocity of 15 $m s^{-1}$. The change in frequency as heard by the driver of the car as he passes the policeman is: (Given, speed of sound in air is $300 \mathrm{~ms}^{-1}$ )
a) 25 Hz
b) 50 Hz
c) 100 Hz
d) 150 Hz
70) 10 g of ice at $0^{\circ} \mathrm{C}$ is mixed with 100 g of water at $50^{\circ} \mathrm{C}$ in a calorimeter. The final temperature of the mixture is:
a) $31.2{ }^{\circ} \mathrm{C}$
b) $32.8^{\circ} \mathrm{C}$
c) $36.7^{\circ} \mathrm{C}$
d) $38.2{ }^{\circ} \mathrm{C}$
71) The fall in temperature of helium gas initially at $20^{\circ} \mathrm{C}$ when it is suddenly expanded to 8 times its original volume is $\left(\gamma=\frac{5}{3}\right)$ :
a) 70.25 K
b) 71.25 K
c) 72.25 K
d) 73.25 K
72) A conducting sphere of radius 10 cm has unknown charge. If the electric field at a distance 20 cm from the centre of the sphere is $1.2 \times 10^{3} N C^{-1}$ and points radially inwards. The net charge on the sphere is:
a) $-4.5 \times 10^{-9} \mathrm{C}$
b) $4.5 \times 10^{-9} \mathrm{C}$
c) $-5.3 \times 10^{-9} \mathrm{C}$
d) $5.3 \times 10^{-9} \mathrm{C}$
73) In a potentiometer, a cell of emf 1.5 V gives a balanced point at 32 cm length of the wire. If the cell is replaced by another cell, then the balance point shifts to 65 cm , then the emf of second cell is:
a) 3.05 V
b) 2.05 V
c) 4.05 V
d) 6.05 V
74) A short bar magnet placed with its axis at $30^{\circ}$ with a uniform external magnetic field of 0.35 T experiences a torque of magnitude equal to $4.5 \times 10^{-2} \mathrm{Nm}$. The magnitude of magnetic moment of the given magnet is:
a) $26 \mathrm{JT}^{-1}$
b) $2.6 \mathrm{JT}^{-1}$
c) $0.26 \mathrm{JT}^{-1}$
d) $0.026 \mathrm{JT}^{-1}$
75) A $0.2 \mathrm{k} \Omega$ resistor and $15 \mu \mathrm{~F}$ capacitor are connected in series to a $220 \mathrm{~V}, 50 \mathrm{~Hz}$ ac source. The impedance of the circuit is:
a) $250 \Omega$
b) $268 \Omega$
c) $29.15 \Omega$
d) $291.5 \Omega$
76) Light from a point source in air falls on a spherical glass surface whose radius of curvature and refractive index are 20 cm and 1.5 respectively. If the distance of light source from the glass surface is 100 cm , at what position image will be formed?
a) 25 cm
b) 50 cm
c) 100 cm
d) 200 cm
77) A screen is placed 50 cm from a single slit which is illuminated with light of wavelength $6000 \AA$. If the distance between the first and third minima in the diffraction pattern is 3.00 mm . The width of the slit is:
a) $1 \times 10^{-4} \mathrm{~m}$
b) $2 \times 10^{-4} \mathrm{~m}$
c) $0.5 \times 10^{-4} \mathrm{~m}$
d) $4 \times 10^{-4} \mathrm{~m}$
78) The de Broglie wavelength of an electron with kinetic energy 120 eV is:
a) $2.13 \AA$
b) $1.13 \AA$
c) $4.15 \AA$
d) $3.14 \AA$
79) In para-hydrogen, spin of the electrons are in the:
a) same direction but those of the protons in opposite direction
b) opposite direction but those of the protons in same direction
c) same direction and so also the spins of protons
d) opposite direction and so also the spins of protons
80) Which of the following compound contains equal number of $\sigma$ and $\pi$ bonds?
a) Benzene
b) Mesitylene
c) enolic form of acetone
d) Tetracyanoethene
81) $\quad A \xrightarrow{\mathrm{PCl}_{5}} B \xrightarrow{\text { alc. } \mathrm{KOH}} C \xrightarrow{\mathrm{H}-\mathrm{OH} / \mathrm{H}^{+}} D \xrightarrow{\text { Conc. } \mathrm{H}_{2} \mathrm{SO}_{4}, 140^{\circ} \mathrm{C}} E$

What is E in the given reaction if A is a primary alcohol which gives the Iodoform test?
a) $\mathrm{CH}_{3}-\mathrm{CH}_{2}-\mathrm{OH}$
b) $\mathrm{CH}_{2}=\mathrm{CH}_{2}$
c) $\mathrm{CH}_{3}-\mathrm{CH}_{2}-\mathrm{O}-\mathrm{CH}_{2}-\mathrm{CH}_{3}$
d) $\mathrm{CH}_{3}-\mathrm{CH}_{2}-\mathrm{HSO}_{4}$
82) In the reaction, $x \mathrm{MnO}_{4}^{-}+\mathrm{yH}_{2} \mathrm{O}_{2} \rightarrow 2 \mathrm{Mn}^{2+}+5 \mathrm{H}_{2} \mathrm{O}+9 \mathrm{O}_{2}+z e^{-}$, the value of $\mathrm{x}, \mathrm{y}$ and z are:
a) $2,5,6$
b) $5,2,9$
c) $3,5,5$
d) 2, 6, 6
83) If the same amount of charge is passed through two electrolytes of $\mathrm{ZnCl}_{2}$ and $\mathrm{AlCl}_{3}$ and the weight of Al deposited is 13.5 gram, what will be the weight of Zn deposited?
