PROVISIONAL ANSWER KEY

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Question1:-The most high risk activity in the construction sector is

A:-pointing

B:-shuttering

C:-demolition

D:-plastering

Correct Answer:- Option-C

Question2:-_____ area of a building is the area of verandahs, passage, corrdors, balconies, porches etc.

A:-verandha area

B:-floor area

C:-horizontal circulation area

D:-vertical circulation area

Correct Answer:- Option-C

Question3:-Which is not a type of building?

A:-domestic building

B:-institutional building

C:-mercantile building

D:-educational building

Correct Answer:- Option-A

Question4:-A beam supported on more than two supports is called

A:-continuous beam

B:-fixed beam

C:-simply supported beam

D:-overhanging beam

Correct Answer:- Option-A

Question5:-The ratio of specific weight of a liquid to the specific weight of pure water at a standard temperature is called _____

A:-surface tension of liquid

B:-specific gravity of liquid

C:-density of liquid

D:-compressibility of liquid

Correct Answer:- Option-B

Question6:-If the percentage of carbon is increased in steel, then the property which will decreased in steel will be

A:-brittleness

B:-ductility

C:-hardness

D:-strength

Correct Answer:- Option-B

Question7:-The representative fraction 1/1,00,000 signifies a scale of

A:-1 cm = 10 kilometres

B:-1 cm = 100,000 cm

C:-1 cm = 1 kilometre

D:-1 cm = 100 metres

Correct Answer:- Option-C

Question8:-Pre-stressed concrete means

A:-tensile stress induced in steel before loading

B:-compressive stress induced in concrete before loading

C:-tensile stress induced in concrete before loading

D:-compressive stress induced in steel before loading

Correct Answer:- Option-B

Question9:-Granite is an example of

A:-igneous rocks

B:-aqueous rocks

C:-sedimentary rocks

D:-metamorphic rocks

Correct Answer:- Option-A

Question10:-The main principle of surveying is to work from

A:-only part

B:-part to the whole

C:-whole to the part

D:-only whole

Correct Answer:- Option-C

Question11:-When heavy structural loads from column are required to be transferred to a soil of low bearing capacity, the most economical foundation is

A:-grillage foundation

B:-deep foundation

C:-shallow foundation

D:-raft foundation

Correct Answer:- Option-A

Question12:-A brick which is cut in such a way that the width of its one end is half that of a full brick is called _____

A:-mitred closer

B:-queen closer

C:-king closer

D:-bevelled closer

Correct Answer:- Option-C

Question13:-The horizontal members of wood or steel used to support the common rafter of a sloping roof are called _____

A:-hip rafters

B:-valley rafters

C:-purlins

D:-cleats

Correct Answer:- Option-C

Question14:-A queen post truss is commonly used for spans

A:-from 3.5 m to 5 m

B:-upto 3.5 m

C:-from 5 m to 8 m

D:-from 8 m to 12 m

Correct Answer:- Option-D

Question15:-Which of the following green building rating systems are currently working in India?

A:-GRIHA

B:-LEED

C:-Both (1) and (2)

D:-None of the above

Correct Answer:- Option-C

Question16:-In diesel cycle fuel is supplied in _____

A:-constant volume

B:-constant pressure

C:-adiabatically

D:-isothermPally

Correct Answer:- Option-A

Question17:-Morse test is used to find the brake power of _____ engine.

A:-single cylinder

B:-diesel engine

C:-multi cylinder

D:-petrol engine

Correct Answer:- Option-B

Question18:-The thermal efficiency of air standard diesel cycle having fixed compression ratio, with increase in cut of ratio will

A:-increase

B:-independent

C:-decrease

D:-none of the above

Correct Answer:- Option-C

Question19:-The specific gravity of diesel oil is

A:-0.85

B:-0.5

C:-0.7

D:-1

Correct Answer:- Option-A

Question20:-What will happen if petrol is used in diesel engine?

A:-low power will be produced

B:-black smoke will be produced

C:-efficiency will be low

D:-higher knocking will occur

Correct Answer:- Option-D

Question21:-1 ton of refrigeration equal to

A:-3.5 j/sec

B:-35 kj/sec

C:-3.5 kj/sec

D:-210 j/sec

Correct Answer:- Option-C

Question22:-The saturation temperature corresponding to the partial pressure of water vapour in the air is

A:-wet bulb temperature

B:-dry bulb temperature

C:-dew point temperature

D:-none of these

Correct Answer:- Option-C

Question23:-A centrifugal pump is discharging 4500 lit/min and operates at 1800 r.p.m against a head of 35 m. The power input to the pump is 3 kW. If this pump is required to operate 1200 r.p.m assuming efficiency remains constant find discharge in lit/min.

