PROVISIONAL ANSWER KEY

Question Paper Code:	44/2026/OL
Category Code:	378/2025
Exam:	Assistant Engineer (Electrical)
Date of Test	17-03-2026
Department	Kerala State Electricity Board Ltd

Question1:-What are the values of R1 and R2 in the circuit shown below?
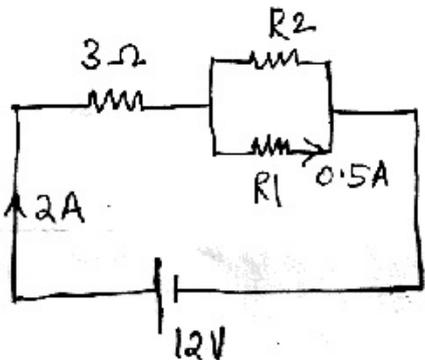
A:-12Ω and 4Ω

B:-4Ω and 12Ω

C:-6Ω and 2Ω

D:-2Ω and 6Ω

Correct Answer:- Option-A

Question2:-A sinusoidal voltage is represented as v = 141.4 sen (628 t - π /4). The RMS value, frequency and phase angles are respectively

A:-141.4, 628, 45°

B:-100, 100, -45°

C:-141.4, 50, 45°

D:-141.4, 100, 45°

Correct Answer:- Option-B

Question3:-An impedance of z = (6 + 8j)Ω∈∈is connected across a 200 V, 50 Hz supply. The power factor of the circuit and the current flowing through circuit is

A:-0.6 leading, 10 A

B:-0.8 lagging, 10 A

C:-0.6 lagging, 20 A

D:-0.8 leading, 20 A

Correct Answer:- Option-C

Question4:-The resonant frequency in RLC series circuit is

A:- $f_0 = \dfrac{2\pi}{\sqrt{LC}}$

B:- $f_0 = \dfrac{\sqrt{LC}}{2\pi}$

C:- $f_0 = \dfrac{1}{2\pi\sqrt{LC}}$

D:- $f_0 = \dfrac{1}{2\pi}\sqrt{\dfrac{L}{C}}$

Correct Answer:- Option-C

Question5:-The bandwidth of a series RLC circuit is

A:- $\dfrac{C}{2\pi L}$

B:- $\dfrac{C}{2\pi R}$

C:- $\dfrac{L}{2\pi R}$

D:- $\dfrac{R}{2\pi L}$

Correct Answer:- Option-D

Question6:-The mutual inductance between two tightly coupled coils is 1 H. The turns of one of the coils is halved and those of the offer is doubled. The value of the mutual inductance now becomes
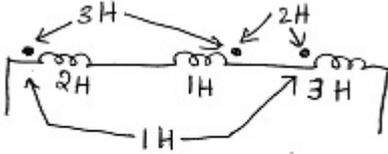
A:-2 H

B:-1 H

C:-0.5 H

D:-0.25 H

Correct Answer:- Option-B

Question7:-For the figure below, the inductance matrix is given by

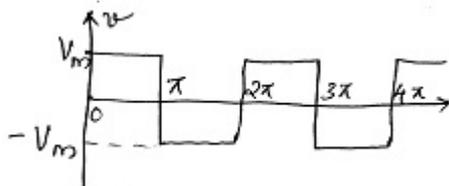A:-$\begin{bmatrix} 2 & -3 & 1 \\ 3 & 1 & 2 \\ 1 & -2 & 3 \end{bmatrix}$

B:-$\begin{bmatrix} 2 & -3 & 1 \\ -3 & 1 & -2 \\ 1 & -2 & 3 \end{bmatrix}$

C:-$\begin{bmatrix} 2 & -3 & 1 \\ 3 & 1 & -2 \\ 1 & 2 & 3 \end{bmatrix}$

D:-$\begin{bmatrix} 2 & 3 & 1 \\ -3 & 1 & 2 \\ 1 & -2 & 3 \end{bmatrix}$

Correct Answer:- Option-B

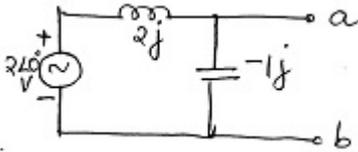Question8:-For the square wave shown below, the form factor is