a) 63.5 gram
b) 26 gram
c) 49.125 gram
d) 13.5 gram
84) A signature written with carbon pencil weighs 1 mg . What is the number of carbon atoms present in the signature?
a) $6.02 \times 10^{20}$
b) $0.502 \times 10^{20}$
c) $6.02 \times 10^{23}$
d) $5.02 \times 10^{20}$
85) The pH of decimolar HCOOH solution which is $1.3 \%$ ionized is:
a) 2.88
b) 3.36
c) 6.96
d) 10.66
86) In a $\triangle \mathrm{ABC}, \frac{b+c}{a}=$
a) $\frac{\sin \left(\frac{B-C}{2}\right)}{\cos \frac{A}{2}}$
b) $\frac{\cos \left(\frac{B-C}{2}\right)}{\sin \frac{A}{2}}$
c) $\frac{\cos \left(\frac{B+C}{2}\right)}{\sin \frac{A}{2}}$
d) $\frac{\cos \left(\frac{B+C}{2}\right)}{\cos \frac{A}{2}}$
87) The general solution of $2 \sin ^{2} x+\sqrt{3} \cos x+1=0$ is:
a) $2 n \pi+\frac{\pi}{6}$
b) $2 n \pi+\frac{5 \pi}{6}$
c) $n \pi+\frac{\pi}{6}$
d) $n \pi \pm \frac{5 \pi}{6}$
88) If A and B are the sums of odd and even terms respectively in the expansion of $(x+a)^{n}$, then $(x+a)^{2 n}-(x-a)^{2 n}$ is equal to:
a) $4(A+B)$
b) $4(A-B)$
c) $A B$
d) $4 A B$
89) For two numbers, $G M=6, A M=A, H M=H$. If $90 A+5 H=918$, then A is equal to:
a) 5,10
b) $5,1 / 5$
c) $10,1 / 5$
d) 10,1 If $\left(\frac{1+i}{1-i}\right)^{3}-\left(\frac{1-i}{1+i}\right)^{3}=x+i y$, then $(x, y)=$
a) $(0,2)$
b) $(0,-2)$
c) $(2,0)$
d) $(-2,0)$
91) In how many ways can 20 persons sit round a circular table so that two particular persons always sit together is:
a) $(17!) \times(2!)$
b) $(18!) \times(2!)$
c) $(19!)$
d) $(19!) \times(2!)$
92) If $\lim _{x \rightarrow 0} k x \operatorname{cosec} x=\lim _{x \rightarrow 0} k x \operatorname{cosec} k x$, then $k=$
a) 1
b) -1
c) $\pm 1$
d) $\pm 2$
93) If $y=\sqrt{x \log _{e} x}$, then $\frac{d y}{d x}$ at $x=e$ is:
a) $\frac{1}{e}$
b) $\frac{1}{\sqrt{e}}$
c) $\sqrt{e}$
d) $\frac{\sqrt{e}}{2}$
a) $x=\frac{\pi}{2}$
b) $x=\frac{\pi}{3}$
c) $x=\frac{\pi}{4}$
d) $x=\frac{\pi}{6}$
95) $\int \frac{d x}{e^{x}+e^{-x}+2}=$
a) $\frac{1}{e^{x}+1}+c$
b) $\frac{-1}{e^{x}+1}+c$
c) $\frac{2}{e^{x}+1}+c$
d) $\frac{-2}{e^{x}+1}+c$
96) The area enclosed within the curve $|x|+|y|=1$ is:
a) 1
b) $2 \sqrt{2}$
c) $\sqrt{2}$
d) 2
97) If one of the lines given by $a x^{2}+2 h x y+b y^{2}=0$ passes through $(2,3)$ and the other passes through $(4,5)$, then $a+2 h+b$ is equal to:
a) 0
b) 1
c) 2
d) -1
98) The equation of circle concentric to the circle $2 x^{2}+2 y^{2}-3 x+6 y+2=0$ and having area double the area of this circle is:
a) $8 x^{2}+8 y^{2}-24 x+48 y-13=0$
b) $16 x^{2}+16 y^{2}+24 x-48 y-13=0$
c) $16 x^{2}+16 y^{2}-24 x+48 y-13=0$
d) $8 x^{2}+8 y^{2}+24 x-48 y-13=0$
99) If $x+y-a=0$ is a tangent to the parabola $y^{2}-y+x=0$, then its point of contact is:
a) $(a, 0)$
b) $(1,0)$
c) $(0,1)$
d) $(0,-1)$
100) If the product of distance of point (1,2, -1 ) from planes $2 x-3 y+z+k=0$ and $x+2 y+3 z=0$ is 1 , then $k$ equals:
a) 12
b) 14
c) 10
d) 8

