PROVISIONAL ANSWER KEY

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Exam:	Assistant Manager Boiler Operation
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Question1:-An ideal fluid is

A:-satisfies the relation PV = RT

B:-Both incompressible and non-viscous

C:-Obeys Newton's law of viscosity

D:-Is non-viscous

Correct Answer:- Option-B

Question2:-Which one of the following is the correct dimension of surface tension?

A:-N/m^2

B:-W/m

C:-J/m

D:-J/m^2

Correct Answer:- Option-D

Question3:-How are the coefficient of velocity (Cv), discharge coefficient (Cd) and contraction coefficient of an orifice (Cc) related?

A:-Cv = Cc × Cd

B:-Cc = Cv × Cd

C:-Cc × Cv × Cd = 1

D:-Cd = Cc × Cv

Correct Answer:- Option-D

Question4:-Which property of the fluid accounts for the major losses in pipes?

A:-Compressibility

B:-Density

C:-Viscosity

D:-Specific gravity

Correct Answer:- Option-C

Question5:-The head loss at the entrance of the pipe is that at it's exit

A:-equal to

B:-twice

C:-half

D:-four times

Correct Answer:- Option-C

Question6:-An air vessel in a reciprocating pump is used

A:-to reduce the suction head

B:-to obtain a continuous supply of water at a uniform rate

C:-to increase the delivery head

D:-all the above

Correct Answer:- Option-B

Question7:-The purpose of multistaging in centrifugal pumps is

A:-for high head

B:-for high flow rate

C:-for high speed

D:-for high efficiency

Correct Answer:- Option-A

Question8:-Which among the following is an important parameter to avoid cavitation?

A:-Head race length

B:-Tail race length

C:-Pump

D:-Height of draft tube

Correct Answer:- Option-D

Question9:-Which of the following efficiencies for Kaplan Turbine is described as the ratio between the total quantity of water over the runner blades to the total quantity of water supplied to the turbine?

A:-Volumetric efficiency

B:-Mechanical efficiency

C:-Overall efficiency

D:-Hydraulic efficiency

Correct Answer:- Option-A

Question10:-The number of buckets on the periphery of a Pelton wheel is given by? where m is the jet ratio, m = $D_{/d}$

A:-5 $_{+ m/}$2

B:-10 $_{+ m/}$2

C:-20 $_{+ m/}$2

D:-15 $_{+ m/}$2

Correct Answer:- Option-D

Question11:-(i) Entropy is a measure of disorder or randomness of a system.
(ii) Disorder in a system always decreases during a spontaneous process

A:-Both (i) and (ii) are true, but (ii) is not the correct explanation of (i)

B:-Both (i) and (ii) are true, and (ii) is the correct explanation of (i)

C:-(i) is true but (ii) is false

D:-(i) is false but (ii) is true

Correct Answer:- Option-C

Question12:-Kelvin-Plank's law deals with

A:-Conservation of heat

B:-Conservation of Mass

C:-Conservation of heat in to work

D:-Conservation of work in to heat

Correct Answer:- Option-C

Question13:-(i) Carnot cycle consist of two isothermal and two adiabatic processes.
(ii) Heat transfer occurs during adiabatic processes

A:-(i) and (ii) are true, (ii) explains (i)

B:-(i) and (ii) are true, (ii) does not explain (i)

C:-(i) is true but (ii) is false

D:-(i) is false and (ii) is true

Correct Answer:- Option-C

Question14:-Diesel cycle typically operates at higher compression ratio than Otto cycle because

A:-Higher CR increases efficiency

B:-Air-fuel mixture in SI engine may knock

C:-Diesel cycle requires high temperature for ignition

D:-All of the above

Correct Answer:- Option-D

Question15:-The specific heat ratio γ affects Otto cycle efficiency because

A:-It determines temperature rise during adiabatic compression

B:-It changes volumetric efficiency

C:-It determines piston speed

D:-It controls valve timing

Correct Answer:- Option-A

Question16:-The calorific value of fuel mainly depends on

A:-Ash content

B:-Carbon and Hydrogen content

C:-Moisture content

D:-Oxygen content

Correct Answer:- Option-B

Question17:-If the condenser pressure is reduced while boiler temperature remains constant, the cycle efficiency

