

FINAL ANSWER KEY

Question 121/2023/OL

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Question1:-Let A, P and Q are invertible square matrices with $Q = P^{-1}AP$. Then A^n is

A: $-P^{-1}Q^n P^n$

B: $-P^{-1}Q^n P$

C: $-PQ^n P^{-1}$

D: $-PQ^{-n} P$

Correct Answer:- Option-C

Question2:-Let the matrix $\begin{bmatrix} \frac{1}{3} & -1 & 2 \\ -2 & 2 & -4 \end{bmatrix}$ Det(A) denote the determinant of A. Then Det $(A^5) =$

A: -3

B: 0

C: -1

D: -2^5

Correct Answer:- Option-B

Question3:-If P and Q are the coefficient of x^n in the expansion of $(1+x)^{2n}$ and $(1+x)^{2n-1}$, Then $\frac{P}{Q}$ is

A: 2

B: $\frac{2}{3}$

C: 0

D: $-\frac{3}{2}$

Correct Answer:- **Question Cancelled**

Question4:-A, B, 45° are the angles in a triangle such that $\cot A + \cot B + \cot 45^\circ = \cot A \cot B \cot 45^\circ$. Then $\tan(A+B)$ is

A: 1

B: $-\infty$

C: -1

D: $-\frac{1}{2}$

Correct Answer:- Option-C

Question5:-Solution of the system of equation $x+y+z=6, y+3z=11, x-2y+z=0$ is

A: $x=1, y=-2, z=3$

B: $-x=1, y=2, z=3$

C: $-x=-2, y=1, z=2$

D: $-x=-1, y=2, z=-3$

Correct Answer:- Option-B

Question6:-Equation of the line passing through the point of intersection of the lines $2x+3y-1=0, 3x+4y-6=0$ and parallel to $5x+4y-2=0$

A: $-4x+5y-34=0$

B: $-5x-4y+34=0$

C: $-5x+4y+34=0$

D: $-5x+4y-34=0$

Correct Answer:- Option-D

Question7:-Which of the following are the solutions of the equation $\sin x = \frac{-\sqrt{3}}{2}$?

A: $-n\pi + (-1)^n \frac{\pi}{3}$

B: $-\pi + (-1)^n \frac{4\pi}{3}$

C: $-n\pi + (-1)^n \frac{2\pi}{3}$

D: $-n\pi + (-1)^n \frac{4\pi}{3}$

Correct Answer:- Option-D

Question8:-The tangent of the curve $y = 4x^2 - 6x + 3$ is parallel to the line $y = 2x - 7$ at the point (a,b). Then the point (a,b)

A: $(-1, -1)$

B: $(-1, 1)$

C: $(1, 1)$

(1,1)

D: $(-1, -1)$

Correct Answer:- Option-C

Question9:- $\int \frac{e^{2t}+1}{2^{2t}-1} dt$ is

A: $-\log|e^{2t}-1|+c$

B: $-\log|e^t-e^{-t}|+c$

C: $-\log|e^{2t}+1|+c$

D: $-\log|e^t+e^{-t}|+c$

Correct Answer:- Question Cancelled

Question10:-Area lying above the line $y=0$ of the circle $x^2+y^2=a^2$ bounded between $x=-a$ and $x=a$ is

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

B: $-2\pi a^2$

C: $-\frac{3a^2}{2}\pi$

D: $-\frac{\pi}{2}\sin^{-1}2$

Correct Answer:- Option-A

Question11:-The maximum water absorption in percentage for class 25 brick is

A:-25

B:-15

C:-12.5

D:-20

Correct Answer:- Option-B

Question12:-Indian Standard code for requirements of Ordinary portland cement is

A:-IS 269:2015

B:-IS 12330:1988

C:-IS 12269:2013

D:-IS 383:2016

Correct Answer:- Option-A

Question13:-Minimum Cover to reinforcement of footing shall be

A:-70 mm

B:-50 mm

C:-45 mm

D:-75 mm

Correct Answer:- Option-B

Question14:-The whole circle bearing of a line is 300 degrees. Its reduced bearing is

