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| Test Date | 28/11/2022                   |
| Test Time | 4:30 PM - 6:30 PM            |
| Subject   | Junior Engineer (Electrical) |

Section : **Discipline1**

Q.1 Convert  $(10101)_2$  in to equivalent decimal number.

- Ans
- ☒ A. 21
  - ☐ B. 25
  - ☐ C. 19
  - ☐ D. 31

Q.2 An induction motor is running at a speed of 1440 rpm with 4% slip. If the supply frequency is 50 Hz, find the number of poles.

- Ans
- ☐ A. 2
  - ☐ B. 6
  - ☐ C. 8
  - ☒ D. 4

Q.3 Zero resistivity is the property of \_\_\_\_\_.

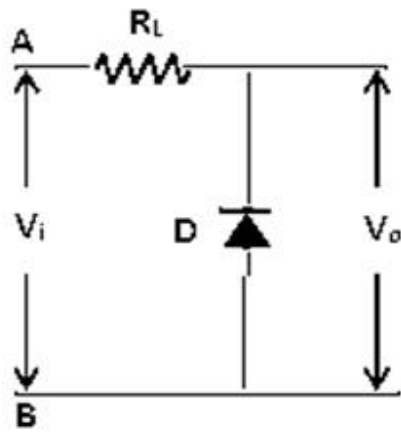
- Ans
- ☒ A. Superconductors
  - ☐ B. Conductors
  - ☐ C. Insulators
  - ☐ D. Semiconductors

Q.4 State TRUE/FALSE for following statements:

1. In common collector connection, input resistance is very high.
2. Common collector connection is most suitable for impedance matching.

- Ans
- ☒ A. 1-TRUE, 2-TRUE
  - ☐ B. 1-FALSE, 2-FALSE
  - ☐ C. 1-FALSE, 2-TRUE
  - ☐ D. 1-TRUE, 2-FALSE

Q.5 Identify following circuit:



- Ans
- ☐ A. Positive shunt clipper
  - ☒ B. Negative shunt clipper
  - ☐ C. Negative series clipper
  - ☐ D. Positive series clipper

Q.6 Ohm's law is applicable only for \_\_\_\_\_.

- Ans
- ☐ A. Non-metallic conductors
  - ☐ B. Zener diodes
  - ☐ C. Voltage regulator tubes
  - ☒ D. Metallic conductors at constant temperature

Q.7 Inverter gate means \_\_\_\_\_.

- Ans
- ☐ A. NOR gate
  - ☐ B. X-NOR gate
  - ☐ C. NAND gate
  - ☒ D. NOT gate

Q.8 Which of the following quantity is measured in joules?

- Ans
- ☒ A. Energy
  - ☐ B. Current
  - ☐ C. Voltage
  - ☐ D. Power

Q.9 Find the maximum possible value of the mutual inductance between two coils having their self-inductances of 16 H and 9 H.

- Ans
- ☐ A. 25 H
  - ☒ B. 12 H
  - ☐ C. 9 H
  - ☐ D. 16 H

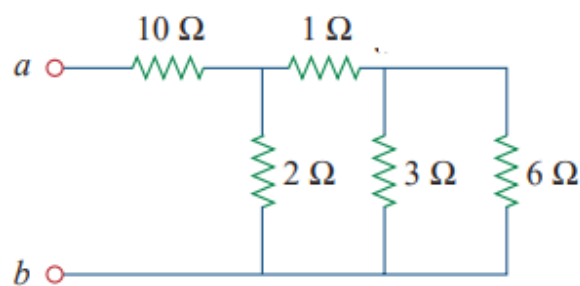
Q.10 Which off the following material has negligibly small positive temperature coefficient of resistance?

- Ans
- ☐ A. Aluminium
  - ☒ B. Manganin
  - ☐ C. Brass
  - ☐ D. Nickel

Q.11 A  $\pi$ -filter is consisting of \_\_\_\_\_ inductors and \_\_\_\_\_ capacitors, respectively.

- Ans
- ☐ A. 1, 1
  - ☐ B. 2, 1
  - ☒ C. 1, 2
  - ☐ D. 2, 2

Q.12 Find the equivalent resistance between terminals 'a' and 'b':



- Ans
- ☐ A.  $12\ \Omega$
  - ☒ B.  $11.2\ \Omega$
  - ☐ C.  $5.6\ \Omega$
  - ☐ D.  $22\ \Omega$

Q.13 In a common base connection,  $I_B = 0.05\ \text{mA}$  and  $I_E = 1\ \text{mA}$ . Find the current amplification factor.