A:-3200 lit/min

B:-3000 lit/min

C:-3100 lit/min

D:-3400 lit/min

Correct Answer:- Option-B

Question24:-Which one of the following is NOT correct in respect of "V" belt drive

A:-it is compact

B:-it can be easily replaced and maintenance is easy

C:-it cause less noise and vibration

D:-it is used where distance between driver and driven pulley is more

Correct Answer:- Option-D

Question25:-Example of a high specific speed turbine is

A:-pelton

B:-francis

C:-kaplan

D:-reaction

Correct Answer:- Option-C

Question26:-Symmetrical moulds can shaped by using

A:-segmental pattern

B:-shell pattern

C:-match plate pattern

D:-sweep pattern

Correct Answer:- Option-D

Question27:-Soft solder is made of

A:-lead and tin

B:-copper tin

C:-lead and brass

D:-brass and copper

Correct Answer:- Option-A

Question28:-The chip space between the back of one tooth and face of the next tooth

A:-face

B:-gash

C:-land

D:-fillet

Correct Answer:- Option-B

Question29:-Commonly used file format for additive manufacturing

A:-.svg

B:-.jpeg

C:-.dfx

D:-.stl

Correct Answer:- Option-D

Question30:-The rotary motion from the motor converted into linear motion in CNC machine

A:-lead screw

B:-ball screw

C:-hydraulic actuator

D:-acme thread screw

Correct Answer:- Option-B

Question31:-If **N** number of equal value resistors **(R ohm)** are connected in parallel what is the total value of resistance _____?

A:-R*N Ohm

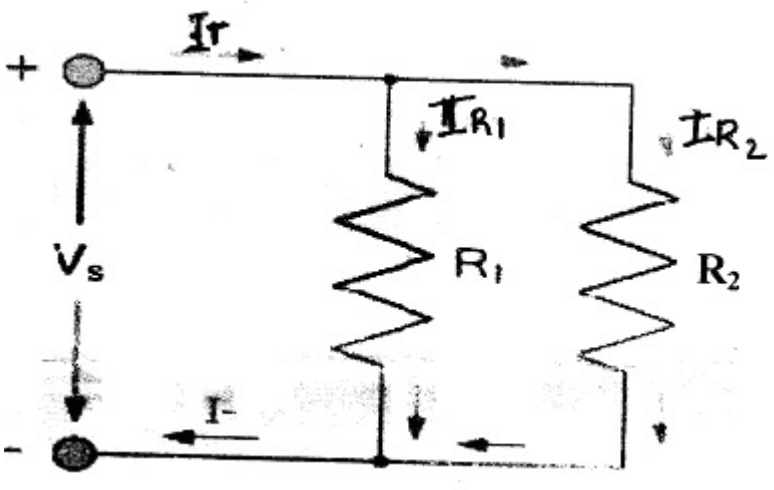
B:-R/N Ohm

C:-R+N Ohm

D:-N/R Ohm

Correct Answer:- Option-B

Question32:-What is the value of current (I_{R2}) passing through the resistor R_2 of the given network by current division rule _____?
where I_T is the total current passing through the network in ampere, I_{R1} is the current passing through resistor R_1 in the ampere



A:-$I_{R2}=(I_T*R_1)/(R_1+R_2)$ amp

B:-$I_{R2}=(I_{R1}*R_2)/(R_1+R_2)$ amp

C:-$I_{R2}=(I_T*R_2)/(R_1+R_2)$ amp

D:-$I_{R2}=(I_{R1}*R_1)/(R_1+R_2)$ amp

Correct Answer:- Option-A

Question33:-Kirchoff's current law represent _____.

A:-conservation of momentum

B:-conservation of charge

C:-conservation of energy

D:-none of the above

Correct Answer:- Option-B

Question34:-In a DC network how can we represent the mesh current in matrix format _____?

A:-[I][R]=[V]

B:-[I][Z]=[V]

C:-[I]/[R]=[V]

D:-[RI][I]=[V]

Correct Answer:- Option-D

Question35:-Find the value of V_2 from the below nodal voltage equations by matrix method _____?