A:-Become zero

B:-Remains constant

C:-Decreases

D:-Increases

Correct Answer:- Option-D

Question18:-Find turbine work, if heat input = 1150 kJ/kg, compressor work = 370 kJ/kg, efficiency = 38%

A:-33.17 kJ/kg

B:-296 kJ/kg

C:-807 kJ/kg

D:-437 kJ/kg

Correct Answer:- Option-C

Question19:-(i) Bleeding of stream from a turbine increases the thermal efficiency of a Rankine cycle.
(ii) Bleeding reduces the amount of heat supplied in the boiler to raise feed water temperature.

A:-Both (i) and (ii) are true and (ii) is the correct explanation of (i)

B:-Both (i) and (ii) are true and (ii) is not the correct explanation of (i)

C:-(i) is true but (ii) is false

D:-(i) is false but (ii) is true

Correct Answer:- Option-A

Question20:-(i) Nozzle governing is more efficient than throttle governing for impulse turbine.
(ii) Throttle governing reduces steam pressure for entering nozzles, causing throttling losses.

A:-Both (i) and (ii) are true and (ii) is the correct explanation of (i)

B:-Both (i) and (ii) are true and (ii) is not the correct explanation of (i)

C:-(i) is true but (ii) is false

D:-(i) is false but (ii) is true

Correct Answer:- Option-A

Question21:-In a stress strain curve, the secant modulus is represented by which of the following?

A:-The slope of tangent line at fracture point

B:-The slope of the line connecting origin and design stress on the curve

C:-The area under the curve

D:-The area under the line connecting origin and elastic limit

Correct Answer:- Option-B

Question22:-The possible value of Poisson's ration (μ) lies between

A:--1 to 0.5

B:-0.25 to 0.5

C:-0.5 to 1

D:--0.5 to 0.25

Correct Answer:- Option-A

Question23:-If σ_x and σ_y be two unequal like principal stresses, what is the diameter of the Mohr's circle?

A:-(σ_x +σ_y)/2

B:-(σ_x - σ_y)/2

C:-σ_x + σ_y

D:-σ_x - σ_y

Correct Answer:- Option-D

Question24:-If a trapezium has an upper side of 3 m and lower base of 9 m and a height of 12 m, what is the distance from the upper side to centroid?

A:-7 m

B:-5 m

C:-6 m

D:-8 m

Correct Answer:- Option-A

Question25:-A simply supported beam with a length of L has a uniformly distributed load W per unit length. What is the expression for the maximum bending moment?

A:-(Wl^2)/2

B:-(Wl^3)/16

C:-(Wl^2)/8

D:-(Wl^2)/16

Correct Answer:- Option-C

Question26:-In a binary alloy system, the eutectic point is,

A:-The point at which the liquid solution of fixed composition solidifies at constant temperature forms a mixture of two or more solid phases without an intermediate pasty stage

B:-The temperature at which any one of the elements solidifies

C:-The point at which solid phase is converted into two or more intimately mixed solid on cooling

D:-The point at which a solid phase reacts with second solid phase to produce third solid phase on cooling

Correct Answer:- Option-A

Question27:-Which alloying element is used most by percentage in producing maraging steel?

A:-Carbon

B:-Nickel

C:-Manganese

D:-Chromium

Correct Answer:- Option-B

Question28:-Which among the following thermosetting plastic have the highest softening point temperature?

A:-HDPE

B:-Flexible PVC

C:-PTFE

D:-PMMA

Correct Answer:- Option-C

Question29:-What is the chromium content percentage for high speed tool steel?

A:-1%

B:-4%

C:-18%

D:-8%

Correct Answer:- Option-B

Question30:-Diffusion elements in cyaniding process are

A:-Carbon + Nitrogen

B:-Carbon + Chromium

C:-Nitrogen + Chromium

D:-Carbon + Aluminium

Correct Answer:- Option-A

Question31:-Which of the following statement is/are correct about First Angle Projection?
(i) Top view is always drawn above XY - line
(ii) Distance of top view from XY-line is equal to the distance of the object from vertical plane
(iii) Top view is always drawn below XY-line

A:-Only (i)

B:-Only (ii) and (iii)

C:-Only (iii)

D:-Only (i) and (ii)

Correct Answer:- Option-B

Question32:-Which of the following statement is/are correct about Welded and riveted joints?
(i) Single welded V-joint is less reliable than square butt joint
(ii) Welded assemblies are tight and leak proof as compared with riveted assemblies
(iii) Welding results in thermal distortion of the parts, thereby inducing residual stresses.