- Ans
- ☐ A. 0.05
  - ☐ B. 0.50
  - ☒ C. 0.95
  - ☐ D. 1.00

Q.14 Which of the following is WRONG for base resistor biasing?

- Ans
- ☐ A. No loading of source due to biasing circuit
  - ☒ B. Excellent stabilization
  - ☐ C. Simple circuit
  - ☐ D. Poor thermal stability

Q.15 Which of the following material will have highest resistivity?

- Ans
- ☐ A. Silicon
  - ☒ B. Plastic
  - ☐ C. Aluminium
  - ☐ D. Silver

Q.16 An e.m.f. of 10 V is induced in a coil when the current flowing through it changes at the rate of 1 A/sec. Calculate the self inductance of coil.

- Ans
- ☐ A. 0.1 H
  - ☒ B. 10 H
  - ☐ C. 1.0 H
  - ☐ D. 100 H

Q.17 Convert  $(110101.101010)_2$  in to equivalent octal number.

- Ans
- ☒ A.  $(65.52)_8$
  - ☐ B.  $(65.25)_8$
  - ☐ C.  $(56.52)_8$
  - ☐ D.  $(56.25)_8$

Q.18 An LED which is made of gallium arsenide will give \_\_\_\_\_ light.

- Ans
- ☐ A. White
  - ☐ B. Green
  - ☐ C. Blue
  - ☒ D. Red

Q.19 \_\_\_\_\_ diode works as a voltage-controlled capacitance.

- Ans
- ☐ A. Photo diode
  - ☒ B. Varactor diode
  - ☐ C. Zener diode
  - ☐ D. Tunnel diode

Q.20 In a transistor circuit, collector load is 5 k $\Omega$  and zero signal collector current is 1 mA. What will be the operating point if  $V_{CC} = 10$  V.

- Ans
- ☐ A. 4 V, 0.1 mA
  - ☒ B. 5 V, 1 mA
  - ☐ C. 5 V, 0.1 mA
  - ☐ D. 4 V, 1 mA

Section : Discipline2

Q.1 After an addition of 2 numbers, if the sum in the accumulator is larger than 8 bits, \_\_\_\_\_ flag is set.

- Ans
- ☐ A. Parity
  - ☐ B. Sign
  - ☒ C. Carry
  - ☐ D. Zero

Q.2 In which part of the thermal power plant water is converted into steam by utilizing the heat of coal combustion?

- Ans
- ☐ A. Economizer
  - ☒ B. Boiler
  - ☐ C. Super heater
  - ☐ D. Condenser

Q.3 Which of the following is the safest wiring system?

- Ans
- ☒ A. Concealed conduit wiring
  - ☐ B. Batten wiring
  - ☐ C. Cleat wiring
  - ☐ D. Casing and capping wiring

Q.4 Which of the following part is not present in a nuclear power plant?

- Ans
- ☐ A. Turbine
  - ☒ B. Penstock
  - ☐ C. Nuclear reactor
  - ☐ D. Heat exchanger

Q.5 An AC voltage is expressed as:

$$v(t) = 500 \sin 200\pi t.$$

Calculate angular velocity.

- Ans
- ☒ A. 628 rad/sec
  - ☐ B. 157 rad/sec
  - ☐ C. 785 rad/sec
  - ☐ D. 314 rad/sec

Q.6 Commutator of DC machine is usually made up of \_\_\_\_\_.

- Ans
- ☐ A. Carbon
  - ☒ B. Hard drawn copper
  - ☐ C. Aluminium
  - ☐ D. Stainless steel

Q.7 A sinusoidal signal has a frequency of 200 Hz. Find the time period of the signal.

- Ans
- ☐ A. 20 milliseconds
  - ☒ B. 5 milliseconds
  - ☐ C. 10 milliseconds
  - ☐ D. 50 milliseconds

Q.8 Base load occurs on the power station for \_\_\_\_\_ hours in a day.

- Ans
- ☐ A. 18
  - ☐ B. 12
  - ☐ C. 6
  - ☒ D. 24

Q.9 A half adder can be realized by one \_\_\_\_\_ gate and one \_\_\_\_\_ gate.