$2V_1-V_2-V_3=2$
$V_1+V_2+2V_3=1$
$-2V_1-V_2+V_3=-3$

A:-$V_2=-5V$

B:-$V_2=-0.5V$

C:-$V_2=5V$

D:-$V_2=0.5V$

Correct Answer:- Option-D

Question36:-What is the name of properties in magnetic circuit which is analogous to resistance in electric circuit _____?

A:-Permeance

B:-mmf

C:-Reluctance

D:-Magnetic flux

Correct Answer:- Option-C

Question37:-The field coil of 4 pole dc generator each having 200 turns are connected in series. When the field is excited there is a magnetic flux of 0.2 web/pole. If the field circuit is opened in 1 second and residual magnetism is 0.05 web/pole. What will be the magnitude of average voltage is induced across the field terminal as per Faraday's law.

A:-480 V

B:-240 V

C:-640 V

D:-120 V

Correct Answer:- Option-A

Question38:-What is the equation to find the value of co-efficient of coupling (k) in a magnetic circuit _____?

A:-$\sqrt{(L_1L_2)}*M$

B:-$(L_1L_2)*M$

C:-$\sqrt{(L_1L_2)}/M$

D:-$M/\sqrt{(L_1L_2)}$

Correct Answer:- Option-D

Question39:-Form factor of a wave form is defined as the ratio of _____?

A:-Average value of RMS value

B:-RMS value to Average value

C:-Maximum value to RMS value

D:-RMS value to maximum value

Correct Answer:- Option-B

Question40:-The time taken by an alternating quantity to complete one cycle is 20 ms what will be frequency of that alternating quantity _____?

A:-200 Hz

B:-50 Hz

C:-20 Hz

D:-100 Hz

Correct Answer:- Option-B

Question41:-An ac current is given by $i = 28.28\sin(\omega t + \pi/3)$, what is the rms value of the current _____?

A:-10 A

B:-20 A

C:-28.28 A

D:-14.4 A

Correct Answer:- Option-B

Question42:-What is the value of power factor and phase angle respectively of purely resistive circuit?

A:-1 & 90 degree

B:-0 & 0 degree

C:-1 & 0 degree

D:-0 & 90 degree

Correct Answer:- Option-C

Question43:-A resistance of 3 ohm, inductive reactance 10 ohm and capacitive reactance of 6 ohm are connected in series across 220 V, 50 Hz main supply what will be the magnitude of current flowing through the circuit _____.

A:-44 A

B:-40 A

C:-4.4 A

D:-4 A

Correct Answer:- Option-A

Question44:-If the instantaneous voltage v = VmSin ωt is applied to an R-L series circuit what is the equation of instantaneous current (i) _____.

A:-ImSin ωt

B:-ImSin (ωt+θ)

C:-ImSin (ωt-θ)

D:-None of the above

Correct Answer:- Option-C

Question45:-What is the relation between line voltage and phase voltage in three phase star connected system _____.

A:-$V_L = V_{ph}$

B:-$V_{ph} = \sqrt{3}\ V_L$

C:-$V_L = 3\ V_{ph}$

D:-$V_L = \sqrt{3}\ V_{ph}$

Correct Answer:- Option-D

Question46:-A resistor of value 47 K with 10% tolerance the sequence of colour band on the resistor would be

A:-Yellow, Violet, Orange and Silver

B:-Yellow, Violet, Orange and Gold

C:-Yellow, Brown, Orange and Silver

D:-Yellow, Brown, Orange and Gold

Correct Answer:- Option-A

Question47:-A pn junction acts as a

A:-Controlled switch

B:-Bidirectional switch

C:-Unidirectional switch

D:-None of the above

Correct Answer:- Option-C

Question48:-If the doping level of a crystal diode is increased, the breakdown voltage

A:-remains the same

B:-is decreased

C:-is increased

D:-none of the above

Correct Answer:- Option-B

Question49:-What is the voltage gain of a transistor connected in common collector arrangement?

A:-equal to 2

B:-more than 10

C:-more than 100

D:-less than 1

Correct Answer:- Option-D

Question50:-The random motion of holes and free electrons due to thermal agitation is called

A:-diffusion

B:-pressure

C:-ionisation

D:-none of the above

Correct Answer:- Option-A

Question51:-In the breakdown region, a zener diode behaves like a

A:-Constant voltage source

B:-Constant current source

C:-Constant resistance source

D:-None of the above

Correct Answer:- Option-A

Question52:-To get a peak load voltage of 40 V out of a bridge rectifier. What is the approximate rms value of secondary voltage?