A:-Only (i)

B:-Only (ii)

C:-Only (ii) and (iii)

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

Correct Answer:- Option-C

Question33:-For maximum power transmitted the Centrifugal tension in a belt is equal to

A:-3 Times the maximum tension in the belt

B:-4 Times the maximum tension in the belt

C:-1/3rd of maximum tension in the belt

D:-1/4th of maximum tension in the belt

Correct Answer:- Option-C

Question34:-Size of a gear is usually specified by

A:-Circular pitch

B:-Pitch circle diameter

C:-Diametral pitch

D:-Module

Correct Answer:- Option-B

Question35:-When a right circular cone is cut by a section plane inclined to the axis of cone and cutting all the generators, the resulting conic section is called

A:-Parabola

B:-Circle

C:-Ellipse

D:-Hyperbola

Correct Answer:- Option-C

Question36:-Which of the following statement is/are correct about TIG welding?
(i) For TIG welding of nonferrous alloys, an ac power source is most suitable
(ii) For TIG welding of ferrous alloys, reverse polarity dc power source is better
(iii) In TIG welding non consumable Tungsten electrode is used

A:-Only (i)

B:-Only (ii) and (iii)

C:-Only (iii)

D:-Only (i) and (iii)

Correct Answer:- Option-D

Question37:-Which of the following statement related to turning is/are correct?
(i) Turning in lathe produces a cone-shaped or cylindrical surface
(ii) The finish turning operation requires low cutting speed, small feed and a very small depth of cut to generate a smooth surface
(iii) Taper turning by setting over the tailstock method is suitable for turning small taper on long jobs.

A:-Only (i)

B:-Only (i) and (iii)

C:-Only (iii)

D:-Only (i) and (ii)

Correct Answer:- Option-B

Question38:-Which of the following statement related to milling is/are correct?
(i) In upmilling cutter rotates in a direction opposite to that in which work is fed
(ii) The cutting forces in upmilling are generally directed upwards
(iii) The chip thickness in upmilling is zero at the start of the cut and maximum at the end

A:-Only (i)

B:-Only (i) and (iii)

C:-Only (iii)

D:-Only (i) and (ii)

Correct Answer:- Option-D

Question39:-Two streams of liquid metal which are not hot enough to fuse properly result into a casting defect known as

A:-Cold shut

B:-Swell

C:-Sand wash

D:-Scab

Correct Answer:- Option-A

Question40:-Consider the following statements :
The strength of a single point cutting tool depends upon.
(i) Rake angle
(ii) Clearance angle
(iii) Lip angle
Which of the following statements are correct?

A:-(i) and (iii)

B:-(ii) and (iii)

C:-(i) and (ii)

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

Correct Answer:- Option-D

Question41:-When the temperature of intake air is lowered in I.C. engine, the efficiency?

A:-Increases

B:-Decreases

C:-Remains same

D:-Increases and then decreases

Correct Answer:- Option-A

Question42:-Knocking tendency in a SI engine reduces with increasing

A:-Compression ratio

B:-Supercharging

C:-Engine Speed

D:-Wall temperature

Correct Answer:- Option-C

Question43:-The ignition quality of a diesel fuel is expressed by

A:-Carbon percentage

B:-Octane number

C:-Cetane number

D:-Calorific value

Correct Answer:- Option-C

Question44:-For heating feed water, an economiser takes heat from

A:-Steam

B:-Coal

C:-Furnace

D:-Flue gas

Correct Answer:- Option-D

Question45:-Which among the following referred to a steam boiler is a boiler mounting?