A:-N60° E

B:-S60° W

C:-N30° W

D:-N60° W

Correct Answer:- Option-D

Question15:-The sensitivity of a bubble tube can be increased by

A:-Increasing the length of level tube

B:-Increasing the diameter of the tube

C:-Both 1 and 2 above

D:-None of the above

Correct Answer:- Option-C

Question16:-In SI engines, the power and economy are altered by adjusting

A:-Stoichiometric air fuel ratio

B:-Rate of air flow

C:-Compression ratio

D:-None of the above

Correct Answer:- Option-B

Question17:-The piston head of a two stroke engine has a deflector to ensure

A:-Charge delivery is directed upward into the cylinder

B:-Charge delivery is directed towards exhaust port

C:-Proper turbulent mixing of fuel-air mixture

D:-None of the above

Correct Answer:- Option-A

Question18:-The combustion duration of a CI engine when compared to a SI engine is

A:-Equal

B:-More

C:-Short

D:-None of the above

Correct Answer:- Option-B

Question19:-To adjust for the change in length of propeller shaft while the vehicle is in motion

A:-A universal joint is provided

B:-A slip joint is provided

C:-Both universal joint and slip joint are provided

D:-None of the above

Correct Answer:- Option-B

Question20:-The most common economizers used in thermal power plants to prevent corrosion of the flue gas passages are

A:-Direct contact type

B:-Condensing type

C:-Non condensing type

D:-None of the above

Correct Answer:- Option-C

Question21:-A capacitor when connected across a dc voltage source accumulates a charge of Q coulombs . When two such capacitors are connected in series across the same voltage source, the total accumulated charge will be

A:-Q

B:-2Q

C:-Q/2

D:-Q/4

Correct Answer:- Option-C

Question22:-Two resistances of value 10 ohms and 15 ohms are connected in parallel and included in a dc circuit. The 10 ohms resistance carries 3 amperes. The

what will be the current carried by the 15 ohm resistor?

A:-2 A

B:-3 A

C:-4.5 A

D:-5 A

Correct Answer:- Option-A

Question23:-What type of generator will be selected for producing a dc power supply that will have nearly constant voltage from no load to full load?

A:-Shunt generator

B:-Series generator

C:-Differential compound generator

D:-Cumulative compound generator

Correct Answer:- Option-D

Question24:-A three phase balanced load draws 0.5 A line current from 400 V supply at a power factor of 0.5. What is the energy consumed by this load when it is connected to the supply for 10 hours?

A:-1.0 kWh

B:-1.732 kWh

C:-1000 kWh

D:-1732 kWh

Correct Answer:- Option-B

Question25:-A thyrite type lighting arrester is used to

A:-absorb the surge voltage

B:-block the surge voltage

C:-bypass surge to the ground

D:-return surge back to the source

Correct Answer:- Option-C

Question26:-LED is made up of

A:-In P

B:-GaAs

C:-Cd Te

D:-Si

Correct Answer:- Option-B

Question27:-The ripple factor of full wave bridge rectifier is

A:-0.632

B:-0.821

C:-0.48

D:-0.329

Correct Answer:- Option-C

Question28:-1C 7805 is used for

A:--5V

B:-8V

C:-10V

D:-5V

Correct Answer:- Option-D

Question29:-Codes used for spreading in CDMA system is

A:-Orthogonal

B:-Non orthogonal

C:-Cyclic

D:-Huffman

Correct Answer:- Option-A

Question30:-Which wireless mobile technology is used for image transmission?

A:-1G

B:-2G

C:-3G

D:-None of these

Correct Answer:-**Question Cancelled**

Question31:-A resistance temperature detector (RTD) has a resistance of 10Ω at 0°C . When measuring the temperature of a process, a resistance value of 15Ω is recorded. calculate the temperature corresponding to this resistance value. Assume that the sensing element used in the RTD has a temperature coefficient of resistance of $0.001/^\circ\text{C}$

A:- 500°C

B:- 333.33°C

C:- 66.66°C

D:- 250°C

Correct Answer:- Option-A

Question32:-Which type of radiation is typically used in the radiation absorption method for level measurement?