A:-0 V

B:-14.4 V

C:-28.3 V

D:-56.6 V

Correct Answer:- Option-C

Question53:-In an RC coupled amplifier, the voltage gain over mid-frequency range

A:-changes abruptly with frequency

B:-is constant

C:-changes uniformly with frequency

D:-none of the above

Correct Answer:- Option-B

Question54:-A transistor when connected in CE has

A:-a low input resistance and a low output resistance

B:-a high input resistance and high output resistance

C:-a high input resistance and low output resistance

D:-a medium input resistance and high output resistance

Correct Answer:- Option-D

Question55:-Self generating Transducers are called

A:-Active

B:-Passive

C:-Secondary

D:-Inverse

Correct Answer:- Option-A

Question56:-An Amplitude modulated wave having maximum amplitude 10 V and minimum amplitude is 5 V. Find its modulation index

A:-0.65

B:-0.9

C:-0.33

D:-1

Correct Answer:- Option-C

Question57:-In a superheterodyne receiver, the IF is 455 kHz. If it is tuned to 1200 kHz, the image frequency will be

A:-1655 kHz

B:-2110 kHz

C:-745 kHz

D:-910 kHz

Correct Answer:- Option-B

Question58:-What is the nature of radiation pattern of an isotropic antenna?

A:-Spherical

B:-Dough-nut

C:-Elliptical

D:-Hyperbolic

Correct Answer:- Option-A

Question59:-The switching function in GSM is managed by

A:-BSS

B:-NSS

C:-OSS

D:-MSC

Correct Answer:- Option-B

Question60:-Which of the following is a universally adopted shape of cell?

A:-Square

B:-Circle

C:-Triangle

D:-Hexagon

Correct Answer:- Option-D

Question61:-Which of the following memory types requires periodic refresh?

A:-SRAM

B:-DRAM

C:-ROM

D:-Flash

Correct Answer:- Option-B

Question62:-The output of a C compiler before linking is called :

A:-source code

B:-object code

C:-assembly code

D:-bytecode

Correct Answer:- Option-B

Question63:-Which of the following components are part of a microprocessor?

A:-ALU only

B:-CU only

C:-ALU + CU only

D:-ALU + CU + Registers

Correct Answer:- Option-D

Question64:-CPU pipelining primarily improves which of the following?

A:-latency

B:-throughput

C:-clock speed

D:-cache hit rate

Correct Answer:- Option-B

Question65:-Which of the following violates structured programming principles?

A:-nested loops

B:-modular programming

C:-unrestricted "goto" statements

D:-function calls

Correct Answer:- Option-C

Question66:-In C, the "sizeof" operator returns the size of a variable or data type in which units?

A:-bits

B:-bytes

C:-kilobytes

D:-words

Correct Answer:- Option-B

Question67:-What is the output of the following C program?
#include

```
int main() {
  int x=0;
  if (x=0)
    printf("Hi");
  else
    printf("Bye");
  return 0;
}
```

A:-Hi

B:-Bye

C:-Error

D:-Nothing

Correct Answer:- Option-B

Question68:-Which of the following operators in C has right-to-left associativity?

A:-+ (binary addition)

B:-* (multiplication)

C:-= (assignment)

D:-&& (logical AND)

Correct Answer:- Option-C

Question69:-Which of the following creates an infinite loop in C?

A:-while(0) {}

B:-for(;;) {}

C:-do{}while(0);

D:-if(1) {}

Correct Answer:- Option-B

Question70:-What will be the output of the following C program?

```
#include
int main() {
  printf("123\rAB");
  return 0;
}
```

A:-123AB

B:-AB3

C:-AB

D:-123

Correct Answer:- Option-B

Question71:-If a local numeric array in C is partially initialized, then the remaining elements are

A:-garbage

B:-1

C:-undefined

D:-0

Correct Answer:- Option-D

Question72:-Which is correct about array name in C?

A:-it is a variable

B:-it is a constant representing base address

C:-it stores number of elements

D:-it can be incremented

Correct Answer:- Option-B

Question73:-What value does strlen("Hello\0World") return in C?