A:-Economiser

B:-Air preheater

C:-Water level indicator

D:-Superheater

Correct Answer:- Option-C

Question46:-1 ton of refrigeration implies heat transfer at the rate of

A:-210 kJ/min

B:-3.5 kW

C:-210 kJ/sec

D:-Both (a) and (b)

Correct Answer:- Option-D

Question47:-What is the COP of Carnot heat pump that operates between -3°C and 27°C

A:-0.10

B:-1.1

C:-1

D:-10

Correct Answer:- Option-D

Question48:-Which of the following refrigerants has the highest freezing point?

A:-CO_2

B:-Freon-11

C:-NH_3

D:-Freon-22

Correct Answer:- Option-A

Question49:-On psychrometric chart, wet bulb temperature lines are?

A:-Horizontal

B:-Straight inclined sloping upward to right

C:-Vertical

D:-Straight inclined sloping downward to right

Correct Answer:- Option-D

Question50:-Assumption made in Fourier's law is that the heat flow

A:-Is in steady state

B:-Through a solid medium in one direction

C:-The material must be homogenous and isotropic

D:-All the above

Correct Answer:- Option-D

Question51:-Two resistance of equal value when connected in parallel give an equivalent resistance of 2 Ω. If these resistors are connected in series, the equivalent resistance will be

A:-2 Ω

B:-8 Ω

C:-4 Ω

D:-10 Ω

Correct Answer:- Option-B

Question52:-Which of the following is not the expression for power?

A:-I^2R

B:-VI

C:-$\frac{V^2}{R}$

D:-$\frac{V}{R^2}$

Correct Answer:- Option-D

Question53:-Algebraic sum of currents meeting at a junction in an electric circuit is

A:-Sum of all the currents

B:-Sum of incoming currents

C:-Sum of outgoing currents

D:-Zero

Correct Answer:- Option-D

Question54:-An electric heater of 2000 W is used for 20 minutes in a day. How much energy is utilized for 9 days?

A:-0.6 unit

B:-6 unit

C:-600 unit

D:-60 unit

Correct Answer:- Option-B

Question55:-Two resistors R_1 & R_2 connected in parallel. Current flowing through R_1 is I_1 amps and that of R_2 and I_2 amps. Total current flowing through the circuit is I. Calculate the current through R2 is

A:-$I_2 = \frac{IR1}{R1+R2}$

B:-$I_2 = \frac{(I1+I2)R1}{R1+R2}$

C:-$I_2 = \frac{IR2}{R1+R2}$

D:-$I_2 = \frac{(I1+I2)R2}{R1+R2}$

Correct Answer:- Option-A

Question56:-The dielectric strength of a medium

A:-Increases with moisture content

B:-Increases with increase in temperature

C:-Decreases with increase in thickness

D:-Is not affected by temperature

Correct Answer:- Option-C

Question57:-Energy stored in a capacitor is given by the expression

A:-E = CV

B:-E = $\frac{1}{2}$ CV^2

C:-E = $\frac{1}{2}$ C^2V

D:-E = $\frac{1}{2}$ C^2V^2

Correct Answer:- Option-B

Question58:-The unit of reluctance of magnetic circuit is

A:-AT/m

B:-Weber/m

C:-AT/Weber

D:-H/m

Correct Answer:- Option-C

Question59:-Lenz's law is a consequence of the law of conservation of

A:-Mass

B:-Charge

C:-Energy

D:-None of these

Correct Answer:- Option-C

Question60:-A $2_{\mu F}$ capacitor is charged to a potential difference of 100 V and then connected in parallel with an uncharged 2 $_{\mu F}$ capacitor. Calculate the potential difference across the parallel capacitors.