A:-2

B:-0.5

C:-1

D:-0

Correct Answer:- Option-C

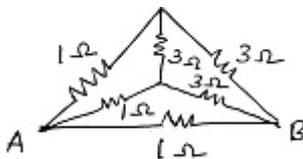Question9:-In the circuit below, the resistance load at 'ab' for maximum power output is

A:-∞

B:-0

C:-1 Ω

D:-2 Ω

Correct Answer:- Option-D

Question10:-Determine equivalent resistance between terminals A and B in the network below

A:-$\dfrac{3}{2}\Omega$

B:-$\dfrac{2}{3}\Omega$

C:-1Ω

D:-$\dfrac{1}{2}\Omega$

Correct Answer:- Option-B

Question11:-Assertion (A) : A time-varying magnetic field produces electric fields. Reason (R)   : When the magnetic flux linking a circuit is varied, an emf is induced in the circuit .

A:-Both A and R are individually true, but R is not the correct explanation of A

B:-Both A and R are true and R is the correct explanation of A

C:-A is true, R is false

D:-A is false, R is true

Correct Answer:- Option-A

Question12:-The magnetic field strength due to a current of 2 A flowing in a coil of 180 turns wound uniformly over a wooden ring having a mean circumference of 600 mm and a uniform cross-sectional area of 500 mm^2 is

A:-3333 A/m

B:-1663 A/m

C:-1200 A/m

D:-600 A/m

Correct Answer:- Option-D

Question13:-Which of the following materials requires the lowest magnetic field strength to magnetise it?

A:-Nickel

B:-Tungsten

C:-Silver

D:-Platinum

Correct Answer:- Option-A

Question14:-If a magnetic flux of 200μWb passing through a coil of 1200 turns is reversed in 0.1 s, the average value of emf induced in the coil is

A:-2.4 V

B:-4.8 V

C:-7.2 V

D:-9.6 V

Correct Answer:- Option-B

Question15:-The magnitude of the induced emf in a conductor depends upon

A:-Flux density of the magnetic field

B:-Amount of flux linkage

C:-Pole strength of the magnet

D:-Rate of change of flux linkage

Correct Answer:- Option-D

Question16:-Assertion (A) : For ferromagnetic materials, the relative permeability varies according to the magnetic field strength.
Reason (R) : The value of the relative permeability of a ferromagnetic material is not a constant.

A:-Both A and R are true and R is the correct explanation of A

B:-Both A and R are individually true but R is not the correct explanation of A

C:-A is true, R is false

D:-A is false, R is true

Correct Answer:- Option-A

Question17:-The emf generated in the axle of a car travelling at 22 m/s, the length of the axle is 1 m, and the vertical component of the Earth's magnetic field is 40μT

A:-22 μV

B:-88 μV

C:-880 μV

D:-1200 μV

Correct Answer:- Option-C

Question18:-A conducting loop is placed in a magnetic field with its plane perpendicular to the field. An emf is induced in the loop if

A:-it is translated

B:-it is rotated about its axis

C:-it is rotated about a diameter

D:-it is stationary

Correct Answer:- Option-C

Question19:-Which of the following statements is/are not true about series and parallel magnetic circuits with composite materials?

A:-in series circuits, all parts of the magnetic circuit carry the same flux

B:-in a parallel magnetic circuit, the total ampere turns required to create a given flux is the arithmetic sum of the ampere turns required for the individual parts of the circuit

C:-Air gaps are provided in the magnetic circuits to avoid saturation

D:-in a series magnetic circuit with an air gap, since the permeability of air is constant, the air gap is a linear function of the magnetic circuit, and the flux density in the air gap is proportional to the mmf across the air gap.

Correct Answer:- Option-B

Question20:-Match the similarity between magnetic and electric circuits.

Column A	Column B
(a) Conductance	(I) Magnetic flux
(b) Current	(II) Magnetomotive force
(c) Electromotive force	(III) Reluctance
(d) Resistance	(IV) permeance

A:-(a)-(III), (b)-(I), (c)-(II), (d)-(IV)

B:-(a)-(IV), (b)-(II), (c)-(III), (d)-(I)

C:-(a)-(II), (b)-(I), (c)-(III), (d)-(IV)

D:-(a)-(IV), (b)-(I), (c)-(II), (d)-(III)

Correct Answer:- Option-D

Question21:-In a three-phase, 8-pole induction motor, the stator current frequency is 50 Hz and the rotor current frequency is 5 Hz. Determine the speed of the motor in rpm.