A:-Alpha particles

B:-Beta particles

C:-Gamma rays

D:-X-rays

Correct Answer:- Option-C

Question33:-Calculate the Reynold's number of a fluid of viscosity 0.5 Pascal-second and density of $500\text{Kg}/\text{m}^3$ flowing in a horizontal circular tube of diameter 50 cm with a flow speed of 2.5m/s

A:-2500

B:-25

C:-1250

D:-12.5

Correct Answer:- Option-C

Question34:-Ultrasonic level gauges operate based on the principle of

A:-Refraction

B:-Reflection

C:-Diffraction

D:-Transmission

Correct Answer:- Option-B

Question35:-Which of the following is/are the assumptions(s) on the flow of fluid in Bernoulli's equation

A:-Incompressible

B:-Steady

C:-Inviscid

D:-All of the above

Correct Answer:- Option-D

Question36:-A given substance has a specific gravity of 5. Calculate its density in Kg/m^3

A:-200

B:-0.2

C:-20

D:-5000

Correct Answer:- Option-D

Question37:-Which of the following is an example of an orifice viscometer?

A:-Saybolt's viscometer

B:-Zeitfuchs viscometer

C:-Pinkevitch viscometer

D:-FitzSimons viscometer

Correct Answer:- Option-A

Question38:-Match the following quantities in Column I with their units in column II

Column I

Column II

(a) Humidity

(i) Ns/m^2

(b) Torque

(ii) g/m^3

- (c) Pressure (iii) N/m^2
(d) Viscosity (iv) Nm

A:-(a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

B:-(a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)

C:-(a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)

D:-(a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

Correct Answer:- Option-C

Question39:-A chromel-alumel thermocouple generates an e.m.f. of 10 mV. Determine the temperature of the hot junction if the cold junction is at a temperature of 15°C and the sensitivity of the thermocouple is $0.04 \text{ mV}/^\circ\text{C}$

A:- 250°C

B:- 265°C

C:- 235°C

D:- 375°C

Correct Answer:- Option-B

Question40:-Which of the following manometric fluids should be used to determine the pressure difference between two horizontal pipes, through which water is flowing, using an inverted manometer?

A:-Manometric fluid with a specific gravity of 15.4

B:-Manometric fluid with a specific gravity of 0.7

C:-Both Manometric fluids can be used

D:-None of the manometric fluids can be used

Correct Answer:- Option-B

Question41:-Two pipes, each of diameter d_1 , converge to form a pipe of diameter d_2 . What should be the relation between d_1 and d_2 such that the velocity in the pipe with diameter d_2 becomes double of that in each of the pipes with diameter d_1 ?

A:- $d_1=d_2$

B:- $d_1=d_2/2$

C:- $d_2=d_1/2$

D:- $d_2=d_1/4$

Correct Answer:- Option-A

Question42:-The working principle of a Pirani gauge is based on

A:-Thermal conductivity

B:-Piezoelectric effect

C:-Magnetic induction

D:-Ionization of gas molecules

Correct Answer:- Option-A

Question43:-The Bourdon-type pressure gauge operates based on the principle of

A:-Thermal expansion

B:-Capacitance sensing

C:-Elastic deformation

D:-Magnetic induction

Correct Answer:- Option-C

Question44:-A McLeod gauge is commonly used to measure

A:-Temperature

B:-Pressure

C:-Flow rate

D:-Humidity

Correct Answer:- Option-B

Question45:-A thermistor has temperature coefficient of -5% over a temperature range of 25°C to 50°C. If the resistance of thermistor is 120Ω at 25°C, what is the resistance of at 40°C?

A:-35Ω

B:-25Ω

C:-27.5Ω

D:-30Ω

Correct Answer:- Option-D

Question46:-Which of the following is not the governing principle of variable inductance transducers?