A:-40 V

B:-200 V

C:-50 V

D:-100 V

Correct Answer:- Option-C

Question61:-The RMS value of the voltage given as v + 6 + 6 sin $(314t + \pi/6)$ is _____

A:-$\sqrt{45}$

B:-$\sqrt{54}$

C:-$6\sqrt{2}$

D:-6

Correct Answer:- Option-B

Question62:-The ratio of the RMS value to the Average value is called _____

A:-Peak factor

B:-Form factor

C:-Amplitude

D:-Instantaneous value

Correct Answer:- Option-B

Question63:-In capacitive AC circuit

A:-Current lags voltage

B:-Current leads voltage

C:-Current in phase with voltage

D:-Voltage leads current

Correct Answer:- Option-B

Question64:-For a three phase Star connected ac system, which of the followings statements are true.
(I) Line current = Phase current
(II) Line current = $\sqrt{3}_{\times\epsilon}$Phase Current
(III) Line voltage = Phase Voltage
(IV) Line Voltage = $\sqrt{3}_{\times\epsilon}$Phase Voltage

A:-Statements I and III only

B:-Statements I and IV only

C:-Statements II and III only

D:-Statements II and IV only

Correct Answer:- Option-B

Question65:-A solenoid of resistance 50 $_{\Omega\epsilon}$and inductance 10 mH connected an 230 V, 50 Hz AC power supply. Its inductive reactance is _____

A:-0.318 $_{\Omega\epsilon\epsilon}$

B:-3.14 $_{\Omega}$

C:-3.18 $_{\Omega}$

D:-10.48 $_{\Omega}$

Correct Answer:- Option-B

Question66:-Maxwell bridge is used to measure

A:-Inductance

B:-Resistance

C:-Capacitance

D:-Frequency

Correct Answer:- Option-A

Question67:-In two wattmeter method of power measurement, one wattmeter reads twice the other. The Power factor of the load is _____

A:-0

B:-0.5

C:-0.866

D:-1

Correct Answer:- Option-C

Question68:-Two 100 Hz sinusoidal waves are given to a CRO and the two possible conditions of Lissajous pattern are :
(I) A straight line 45◦ inclined with respect to X-axis
(II) A circle
Then the phase difference of the given sinusoidal waves are _____

A:-0◦ and 90◦

B:-90◦ and 0◦

C:-0◦ and 45◦

D:-90◦ and 45◦

Correct Answer:- Option-A

Question69:-Insulation Resistance can be measured using _____

A:-Multimeter

B:-Clampmeter

C:-Pyrheliometer

D:-Meggar

Correct Answer:- Option-D

Question70:-If an energy meter disc makes 10 revolutions in 200 sec when a load of 450 W is connected, its meter constant is _____

A:-200 rev/kWh

B:-400 rev/kWh

C:-600 rev/kWh

D:-1200 rev/kWh

Correct Answer:- Option-B

Question71:-Which approach best reduces the risk of severe injury to a bystander during an electrical shock rescue?

A:-Immediately grab the person and pull them away

B:-Always pour water on the victim to cool burns.

C:-Do not touch the victim until the source of electricity is removed or isolated

D:-Remove clothing before checking airway

Correct Answer:- Option-C

Question72:-For safe transportation and portable use of rechargeable Li-ion cells, which standard is commonly referenced internationally?

A:-IEC 62133

B:-ISO 9001

C:-Only manufacturer's pamphlet; no international standard exists

D:-NFPA 70

Correct Answer:- Option-A

Question73:-Which condition most strongly accelerates capacity fade and internal

resistance rise in lead-acid batteries used for PV storage?

A:-Operating at moderate temperature with shallow depth of discharge

B:-Frequent deep discharges and prolonged undercharge

C:-Always keeping at full float voltage 24/7 with minimal discharge

D:-Repeatedly charging at C/100

Correct Answer:- Option-B

Question74:-Two identical 12 V lead-acid batteries (100 Ah each) are put in parallel to increase capacity. Immediately after paralleling, a technician measures a transient current spike of 25 A between the two battery terminals before it settles. Which explanation is most appropriate?

A:-This is impossible; identical batteries cannot have any current between them

B:-The current indicates a short circuit

C:-Paralleling always creates steady 25 A currents.

D:-Slight differences in state-of-charge and internal resistance cause equalization currents

Correct Answer:- Option-D

Question75:-A PV module datasheet lists Voc = 38.0 V at 25°C and a temperature coefficient of -0.3%/°C (for Voc). What is the expected Voc of that module at -10°C (cold temp)? (Round to two decimals)

A:-34.12 V

B:-41.99 V

C:-38.00 V

D:-42.76 V

Correct Answer:- Option-B

Question76:-In a typical control circuit, a SPDT switch is used instead of SPST when :

A:-Only one output condition is needed

B:-The designer wants to reduce cost

C:-The switch will only ever be used in ON/OFF mode

D:-The circuit needs to select between two outputs with a single actuator

Correct Answer:- Option-D

Question77:-In a wiring system, derating factors reduce the percentage of nominal conductor current rating. Which of the following scenarios would require a derating of the conductor rating?