A:-75

B:-675

C:-540

D:-585

Correct Answer:- Option-B

Question22:-A 6-pole lap-wound armature rotates at 300 rpm and is required to generate 240 V. The useful flux per pole is 40 mwb. If the armature has 120 slots, determine the number of conductors per slot.

A:-6

B:-8

C:-10

D:-12

Correct Answer:- Option-C

Question23:-When operating at constant mechanical load, if the field excitation of a synchronous motor is reduced below its normal value, the motor will

A:-Draw more current at leading power factor

B:-Draw less current at leading power factor

C:-Draw less current at lagging power factor

D:-Draw more current at lagging power factor

Correct Answer:- Option-D

Question24:-Voltage regulation of a single-phase transformer is zero when load power factor is

A:-Zero

B:-Leading

C:-Unity

D:-Lagging

Correct Answer:- Option-B

Question25:-A 10 kVA transformer has full load copper loss of 1600 watts and iron loss of 900 watts. At what percentage of load, the transformer will have maximum efficiency?

A:-75%

B:-133%

C:-80%

D:-66.6%

Correct Answer:- Option-A

Question26:-A field excitation of 10 A in an alternator result in an armature current of 200 A in short circuit and a terminal voltage of 1000 V on open circuit. The magnitude of the internal voltage drop within the machine at a load current of 50 A is

    A:-750 V

    B:-5000 V

    C:-250 V

    D:-500 V

    Correct Answer:- Option-C

Question27:-If the excitation of a synchronous condenser is increased, it will

    A:-Absorb reactive power

    B:-Supply reactive power

    C:-Supply active power

    D:-Increase speed

    Correct Answer:- Option-B

Question28:-In a DC series motor, if the armature current is reduced to 60% of its original value, the torque of the motor will be reduced by

    A:-36%

    B:-60%

    C:-40%

    D:-64%

    Correct Answer:- Option-D

Question29:-A 6-pole DC generator has 24 coils arranged in a single-layer lap winding. What is the pole pitch?

    A:-4

    B:-6

    C:-8

    D:-12

Correct Answer:- Option-C

Question30:-A CNC machine requires open-loop position control without using feedback and must be able to maintain a firm holding torque at standstill. Which motor is most suitable for this application?

    A:-Switched reluctance motor

    B:-Stepper motor

    C:-Servo motors

    D:-BLDC motor

    Correct Answer:- Option-B

Question31:-If the 8085 executes the instruction MOV M, A, which addressing mode is being utilized, and how many T-states are typically required for this specific instruction?

    A:-Direct Addressing; 4 T-states

    B:-Indirect Addressing; 10 T-states

    C:-Register Indirect Addressing; 7 T-states

    D:-Immediate Addressing ; 7 T-states

    Correct Answer:- Option-C

Question32:-When converting a 4-bit Binary number to Gray code, which logical operation is primarily utilized and what is the Gray code equivalent of binary 1010?

    A:-XOR, 1011

    B:-XOR, 1111

    C:-AND, 1011

    D:-OR, 1111

    Correct Answer:- Option-B

Question33:-What is the Excess-3 code representation of the decimal number 5?

    A:-0101

    B:-1000

    C:-1010

D:-1001

Correct Answer:- Option-B

Question34:-Which digital circuit is known as a ''Data Selector''?

A:-Decoder

B:-Encoder

C:-Demultiplexer

D:-Multiplexer

Correct Answer:- Option-D

Question35:-Which of the following Analog-to-Digital Converter is considered the fastest?

A:-Parallel comparator/Flash type

B:-Dual slope

C:-Counter type

D:-Successive approximation type

Correct Answer:- Option-A

Question36:-What is the function of the Address Latch Enable (ALE) signal in the 8085?

A:-To enable interrupts

B:-To indicate a read operation

C:-To demultiplex the address and data bus

D:-To indicate a memory operation

Correct Answer:- Option-C

Question37:-A full adder can be implemented by

A:-Three half adders

B:-Two half adders and one OR gate

C:-Two half adders and one AND gate

D:-Two half adders and one XOR gate

Correct Answer:- Option-B

Question38:-Which of the following is true for a flip-flop and a Latch?