A:-10

B:-11

C:-0

D:-5

Correct Answer:- Option-D

Question74:-What happens in C if an array is associated with an index that exceeds its bounds?

A:-compile error

B:-runtime error guaranteed

C:-undefined behaviour

D:-automatic expansion

Correct Answer:- Option-C

Question75:-After completing one full pass of bubble sort on the array {4, 3, 2, 1}, what is the resulting array?

A:-{3, 2, 1, 4}

B:-{4, 3, 2, 1}

C:-{3, 4, 2, 1}

D:-{4, 2, 3, 1}

Correct Answer:- Option-A

Question76:-A body with a mass of 8 kg is initially at rest. A force is applied to it and its velocity becomes 54 km/hr. What is the impulse applied to the body?

A:-432 Ns

B:-0 Ns

C:-120 Ns

D:-150 Ns

Correct Answer:- Option-C

Question77:-Fill in the blanks
Terminal velocity is the constant velocity at which the sum of the upward (i) _____ and (ii) _____ becomes equal to the downward force due to gravity. The acceleration at terminal velocity is (iii) _____

A:-(i) surface tension, (ii) buoyant force, and (iii) positive

B:-(i) viscous force, (ii) buoyant force, and (iii) zero

C:-(i) viscous force, (ii) velocity and (iii) negative

D:-(i) adhesive force, (ii) cohesive force, and (iii) zero

Correct Answer:- Option-B

Question78:-Which of the following are properties of laser beam?
(i) polychromaticity
(ii) coherence
(iii) monochromaticity

(iv) high divergence
(v) directionality

A:-(ii), (iii), (v)

B:-(i), (ii), (iv)

C:-(iii), (iv), (v)

D:-(i), (ii), (v)

Correct Answer:- Option-A

Question79:-In a parallel circuit, what happens to the current as more resistors are added?

A:-the current increases

B:-the current decreases

C:-the current remains the same

D:-the current becomes negative

Correct Answer:- Option-A

Question80:-What is the reason that electric field lines cannot intersect each other?

A:-electric field lines have no thickness, and hence they cannot intersect each other

B:-the intersection of electric field lines would mean that the electric field has two different direction at that point, which is not possible

C:-electric field lines intersecting would result in the creation of magnetic fields, which violates the laws of electromagnetism

D:-the intersection of electric field creates new charges, which is not possible

Correct Answer:- Option-B

Question81:-Which of the following statements are CORRECT about the magnetic field at the centre of a circular loop.
(i) The magnetic field at the centre of a circular loop is directly proportional to the current through the loop.
(ii) The magnetic field at the centre of a circular loop is inversely proportional to the radius of the loop.
(iii) The direction of the magnetic field at the centre of a circular loop can be determined by using the left hand thumb rule.
(iv) The magnetic field at the centre of a circular loop is inversely proportional to the current through the loop.

A:-(i) and (iii)

B:-(iii) and (iv)

C:-(ii) and (iv)

D:-(i) and (ii)

Correct Answer:- Option-D

Question82:-Two parallel wires, each carrying a current of 1 A, are separated by a distance of 2 m in vacuum. What is the force per unit length between the wires?

A:-10^{-6} N/m

B:-10^{-7} N/m

C:-2×10^{-7} N/m

D:-2×10^{-6} N/m

Correct Answer:- Option-B

Question83:-How does the specific heat capacity of a material affect its ability to store heat?

A:-A material with a low specific heat capacity can store more heat energy than a material with a high specific heat capacity

B:-A material with a high specific heat capacity can store more heat energy than a material with a low specific heat capacity

C:-The specific heat capacity of a material does not affect its ability to store heat

D:-The ability of a material to store heat depends on its thermal conductivity, not its specific heat capacity

Correct Answer:- Option-B

Question84:-What are the three regions of a bipolar junction transistor?