A:-The cable is installed in ambient temperature of 30°C, only one conductor in free air

B:-The cable is installed grouped with five other current-carrying conductors in a conduct in a 50°C ambient

C:-The cable is in free air and well ventilated

D:-The cable is underground with no thermal insulation over it

Correct Answer:- Option-B

Question78:-A supply circuit uses a 10 mm^2 copper conductor in free air at 30°C, rated by manufacturer at 70 A under those conditions. However, the cable passes through a conduit containing four current-carrying conductors and ambient temp is 45°C. The derating factor for grouping is 0.75 and for ambient temperature is 0.88. What is the adjusted current rating of that conductor in this installation?

A:-46 A

B:-52 A

C:-70 A

D:-59 A

Correct Answer:- Option-A

Question79:-A SPST switch is rated at 16 A/250 V AC. The lighting circuit is 230 V and draws 12A. The designer decides to use a SPST switch only as the ON/OFF control and down-stream a contactor handles the load. What is the current flowing through the switch? And is the rating acceptable?

A:-~12 A; no not acceptable

B:-~12 A; yes acceptable

C:-~16 A; yes acceptable

D:-~16 A; no not acceptable

Correct Answer:- Option-B

Question80:-In a distribution board, a 100 A HRC fuse has been used upstream and a 63 A HRC fuse downstream. Under a fault of 80 A, which fuse will blow first (assuming coordination)? Also, if the 63 A fuse $I^2t = 2500\ A^2.s$ and 100 A fuse $I^2t = 5000\ A^2.s$, what is the ratio of let-through energy 63 A vs 100 A fuse at 80 A fault? (approximately)

A:-63 A fuse blows first; ratio ~ 1 : 2

B:-100 A fuse blows first; ratio ~ 2 : 1

C:-63 A fuse blows first; ratio ~ 2 : 1

D:-100 A fuse blows first; ratio ~ 1 : 2

Correct Answer:- Option-A

Question81:-Which of the following statement/s is/are true for interpoles in DC Generator?

I. Interpole winding consisting of a few turns of thick wire
II. Interpole winding connected in series with armature
III. Interpole winding consisting of a more turns of thin wire
IV. Interpole winding connected in Parallel with field winding.

A:-I is true

B:-II is true

C:-I and II are true

D:-III and IV are true

Correct Answer:- Option-C

Question82:-Which of the following statements are true for armature core in DC generator?

I. It is cylindrical shaped circular sheet steel disc or laminations.
II. Slots are either die-cut or punched on the inner periphery of the disc.
III. Slots are either die-cut or punched on the outer periphery of the disc.
IV. It provides low reluctance path to the flux.

A:-I and II are true

B:-I and III are true

C:-III and IV are true

D:-I, III and IV are true

Correct Answer:- Option-C

Question83:-Which of the following is correct for commutator segments in DC generator?

A:-The segment have V-grooves, these grooves being insulated by conical micanite rings

B:-The segments are mounted on the spindle and it can slide in the rectangular box open both ends

C:-A flexible copper pigtail mounted at the top of the segment

D:-It is spherical in structure having high permeability hard-drawn steel

Correct Answer:- Option-A

Question84:-In a break test on a DC shunt motor runs at 1500 rpm, the tensions on the two sides of the break were 2.75 kg and 0.25 kg. Radius of the pulley is 10 cm. Input current is 2 ampere at 250 volt. Find the efficiency of the DC shunt motor? [Hint (2 π*€1500)/60 = 157]

A:-67%

B:-72%

C:-77%

D:-92%

Correct Answer:- Option-C

Question85:-A 200 volt, shunt motor develops an output of 17.625 KW when taking 20.8 KW. The field resistance is 50 Ω€and armature resistance is 0.05 Ω.€€What is the efficiency when power output is 8 KW?