A:-Latches require a clock, while flip-flops do not

B:-Flip-flops are edge-triggered, while latches are level-triggered

C:-Flip-flops are level-triggered, while latches are edge-triggered

D:-Both flip-flop and latch change output with clock

Correct Answer:- Option-B

Question39:-Which of the following internal register in the 8085 Microprocessor is not accessible to the programmer but is essential for holding the opcode during the decode phase

A:-Accumulator

B:-Stack pointer

C:-Program counter

D:-Instruction Register

Correct Answer:- Option-D

Question40:-After executing the XRA A instruction, what are the resulting states of the Accumulator and the Carry (CY) and Zero (Z) flags?

A:-A = 00H, CY =1, Z = 0

B:-A = 00H, CY =1, Z = 1

C:-A = 00H, CY =0, Z = 1

D:-A = 00H, CY unchanged, Z = 1

Correct Answer:- Option-C

Question41:-The value of inductance between two parallel conductors of a transmission line increases with _____ in the distance of separation between conductors.

A:-increase

B:-decrease

C:-does not depend

D:-exponentially decrease

Correct Answer:- Option-A

Question42:-_____ of insulator is used in 110 kV transmission lines.

A:-shackle type

B:-suspension type

C:-pin type

D:-both (1) and (3)

Correct Answer:- Option-B

Question43:-The rated symmetrical breaking current of a 100 MVA, 11 kV, 3-phase oil circuit breaker is _____ kA.

A:-2.6

B:-1.74

C:-5.25

D:-7.9

Correct Answer:- Option-C

Question44:-_____ is used to protect the transformer against all internal faults.

A:-instantaneous relay

B:-balanced beam type relay

C:-IDMT relay

D:-buchholz relay

Correct Answer:- Option-D

Question45:-The leakage reactance referred to low voltage side of a 1 kVA, 11/0.4 kV, single phase transformer is 1.72 Ω. Its per unit leakage reactance is

A:-0.0001

B:-0.0108

C:-0.0053

D:-1.005

Correct Answer:- Option-B

Question46:-The positive sequence impedance of a fully transposed transmission line is _____ to its negative sequence impedance.

A:-equal

B:-half

C:-twice

D:-none of these

Correct Answer:- Option-A

Question47:-The kinetic energy stored in the rotor (in Mega Joule) of a 100 MVA, 2 poles, 50 Hz alternator with a moment of inertia of 60×10^3 kg - m^2

A:-1.5×10^3

B:-5×10^3

C:-2.9×10^3

D:-10×10^3

Correct Answer:- Option-C

Question48:-The convergence is _____ for load flow using Gauss-siedal method.

A:-nonlinear

B:-linear

C:-quadratic

D:-none of these

Correct Answer:- Option-B

Question49:-The fault current in the affected line is 125 A when a single line-to-ground fault occurs. The corresponding zero sequence current is _____A.

A:-83.4

B:-10.4

C:-20.8

D:-41.7

Correct Answer:- Option-D

Question50:-The shunt compensators are used to _____.

A:-improve the bus voltage

B:-increase active power

C:-improve the phase angle

D:-none of these

Correct Answer:- Option-A

Question51:-A cascade lag compensation

$$G(s) = \frac{k(s+a)}{(s+b)}$$

where b > a, Then effect on phase margin and gain margin crossover frequency is

A:-increased

B:-Reduced

C:-No change

D:-Insufficient data

Correct Answer:- Option-B

Question52:- $T(s) = \dfrac{k1s+k2}{k1s^4 + s^3 + k2s^2 + s + 1}$

What is the condition of k1 and k2 where the system has two pole on $j\omega$ -axis

A:- $k1 > k2$

B:- $k1 \neq k2$

C:- $k1 = k2$

D:-None of the above

Correct Answer:- Option-D

Question53:-Consider the characteristic equation f system $P(s) = s^6 + 5s^5 + 2s^4 + 5s^3 + 4s^2 + 15s + 3 = 0$. How many pole in the right half of the s-plane.