A:-Change of self-inductance

B:-Change of mutual inductance

C:-Production of eddy currents

D:-Change of differential inductance

Correct Answer:- Option-D

Question47:-As the basic principle of radiation pyrometer, the total thermal energy of the radiation emitted by a black body is proportional to _____ power of the temperature of the hot body

A:-First

B:-Second

C:-Third

D:-Fourth

Correct Answer:- Option-D

Question48:-In the liquid level measuring system with float the force applied on the measuring device is

A:- $F=mg+ghA$

B:- $F=mg+\rho ghA$

C:- $F=mg-\rho ghA$

D:- $F=mg-ghA$

Correct Answer:- Option-C

Question49:-Differential pressure-based method of specific gravity measurement works based on

A:-Geiger muller counting

B:-Hydrostatic principle

C:-Variable area method

D:-Poiseuille's equation

Correct Answer:- Option-B

Question50:-Select one of the advantages of turbine flow meter

A:-Good dynamic behavior

B:-Less error at low flow rates

C:-Performances independent of liquid characteristics

D:-Errors are less due to frictional torque

Correct Answer:- Option-A

Question51:-Which one is not the desirable property of manometric fluid

A:-Low viscosity

B:-Low vapour pressure

C:-High-co-efficient of thermal expansion

D:-Low capillary effect

Correct Answer:- Option-C

Question52:-Pirani gauges are useful to measure pressures ranging from

A:- 10×10^{-6} to 1 torr

B:-1 to 100 torr

C:- 10×10^{-5} to 1000 torr

D:- 10×10^{-12} to 100 torr

Correct Answer:- Option-A

Question53:-In vortex shedding flow meter, the constant of proportionality in computing shedding frequency is known as

A:-Reynolds number

B:-Mach number

C:-Strouhal number

D:-Doppler number

Correct Answer:- Option-C

Question54:-Consider a venturi flume built in a rectangular channel 1m wide and having a throat width of 0.4m. Assume the upstream head is 0.52m and the measured head in the throat is 0.4m. What is the discharge through the venturi flume?

A:- $0.235 \text{ m}^3 / \text{s}$

B:- $0.112 \text{ m}^3 / \text{s}$

C:- $0.084 \text{ m}^3 / \text{s}$

D:- $0.302 \text{ m}^3 / \text{s}$

Correct Answer:- Option-A

Question55:-A venturi of throat diameter 60 mm is placed in a water pipe of diameter 100 mm to measure volumetric flow. $60 \times 10^{-3} \text{ m}^3 / \text{s}$ is the volumetric flow rate through the tube. Water has a density of $10^3 \frac{\text{kg}}{\text{m}^3}$ and viscosity of $10^{-3} \text{ Ns}/\text{m}^2$. Determine the Reynolds number

A:- 1495.4×10^3

B:- 1273.8×10^3

C:- 1532.2×10^3

D:- 1608.1×10^3

Correct Answer:- Option-B

Question56:-The point where the highest differential pressure is obtained in the orifice plate is known as

A:-Segmental contracta

B:-Eccentric point

C:-Vena contracta

D:-Concentric contracta

Correct Answer:- Option-C

Question57:-The measurement of viscosity of a motor oil is done by a Saybolt viscometer. The time recorded for 60ml drainage is 190 s. The kinematic viscosity is

A:- $39.18 \times 10^{-6} \text{ m}^2 / \text{s}$

B:- $10.86 \times 10^{-6} \text{ m}^2 / \text{s}$

C:- $40.86 \times 10^{-6} \text{ m}^2 / \text{s}$

D:- $23.86 \times 10^{-6} \text{ m}^2 / \text{s}$

Correct Answer:- Option-C

Question58:-The point at which the vapor starts to condensate when the mixture is cooled at constant pressure

A:-Dry point

B:-Dew point

C:-Condense point

D:-Hydro point

Correct Answer:- Option-B

Question59:-A temperature process has the operating range 100 to 500K with the setpoint as 300K. Find the percentage of error span when the temperature is 450K

A:--36.5

B:--37.5

C:--21.5

D:--25.5

Correct Answer:- Option-B

Question60:-Proportional controller introduces _____ and it can be minimized by reducing _____

A:-Residual error, proportional band

B:-Oscillations, Proportional band

C:-Damping, Setpoint

D:-Inverse response, proportional gain

Correct Answer:- Option-A

Question61:-A controller outputs 4-20mA current signal to the final control element. Find the current when the controller has a proportional band of 25%

A:-8 mA

B:-10 mA

C:-12 mA

D:-16 mA

Correct Answer:- Option-A

Question62:-The measurement range of an integral control system spans from 0.6 to 1.6 V, and it generates an output voltage of 0 to 9.0 V. compute the gain G_I of the op amp to implement the integral controller of gain $K_I = 6\%$ (%-min)