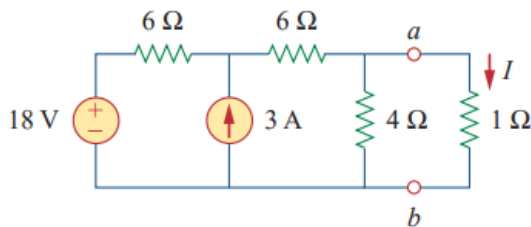
- Ans
- ☒ A. XOR, AND
  - ☐ B. AND, OR
  - ☐ C. NAND, XOR
  - ☐ D. OR, NAND

Q.10 State TRUE/FALSE for following statements with reference to thermal power plant:

1. Water tube boilers are preferable over fire tube boilers.
2. Superheater reduces the overall efficiency of the plant.

- Ans
- ☐ A. 1-FALSE, 2-TRUE
  - ☐ B. 1-TRUE, 2-TRUE
  - ☐ C. 1-FALSE, 2-FALSE
  - ☒ D. 1-TRUE, 2-FALSE

Q.11 If the circuit to the left of the terminals 'a' and 'b' is replaced with the Thevenin's equivalent circuit, what will be  $R_{TH}$ ?



- Ans
- ☐ A.  $12\ \Omega$
  - ☐ B.  $9\ \Omega$
  - ☐ C.  $6\ \Omega$
  - ☒ D.  $3\ \Omega$

Q.12 Identify the switch shown in following symbol:

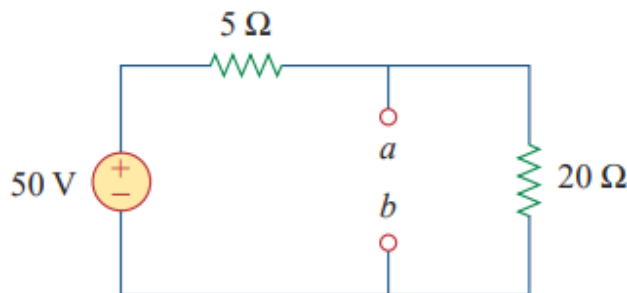


- Ans
- ☐ A. DPST
  - ☐ B. DPDT
  - ☐ C. SPST
  - ☒ D. SPDT

Q.13 In order to discharge the surplus water from the storage reservoir into the river on the down-stream side of the dam, \_\_\_\_\_ are used.

- Ans
- ☒ A. Spillways
  - ☐ B. Headworks
  - ☐ C. Surge tanks
  - ☐ D. Penstocks

Q.14 Find the Norton's current through terminals 'a' and 'b' in following circuit:



- Ans
- ☐ A. 7.5 A
  - ☐ B. 5.0 A
  - ☒ C. 10 A
  - ☐ D. 2.5 A

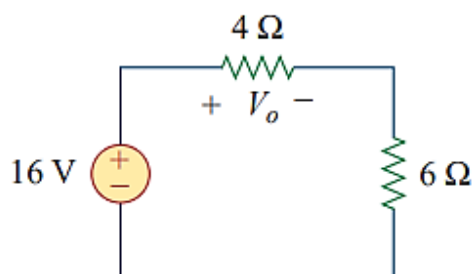
Q.15 In 8085 microprocessor, which of the following is not a logical instruction?

- Ans
- ☐ A. RRC
  - ☐ B. CMA
  - ☒ C. HLT
  - ☐ D. RAL

Q.16 Which of the following wire size has lowest current carrying capacity?

- Ans
- ☒ A. 20 SWG
  - ☐ B. 14 SWG
  - ☐ C. 10 SWG
  - ☐ D. 6 SWG

Q.17 Calculate  $V_o$  in following circuit:

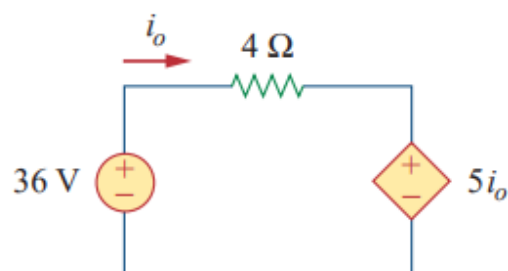


- Ans
- ☒ A. 6.4 V
  - ☐ B. 4.8 V
  - ☐ C. 3.2 V
  - ☐ D. 8.0 V

Q.18 Which of the following relation is wrong in case of transformer?