A:-4 poles

B:-2 poles

C:-6 poles

D:-no poles

Correct Answer:- Option-B

Question54:-For a closed loop system where

$G(s)= \dfrac{K}{(s+2)}$, $H(s) = \dfrac{2}{(s+4)}$

What is the value of K will yield a zero steady-state error for a unit step input

A:-1

B:-2

C:-4

D:-8

Correct Answer:- Option-C

Question55:-For a second order system with the closed loop
$$T(s) = \dfrac{4}{\left(s^2 + 2s + 4\right)}$$
The settling time for 2% band in second is

A:-1

B:-2

C:-3

D:-4

Correct Answer:- Option-D

Question56:-Effect of adding a pole to the forward path Transfer function to make.

A:-the closed loop less stable while decreasing the bandwidth

B:-the closed loop more stable while decreasing the bandwidth

C:-the closed loop more stable while increasing the bandwidth

D:-the closed loop less stable while increasing the bandwidth

Correct Answer:- Option-A

Question57:-The system with the transfer function $G(s) = \dfrac{1-s}{s^2(s+2)}$ is operated in closed loop with unity feedback, the closed loop system

A:-marginally stable

B:-stable

C:-unstable

D:-conditionally stable

Correct Answer:- Option-C

Question58:-The system with the transfer function $G(j\omega) = e^{-j\omega t}$

A:-Magnitude is 1db and non-linear phase

B:-Magnitude is 0db and non-linear phase

C:-Magnitude is 0db and linear phase

D:-Magnitude is 1db and linear phase

Correct Answer:- Option-C

Question59:-A negative feedback system is characterized by $G(s) = \dfrac{k}{s^2(s+2)}$. The number of breakaway point in the root locus plot is

A:-0

B:-1

C:-2

D:-3

Correct Answer:- Option-A

Question60:-The steady state error for type 1 system for a unit ramp input is
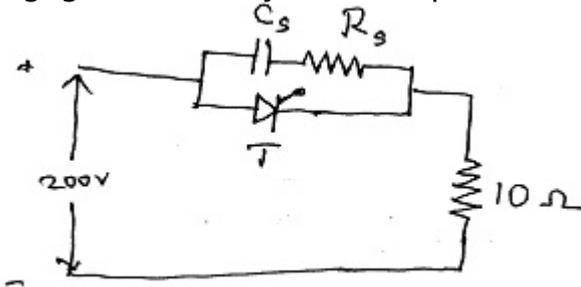
A:-0

B:-∞

C:-$\dfrac{1}{K_v}$

D:-$\dfrac{1}{K_a}$

Correct Answer:- Option-C

Question61:-In the circuit shown below, the load and stray inductances are negligible, and thyristor is operated at 2 kHz

If the required dv/dt is 100 V/$\mu\epsilon$sec and the discharge current is to be limited to 100 A, determine the value of R_S

A:-1Ω

B:-2 Ω

C:-3 Ω

D:-1/2 Ω

Correct Answer:- Option-B

Question62:-Find the slew rate if I_Q = 20μA and C_X = 50 pF. Where I_Q - Biasing current, C_X - Compensating capacitance.

A:-0.5 μs/V

B:-0.5 V/μs

C:-0.4 μs/V

D:-0.4 V/μs

Correct Answer:- Option-D

Question63:-The frequency at which the open-loop voltage gain falls to unity is defined as
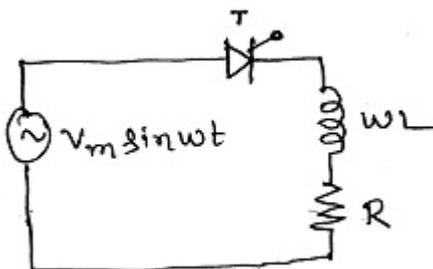
A:-Resonant frequency

B:-Half power frequency

C:-Unity-gain bandwidth

D:-RHP zero

Correct Answer:- Option-C

Question64:-In the following circuit, circuit current equation will be, (after turning on SCR)

Note : [A - Constant]

A:- $\dfrac{V_m}{Z} + Ae^{-(R/L)t}$

B:- $Ae^{-(R/L)t}$

C:- $\dfrac{V_m}{Z}\sin(wt - \theta) + Ae^{-(R/L)t}$

D:- $\dfrac{V_m}{Z}\sin(wt - \theta) + Ae^{-(L/R)t}$

Correct Answer:- Option-C

Question65:-A half wave rectifier delivers pure sinusoidal current during the positive half cycles and zero during negative half cycles. How long it will take to pass a change of 'Q' Ah, if the r.m.s. current is '10π' A. Assume conduction over full positive half cycles.