A:- $0.1s^{-1}$

B:- $0.09s^{-1}$

C:- $0.01s^{-1}$

D:- $0.9s^{-1}$

Correct Answer:-**Question Cancelled**

Question63:-In a pneumatic control valve, a force of 320 N is applied to open a valve. Find the diaphragm area, if a control gauge pressure of 50Kpa must provide this force

A:- $15.6 \times 10^{-3} m^2$

B:- $16.2 \times 10^{-3} m^2$

C:- $6.4 \times 10^{-3} m^2$

D:- $8.2 \times 10^{-3} m^2$

Correct Answer:- Option-C

Question64:-An equal percentage valve has a maximum flow of $100 \text{ cm}^3/\text{s}$ and a minimum flow of $4 \text{ cm}^3/\text{s}$. If the full travel is 4cm, find the flow at 2cm opening

A:- $40 \text{ cm}^3/\text{s}$

B:- $10 \text{ cm}^3/\text{s}$

C:- $50 \text{ cm}^3/\text{s}$

D:- $20 \text{ cm}^3/\text{s}$

Correct Answer:- Option-D

Question65:-Valve positioners are mandatory in the following circumstances

(i) When accurate valve position is required

(ii) To speed up the response of a valve

(iii) Where a pressure boost is required to give the necessary actuator force

(iv) All the above

A:-(i) and (ii)

B:-(i) and (iii)

C:-(ii) and (iii)

D:-(iv)

Correct Answer:- Option-D

Question66:-Which among the following is the tendency of a process to adopt specific value of the controlled variable for nominal load with no control operations?

A:-Setpoint tracking

B:-Self regulation

C:-Disturbance rejection

D:-Integrating

Correct Answer:- Option-B

Question67:-If a single process output is controlled by incorporating the actions of several manipulated variables, which produce the same effect on the overall system is known as

A:-Adaptive control

B:-Inferential control

C:-Cascade control

D:-Splitrange control

Correct Answer:- Option-D

Question68:-In a feed forward control loop, process transfer function is given as

$G_p^s = \frac{9e^{-0.6s}}{s+1}$ and disturbance is expressed as $G_d(s) = \frac{3e^{-0.3s}}{s+1}$. Find the transfer function $G_c(s)$ of the feedforward controller

A:- $\frac{1}{3}e^{0.3s}$

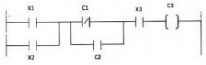
B:- $3e^{-0.3s}$

C:- $\frac{1}{3}e^{-0.3s}$

D:- $3e^{0.3s}$

Correct Answer:- Option-A

Question69:-A PLC ladder logic diagram is shown in Fig. Find the equivalent Boolean logic for the ladder logic



A:- $C3 = (X1 \text{ AND } (\text{NOT } C1)) \text{ OR } (X2 \text{ OR } C2) \text{ AND } X3$

B:- $C3 = (X1 \text{ OR } X2) \text{ OR } ((\text{NOT } C1) \text{ OR } C2) \text{ AND } X3$

C:- $C3 = (X1 \text{ AND } X2) \text{ OR } ((\text{NOT } C1) \text{ AND } C2) \text{ OR } X3$

D:- $C3 = (X1 \text{ OR } X2) \text{ AND } ((\text{NOT } C1) \text{ OR } C2) \text{ AND } X3$

Correct Answer:- Option-D

Question70:-In a biological neuron, what type of signal transmission takes place at synapse?

A:-Physical process

B:-Chemical process

C:-Both physical and chemical process

D:-None of the above

Correct Answer:- Option-B

Question71:-For a parameter control device, identify the symbol "PI".