A:-Emitter, collector and base

B:-Anode, cathode and gate

C:-Source, base, collector

D:-P-region, N-region and depletion region

Correct Answer:- Option-A

Question85:-Which of the following statements are the conditions required for total internal reflection phenomenon?
(i) The light must propagate from rarer medium to denser medium
(ii) The angle of incidence in the denser medium must be greater than the critical angle
(iii) The light must propagate from denser medium to rarer medium
(iv) The angle of refraction should be 90°

A:-(i) and (iv)

B:-(i) and (iii)

C:-(ii) and (iii)

D:-(i) and (iv)

Correct Answer:- Option-C

Question86:-If and are the transposes of the matrices A and B respectively, then pick the correct option for the below identities
(i) $(A^T)^T = A$
(ii) $(A + B)^T = A^T + B^T$
(iii) $(AB)^T = A^T B^T$

A:-All are true

B:-All are false

C:-Only (i) and (ii) are true

D:-Only (ii) and (iii) are true

Correct Answer:- Option-C

Question87:-The inverse of $\begin{vmatrix} 3 & 0 \\ 4 & 1 \end{vmatrix}$ is _____

A:-$\begin{vmatrix} 1 & 0 \\ \frac{4}{3} & \frac{1}{3} \end{vmatrix}$

B:-$\begin{vmatrix} 1 & 0 \\ -4 & 3 \end{vmatrix}$

C:-$\begin{vmatrix} \frac{1}{3} & 0 \\ -\frac{4}{3} & 1 \end{vmatrix}$

D:-$\begin{vmatrix} 3 & 0 \\ 4 & 1 \end{vmatrix}$

Correct Answer:- Option-C

Question88:-The matrix $\begin{vmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ 2 & -3 & 0 \end{vmatrix}$ is _____

A:-a symmetric matrix

B:-a skew-symmetric matrix

C:-both symmetric and skew-symmetric

D:-neither symmetric nor skew-symmetric

Correct Answer:- Option-B

Question89:-Sin 2A = _____

A:-2 Sin A

B:-2 Cos A

C:-2 Sin A Cos A

D:-Sin A Cos A

Correct Answer:- Option-C

Question90:-The value of Sin(π/2) = _____

A:-1

B:--1

C:-0

D:-1/2

Correct Answer:- Option-A

Question91:-cos 33 + cos 147 = _____

A:-1

B:--1

C:-0

D:-1/2

Correct Answer:- Option-C

Question92:-Which is a unit vector in the direction of the vector $2\hat{i}+2\hat{j}-\hat{k}$?

A:-$-2\hat{i}+2\hat{j}+\hat{k}$

B:-$\frac{1}{3}$ $(2\hat{i}+2\hat{j}-\hat{k})$

C:-$\frac{1}{\sqrt{3}}$ $(2\hat{i}+2\hat{j}-\hat{k})$

D:-$\hat{i}+\hat{j}+\hat{k}$

Correct Answer:- Option-B

Question93:-Sum of the vectors $\hat{i}+\hat{j}$ and $\hat{j}-\hat{k}$ is _____

A:-$\hat{i}+\hat{j}+\hat{k}$

B:-$\hat{i}+\hat{j}-\hat{k}$

C:-$\hat{i}+2\hat{j}+\hat{k}$

D:-$\hat{i}+2\hat{j}-\hat{k}$

Correct Answer:- Option-D

Question94:-What is the work done in moving an object along the vector $3\hat{i}+2\hat{j}-5\hat{k}$ by the force $5\hat{i}+4\hat{j}+\hat{k}$

A:-18 units

B:-28 units

C:-0 units

D:-None of these

Correct Answer:- Option-A

Question95:-$\lim_{\theta \to 0}\frac{\sin 3\theta}{\sin 2\theta}$ = _____

A:-0

B:-1

C:-1/2

D:-3/2

Correct Answer:- Option-D

Question96:-What is the derivative of log (X^2) with respect to x

A:-2x

B:-$\frac{2}{x}$

C:-$\frac{1}{x^2}$

D:-$\frac{2}{x^2}$

Correct Answer:- Option-B

Question97:-The second derivatives of $3x^2$ with respect to x is _____

A:-6

B:-6x

C:-$6x^2$

D:-None of these

Correct Answer:- Option-A

Question98:-The area under the straight-line y = 2x + 3 bounded by the x axis and the ordinates at x = 0 and x = 1 is _____

A:-14 square units

B:-4 square units

C:-0 square units

D:-5 square units

Correct Answer:- Option-B

Question99:-What is the degree of the differential equation

$$\left(\frac{d^3y}{dx^3}\right)^2+2\left(\frac{d^2y}{dx^2}\right)^3+4\frac{dy}{dx}=0$$

A:-2

B:-3

C:-4

D:-None of these

Correct Answer:- Option-A

Question100:-$\int_0^{\pi/2}\cos x\ dx$ = _____

A:-$\frac{\pi}{2}$

B:-0

C:--1

D:-1

Correct Answer:- Option-D