A:- $\dfrac{Q\pi}{20}$Hrs

B:- $\dfrac{Q}{20\pi}$Hrs

C:- $\dfrac{Q}{20}$Hrs

D:-20 πQ Hrs

Correct Answer:- Option-C

Question66:-In a 3φ controlled bridge rectifier with an increase of over lap angle, the output DC voltage will be

A:-decreases

B:-increases

C:-does not change

D:-depends on load inductance

Correct Answer:- Option-A

Question67:-A 3φ fully controlled converter is feeding power into DC load at a constant current 150 A. The rms current through all thyristors will be
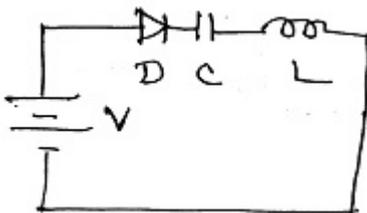
A:-150 A

B:-450 A

C:- $\dfrac{150}{\sqrt{3}}A$

D:-$\sqrt{3}\times150A$

Correct Answer:- Option-D

Question68:-The maximum current through the following circuit is

A:-$V\sqrt{CL}$

B:-$V/\sqrt{CL}$

C:-$V\sqrt{\dfrac{C}{L}}$

D:- $V\sqrt{\dfrac{L}{C}}$

Correct Answer:- Option-C

Question69:-In a three phase inverter, the ratio between third order and fifth order harmonics across the line voltage will be,

[Note : the inverter is operating under 180 degree conduction mode with star connected load]

A:-0

B:-∞

C:-1

D:-depends on the load

Correct Answer:- Option-A

Question70:-In which PWM, battery utilization will be better

A:-SVPWM

B:-Sine PWM

C:-Fixed PWM

D:-Triangular PWM

Correct Answer:- Option-A

Question71:-Which measurement standards are not available for measurement the national Laboratory?

A:-International standards

B:-National Standards

C:-Secondary standards

D:-working standards

Correct Answer:- Option-B

Question72:-An indicating instrument (voltmeter) and an integrating instrument (energy meter) in a dynamic electrical system have different applications. Which scenario best illustrates this?

A:-An indicating instrument would display monthly energy use, whereas an integrating instrument would show instantaneous voltage.

B:-An integrating instrument shows power variations in real time, while an indicating instrument totals power provided.

C:-An indicating instrument detects transient voltage spikes, while an integrating instrument bills cumulative energy use.

D:-Both devices can continuously record electrical values, but only one can store the data

Correct Answer:- Option-C

Question73:-The scale of a moving iron instrument follows :

A:-Uniform

B:-Exponential

C:-Logarithmic

D:-Square law

Correct Answer:- Option-D

Question74:-A moving coil ammeter has a coil resistance of $Rm = 2$ ohm, and its full-scale deflection current is If = 5 mA. The instrument is designed to measure currents up to 100 A. To accomplish this, a shunt resistor is connected in parallel with the moving coil. Which of the following is the most suitable value of the shunt resistor?

A:-0.01$m\Omega$

B:-0.1$m\Omega$

C:-1$m\Omega$

D:-10$m\Omega$

Correct Answer:- Option-B

Question75:-Which of the following are the characteristics of the pressure (voltage) coil in a dynamometer wattmeter?

A:-High resistance connected in parallel

B:-High resistance connected in series

C:-Low resistance connected in parallel

D:-Low resistance connected in series

Correct Answer:- Option-A

Question76:-Among the following statements, which is always correct in the two-wattmeter method of three phase power measurement?

A:-The difference between two wattmeter readings gives reactive power

B:-Product of two wattmeter readings gives apparent power

C:-Ratio of sum of two wattmeter readings to difference of the two readings gives power factor

D:-Algebraic sum of two readings gives active power

Correct Answer:- Option-D

Question77:-What is the power factor angle in a balanced three-phase system that is measured using the two-wattmeter method, where both wattmeter readings are positive and equal?

A:-$\varphi = 0°$

B:-$\varphi = 90°$ lagging or leading

C:-$\varphi = 45°$ lagging or leading

D:-$\varphi = 30°$ lagging or leading

Correct Answer:- Option-A

Question78:-In an induction-type single-phase energy meter, the driving torque is directly proportional to which electrical quantity?