A:-Temperature indicate

B:-Flow indicate

C:-Vacuum indicate

D:-Level indicate

Correct Answer:- Option-C

Question72:-According to P and ID, identify the valve type given below



A:-Plug valve

B:-Gate valve

C:-Globe valve

D:-Angle valve

Correct Answer:- Option-A

Question73:-Mention the significance of interstage coolers in compressors

- A:-To reduce the temperature of the air
- B:-Used as storage and smoothened
- C:-To prevent dust from entering the compressor
- D:-To remove the traces of moisture

Correct Answer:- Option-A

Question74:-Name the method which removes water molecule by changing its chemical composition

- A:-Drying
- B:-Dehydration
- C:-Dewatering
- D:-De-moisturizing

Correct Answer:- Option-B

Question75:-In gears, the locus of a point on the line which rolls out without slipping on the fixed circle is called

- A:-Backlash circle
- B:-Pressure angle
- C:-Involute profile
- D:-Pitch circle

Correct Answer:- Option-C

Question76:-A pinion gear with 33 teeth has a rotational speed of 1200 rpm and drives a gear at 600 rpm. determine the number of teeth on the gear

- A:-20
- B:-66
- C:-33
- D:-42

Correct Answer:- Option-B

Question77:-Which of the following coordinate system can be used for designing an industrial robot?

- A:-Spherical coordinate
- B:-Cylindrical coordinate
- C:-Cartesian coordinate
- D:-All the above

Correct Answer:- Option-D

Question78:-Which one of the following is not a programming language of a robot?

- A:-HELP
- B:-MARS
- C:-RAIL

D:-WAVE

Correct Answer:- Option-B

Question79:-Which of the following system is a time variant system?

A:- $y(n) = x(n) + x(n-1)$

B:- $y(n) = x(-n)$

C:- $y(n) = 2x(n) + \frac{1}{x(n-1)}$

D:- $y(n) = x^2(n)$

Correct Answer:- Option-B

Question80:-A mechanical rotational system is represented by a differential equation $J_1 \frac{d^2\theta_1}{dt^2} + B_1 \frac{d\theta_1 - d\theta_2}{dt} + K_1(\theta_1 - \theta_2) = T$, where T- torque,, θ - angular displacement, J-moment of inertia, B-dashpot coefficient and K-spring stiffness constant. Find the equivalent torque-voltage electrical analogous equation for the mechanical rotational system

A:- $L_1 \frac{d^2i_1}{dt^2} + R_1 \frac{di_1 - di_2}{dt} + \frac{1}{C_1}(i_1 - i_2) = e(t)$

B:- $\frac{1}{L_1} \frac{d^2i_1}{dt^2} + R_1 \frac{di_1 - di_2}{dt} + \frac{1}{C_1}(i_1 - i_2) = e(t)$

C:- $L_1 \frac{di_1}{dt} + R_1(i_1 + i_2) + \frac{1}{C_1} \int (i_1 - i_2) dt = e(t)$

D:- $\frac{1}{L_1} \frac{di_1}{dt} + R_1(i_1 + i_2) + \frac{1}{C_1} \int (i_1 - i_2) dt = e(t)$

Correct Answer:- Option-C

Question81:-Consider the following properties of signal flow graph

- (i) Signal flow graph is applicable to linear systems
 - (ii) Signal flow graph of a system is unique
 - (iii) Signals travel along branches only in the marked direction
- Which of the above statements is/are incorrect?

A:-(i) and (ii)

B:-(i) only

C:-(ii) only

D:-(i), (ii) and (iii)

Correct Answer:- Option-C

Question82:-For the construction of Bode plot, the corner frequencies (rad/sec) for the given transfer function $G(s) = K \frac{e^{-0.3s}}{s(s+2)(s+4)}$ are

A:-0, 2 and 4

B:-2 and 4

C:-0, 0.5 and 0.25

D:-0.5 and 0.25

Correct Answer:- Option-D

Question83:-Match the following open loop transfer functions with the type of input signals which rise to a constant steady state error values. Assume $H(s)=1$

(a) $G(s) = \frac{10}{s(s+2)(s+3)}$

(i) Step

(b) $G(s) = \frac{5(s+1)}{(s+1)(s+2)}$

(ii) Parabolic

(c) $G(s) = \frac{s+1}{s^2(s+4)(s+5)}$

(iii) Rsmpl

A:-(a)-(i), (b)-(ii), (c)-(iii)

B:-(a)-(iii), (b)-(ii), (c)-(i)

C:-(a)-(i), (b)-(iii), (c)-(ii)

D:-(a)-(iii), (b)-(i), (c)-(ii)

Correct Answer:- Option-D

Question84:-Using Routh criterion, determine the stability of the system whose characteristics equation is $s^6+2s^5+8s^4+12s^3+20s^2+16s+16=0$

A:-Marginally stable

B:-Stable

C:-Unstable

D:-None of the above

Correct Answer:- Option-A

Question85:-If a single phase full converter generates a peak value of 300 V for the conduction angle 45° , then what will be the average output voltage of the converter?