A:-70%

B:-74.07%

C:-80%

D:-84.07%

Correct Answer:- Option-B

Question86:-Which of the following best defines the detect torque of a stepper

motor?

A:-Maximum torque which the unenergized stepper motor can withstand without slipping

B:-Minimum torque which the unenergized stepper motor can with stand without slipping

C:-Maximum load torque which the energized stepper motor can withstand without slipping from equilibrium position

D:-Minimum load torque which the energized stepper motor can withstand without slipping from equilibrium position

Correct Answer:- Option-A

Question87:-Which of the following option is/are true?
i. Permanent Magnet Synchronous motors can generate torque at zero speed
ii. The windage loss in Permanent Magnet Synchronous motors are reduced due to larger air gap length
iii. Most of the Permanent Magnet Synchronous Motors are of cylindrical type

A:-i only

B:-i and ii only

C:-ii only

D:-i and iii only

Correct Answer:- Option-A

Question88:-Which of the following parameter is used to control the speed of a servo motor?

A:-Current

B:-Error signal

C:-Voltage

D:-Position

Correct Answer:- Option-C

Question89:-Which of the following factor largely determines the operating point of the permanent magnet in the no-load operating conditions of a Permanent Magnet Synchronous Motor?

A:-Shape of the Armature windings

B:-Shape of poles

C:-Length of air gap

D:-Position of the damping ring

Correct Answer:- Option-C

Question90:-Which of the following best describes the constructional feature of a servo motor?

A:-Small diameter and small rotor length

B:-Small diameter and long rotor length

C:-Long diameter and small rotor length

D:-Long diameter and long rotor length

Correct Answer:- Option-B

Question91:-The octal equivalent of binary number 111010010101.1011 is

A:-7225.54

B:-3733.6775

C:-7214.54

D:-None of the above

Correct Answer:- Option-A

Question92:-Which of the following statement is/are correct about logic gates :
(i) AND gate can be realised using 3 number of NOR gate.
(ii) EX-NOR gate can be realised using 5 number of NOR gate.

A:-(i)

B:-(ii)

C:-(i) and (ii)

D:-None of these

Correct Answer:- Option-A

Question93:-The output Carry and Sum bit of full Adder with input A = 1, B = 1 and C = 1 are

A:-Carry = 1, Sum = 11

B:-Carry = 1, Sum = 0

C:-Carry = 1, Sum = 1

D:-Carry = 0, Sum = 11

Correct Answer:- Option-C

Question94:-If four D flipflops are available in a single chip, then how many chips are needed to design mod 258 counter

A:-8

B:-9

C:-2

D:-3

Correct Answer:- Option-D

Question95:-A 2 MHz square wave clocks a mod-64 ripple counter. The time period of output of fifth flipflop is _____ micro-seconds.

A:-4

B:-8

C:-16

D:-32

Correct Answer:- Option-C

Question96:-The typical value of intrinsic stand off ratio of Uni Junction Transistor (UJT) lies between

A:-0.51 to 0.82

B:-0.01 to 0.12

C:-1.1 to 1.5

D:-0.25 to 0.32

Correct Answer:- Option-A

Question97:-The ratio of output voltage frequency of half-wave rectifier (without filter, load is resistive) and output voltage frequency of full wave rectifier (without filter, load is resistive) when same AC input is applied to both rectifiers is _____

A:-1 : 1

B:-1 : 2

C:-2 : 1

D:-2 : 3

Correct Answer:- Option-B

Question98:-What is the peak inverse voltage of a diode in a single-phase half-wave rectifier with capacitor filter?

A:-Peak input voltage

B:-2 ×Peak input voltage

C:-3 ×Peak input voltage

D:-0.5 ×Peak input voltage

Correct Answer:- Option-B

Question99:-A Thyristor has a peak repetitive reverse voltage of 650 V. The rms value of input voltage is 230 V. Then the Voltage safety factor is

A:-2.82

B:-0.353

C:-2

D:-3

Correct Answer:- Option-C

Question100:-Number of terminal in a Diac is _____

A:-1

B:-4

C:-3

D:-2

Correct Answer:- Option-D