A:-Square of current

B:-Ratio of square of voltage and resistance

C:-Instantaneous power

D:-Product of power and time

Correct Answer:- Option-C

Question79:-Which one among is not correct with digital energy meters over traditional analog induction-type meters?

A:-It can measure and report instantaneous voltage, current, frequency, and power factor

B:-Lower cost and simpler construction

C:-Enable differential pricing based on peak/off-peak hours

D:-can send and receive data from utility server

Correct Answer:- Option-B

Question80:-The velocity of electrons striking the fluorescent screen in a Cathode Ray Tube (CRT) is primarily determined by :

A:-Voltage Applied to the Horizontal Deflection Plates in a CRO

B:-The potential of the control grid of the Cathode Ray Oscilloscope (CRO)

C:-Accelerating Anode potential in a Cathode Ray Oscilloscope

D:-Cathode heater in a Cathode Ray Oscilloscope (CRO) i

Correct Answer:- Option-C

Question81:-The transfer function of a first-order hold circuit for a sampling period of 0.1 sec is given by

A:- $\left(10+s\right)\left(\dfrac{1-e^{-0.1s}}{s}\right)^2$

B:- $(1+s)^2 \left(\dfrac{1-e^{0.1s}}{s}\right)^2$

C:- $(1+s) \left(\dfrac{1-e^{-0.1s}}{s}\right)$

D:- $(1 + 10s) \left(\dfrac{1-e^{0.1s}}{s}\right)^2$

Correct Answer:- Option-A

Question82:-For band-limited signal, x (t) with X (jω)= 0, $\forall$ $|\omega| \geq 2$, the signal, x(t) can be uniquely determined by its samples, $x(nT)$ where n = ..., -2, 1, 0, 1, 2,... and T is the sampling period with $\omega_s = \dfrac{2\pi}{T}$ if,

A:-$\omega_s \geq 1$

B:-$\omega_s \geq 2$

C:-$\omega_s \geq 0.5$

D:-$\omega_S \geq 4$

Correct Answer:- Option-D

Question83:-If a discrete-time signal, x(n) is described by n

n	-2	-1	0	1	2
x(n)	-5	-4	0	4	5

and also x(n) = 0, $\forall$ n < -2 and $\forall$ n > 2, then x(n) is

A:-an odd signal

B:-an even signal

C:-neither odd nor even

D:-none of the above

Correct Answer:- Option-A

Question84:-If x(t) and y(t) represents the input and output of a system respectively and the input-output relationship of the system is given by
y(t) =x^4(t) = 0.5 x (t)
then the system is

A:-Linear and time-invariant

B:-nonlinear and time-varying

C:-nonlinear and time-invariant

D:-linear and time-varying

Correct Answer:- Option-C

Question85:-If r(t) and u(t) represents the unit ramp and unit step signal respectively, then for a signal, y(t) = r(t) u(t) which among the following best describes it
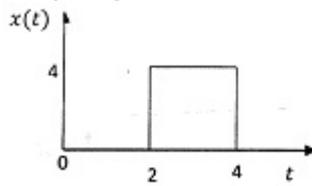
A:-y(t) is a periodic signal

B:-y(t) is an aperiodic signal

C:-y(t) is neither periodic nor aperiodic

D:-none of the above

Correct Answer:- Option-B

Question86:-In the following figure a continuous-time signal, x(t) vs time (t) in seconds is represented. If so, the signal x(t) can also be represented using unit step signal, u(t) as

A:-4u (t - 2) + 4u(t - 4)

B:-4u (t + 2) - 4u(t + 4)

C:-4u (t + 2) + 4u(t + 4)

D:-4u (t -2) - 4u(t - 4)

Correct Answer:- Option-D

Question87:-If x(n) and y(n) represents the input and output of a discrete-time system respectively and the input-output relationship of the system is given by
y(n) = (n -1) x(n) + 4
then the system is

A:-linear and causal

B:-non-linear and non-casual

C:-non-linear and causal

D:-linear and non-causal

Correct Answer:- Option-C

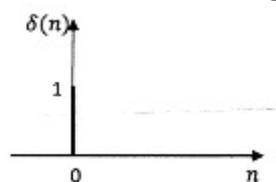Question88:-If Figure (a), represents a discrete unit impulse, $\delta(n)$ as shown
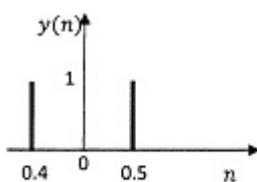