A:-0v

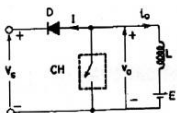
B:- $\frac{600}{\pi}$ v

C:- $\frac{\pi}{\sqrt{2}}$ 300v

D:- $\frac{\sqrt{2}}{\pi}$ 300v

Correct Answer:- Option-D

Question86:-Identify the type of chopper from the circuit shown in Fig



A:-Type B chopper

B:-Type A chopper

C:-Type D chopper

D:-Type C chopper

Correct Answer:- Option-A

Question87:-Ultra filtration rate in dialysis is due to

A:-Blood solute concentration only

B:-Hydrostatic pressure only

C:-Hydrostatic and osmotic transmembrane pressure

D:-Transmembrane pressure only

Correct Answer:- Option-C

Question88:-Which semiconductor laser is typically emit light i the 1200nm to

1550nm region of the spectrum

A:-InGaAsP

B:-AlGaAs

C:-InGa

D:-GaAs

Correct Answer:- Option-A

Question89:-How many electrodes are used in the clinical electroencephalography?

A:-20

B:-21

C:-10+20

D:-19

Correct Answer:- Option-B

Question90:-The radius of trajectory(r) of each charged particle in mass spectrometer is depends on

A:- $\sqrt{\frac{vm}{h^2e}}$

B:- $\sqrt{\frac{2vm}{he}}$

C:- $\sqrt{\frac{2vm}{h^2e}}$

D:- $\sqrt{\frac{vm}{he}}$

Correct Answer:- Option-C

Question91:-The flow cytometry sensor is used for

A:-Blood count

B:-Blood flow

C:-Blood pressure

D:-None of the above

Correct Answer:- Option-A

Question92:-Which Laser is NOT working in continuous wave (cw) mode of operation

A:-Helium-Neon Laser

B:-Carbon dioxide Laser

C:-Argon Laser

D:-Ruby Laser

Correct Answer:- Option-D

Question93:-Unipolar chest electrode in ECG is measured with respect to

A:-Left Arm (LA) + Right Arm (RA) + Left leg (LL)

B:-Left Arm (LA) + Right Arm (RA)

C:-Left Arm (LA) + Left leg (LL)

D:-Right leg(RL)

Correct Answer:- Option-D

Question94:-Calculate the magnetic field in Tesla (T) at 2mm from a wire carrying 10A of current

A:- $5 \times 10^{-4} T$

B:- $10 \times 10^{-4} T$

C:- $1 \times 10^{-4} T$

D:-None of the above

Correct Answer:- Option-B

Question95:-Which is help to remove spurious voltage generated during magnet current reversal in electromagnetic flow meter

A:-Gating circuits

B:-Band pass filter circuits

C:-Detector circuits

D:-Triggering circuits

Correct Answer:- Option-A

Question96:-The blood gas analyzer are measure

A:-pCO₂ and pO₂

B:-pO₂ only

C:-pH and O₂

D:-pH, pCO₂ and pO₂

Correct Answer:- Option-D

Question97:-To reduce the motion artifacts in the CT scan machine

A:-Scan time equal to breath hold time

B:-Scan time greater than breath hold time

C:-Scan time less than breath hold time

D:-None of the above

Correct Answer:- Option-C

Question98:-Spatial resolution in NMR imaging system can be improved by reducing

A:-The body movement

B:-The slice thickness

C:-The uniformity of magnetic field

D:-The image scan time

Correct Answer:-**Question Cancelled**

Question99:-Synthetic piezo electric material is

A:-Lead Zirconate phosphate

B:-Lead zirconate Titanate

C:-Lead cerium Nitrate

D:-Lead cerium Phosphate

Correct Answer:- Option-B

Question100:-Which electrode metal has highest potential between electrodes in electrolyte (Saline)

A:-Stainless steel

B:-Silver-Silver chloride

C:-Silver

D:-Lead

Correct Answer:- Option-C