Figure (a)

Figure (b)

then signal, y(n) in figure (b) can be expressed as
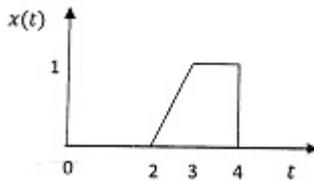
A:-$\delta(n + 0.4) + \delta(n - 0.5)$

B:-$\delta(n + 0.4) - \delta(n - 0.5)$

C:-$\delta(n - 0.4) + \delta(n + 0.5)$

D:-$\delta(n - 0.4) - \delta(n + 0.5)$

Correct Answer:- Option-A

Question89:-Which of the following statement about the signal, x(t) shown in figure is correct

A:-the total energy of the signal is zero and time-averaged power is infinite

B:-the total energy of the signal is finite and time-averaged power is infinite

C:-the total energy of the signal is infinite and time-averaged power is finite

D:-the total energy of the signal is finite and time-averaged power is zero

Correct Answer:- Option-D

Question90:-Which among the following statement regarding the unit impulse function, $\delta(t)$ is correct

A:-Impulse function is an odd function and satisfies $\delta(10t) = 10\delta(t)$

B:-Impulse function is an even function and satisfies $\delta(10t) = 10\delta(t)$

C:-Impulse function is an even function and satisfies $\delta(10t) = 0.1\delta(t)$

D:-Impulse function is an odd function and satisfies $\delta(10t) = 0.1\delta(t)$

Correct Answer:- Option-C

Question91:-An LVDT is a :

A:-Active transducer

B:-Digital sensor

C:-Passive transducer

D:-Piezoelectric sensor

Correct Answer:- Option-C

Question92:-An LVDT has a stroke length of ± 150€mm and a sensitivity of 40 mV/ mm. If the core is displaced 100 mm from the null position, and the signal conditioning circuit applies a gain of 2.5, determine the output voltage.

A:-7.2 V

B:-15.0 V

C:-9.0 V

D:-10.0 V

Correct Answer:- Option-D

Question93:-Which type of battery cell is characterized by an irreversible chemical reaction, making it non-rechargeable?

A:-Secondary cells

B:-Fuel cells

C:-Primary cells

D:-None

Correct Answer:- Option-C

Question94:-A battery is formed by connecting 10 cells in series, each having an emf of 2 V and a capacity of 5 Ah. If two such series groups are connected in parallel, what will be the total battery rating?

A:-20 V, 100 Ah

B:-10 V, 100 Ah

C:-20 V, 50 Ah

D:-20 V, 10 Ah

Correct Answer:- Option-D

Question95:-According to ISI rules, the earth resistance of a domestic earthing system should not exceed :

A:-1 Ω

B:-10 Ω

C:-5 Ω

D:-20 Ω

Correct Answer:- Option-C

Question96:-According to ISI standards, the maximum permissible load that can be connected in a power sub-circuit is :

A:-800 watts

B:-1000 watts

C:-5000 watts

D:-3000 watts

Correct Answer:- Option-D

Question97:-According to ISI standards, what is the minimum internal diameter of a pipe electrode used in a pipe electrode used in a pipe earthing system for domestic installations?

A:-25 mm

B:-38 mm

C:-50 mm

D:-75 mm

Correct Answer:- Option-B

Question98:-A hall measuring 10 × 8 m is illuminated by six 150-W lamps, each having a luminous efficiency of 75 lumens/W. If the coefficient of utilization is 0.6, what is the average illumination in the hall?

A:-506 lux

B:-424 lux

C:-338 lux

D:-270 lux

Correct Answer:- Option-A

Question99:-A 100 W lamp has a luminous intensity of 200 candela in all directions. Determine the total luminous flux emitted by the lamp

A:-800$\pi\in$lumen

B:-1000 lumen

C:-600π lumen

D:-1200 lumen

Correct Answer:- Option-A

Question100:-Which type of lamp operates on the principle of gas discharge at low pressure, producing a characteristic yellow light with very high luminous efficiency?

A:-Incandescent lamp

B:-Sodium vapour lamp

C:-Fluorescent lamp

D:-Halogen lamp

Correct Answer:- Option-B