- Ans
- ☒ A.  $N_1 I_1 = N_2 I_2$
  - ☒ B.  $V_1 V_2 = I_1 I_2$
  - ☒ C.  $V_1 N_2 = N_1 V_2$
  - ☒ D.  $V_1 I_1 = V_2 I_2$

Q.19 Find the current ' $i_o$ ' in following circuit:



- Ans
- ☒ A. 6.0 A
  - ☒ B. 3.6 A
  - ☒ C. 5.4 A
  - ☒ D. 4.0 A

Q.20 Which of the following load curve is generally used to determine the annual load factor of power plants?

- Ans
- ☒ A. Hourly load curve
  - ☒ B. Daily load curve
  - ☒ C. Yearly load curve
  - ☒ D. Monthly load curve

Section : Discipline3

Q.1 An 8-pole, lap-connected armature has 40 slots with 12 conductors per slot generates a voltage of 500 V. find the speed with which it is running if the flux per pole is 50 mWb.

- Ans
- ☒ A. 750 rpm
  - ☒ B. 1250 rpm
  - ☒ C. 2500 rpm
  - ☒ D. 1750 rpm

Q.2 A transformer with 800 primary turns and 200 secondary turns is supplied from a 100 V a. c. supply. Calculate volts per turn in secondary.

- Ans
- ☒ A. 0.125
  - ☒ B. 12.5
  - ☒ C. 125
  - ☒ D. 1.25

Q.3 Which of the following is NOT a three-terminal device?

- Ans
- ☐ A. SCR
  - ☐ B. TRIAC
  - ☐ C. UJT
  - ☒ D. DIAC

Q.4 Thermopile is nothing but a series connection of \_\_\_\_\_.

- Ans
- ☐ A. Thermistors
  - ☐ B. RTDs
  - ☒ C. Thermocouples
  - ☐ D. Strain gauges

Q.5 The speed of a DC shunt motor \_\_\_\_\_ with the increase in armature current.

- Ans
- ☐ A. Increases exponentially
  - ☐ B. Decreases exponentially
  - ☐ C. Increases linearly
  - ☒ D. Decreases linearly

Q.6 In a chopper circuit, input voltage is 100 V and output voltage is 75 V. Find the duty cycle.

- Ans
- ☐ A. 0.25
  - ☐ B. 1.00
  - ☐ C. 0.50
  - ☒ D. 0.75

Q.7 In SCR based circuits, snubber circuit is provided for the purpose of \_\_\_\_\_.

- Ans
- ☒ A.  $\frac{dv}{dt}$  protection
  - ☐ B.  $\frac{di}{dt}$  protection
  - ☐ C.  $\frac{dq}{dt}$  protection
  - ☐ D.  $\frac{dw}{dt}$  protection

Q.8 Which of the following is a doubly excited machine?

- Ans
- ☐ A. DC shunt motor
  - ☐ B. DC compound motor
  - ☒ C. Synchronous motor
  - ☐ D. DC series motor

Q.9 Chromel-Alumel thermocouple is commercially known as \_\_\_\_\_ thermocouple.

- Ans
- ☐ A. B-Type
  - ☐ B. R-Type
  - ☐ C. J-Type
  - ☒ D. K-Type

Q.10 Cycloconverters are used in:

- Ans
- ☐ A. DC drives
  - ☐ B. UPS
  - ☒ C. AC motor drives
  - ☐ D. Regulated power supply

Q.11 Which of the following is WRONG in case of a cylindrical rotor alternator?

- Ans
- ☒ A. Non-uniform air gap
  - ☐ B. Less windage losses
  - ☐ C. Greater mechanical strength
  - ☐ D. Less noisy operation

Q.12 McMurray-Bedford inverter is \_\_\_\_\_.

- Ans
- ☐ A. Auxiliary commutated inverter
  - ☐ B. Load commutated inverter
  - ☐ C. Line commutated inverter
  - ☒ D. Impulse commutated inverter

Q.13 In a single-phase semi converter the firing angle is ' $\alpha$ '. For continuous conduction, each SCR conducts for a period of \_\_\_\_\_.

- Ans
- ☒ A.  $\pi - \alpha$
  - ☐ B.  $\pi + \alpha$
  - ☐ C.  $2\alpha$
  - ☐ D.  $\pi$

Q.14 In transformer, if the load is \_\_\_\_\_, the voltage regulation is zero.

- Ans
- ☐ A. Inductive
  - ☒ B. Capacitive
  - ☐ C. Resistive or inductive
  - ☐ D. Resistive

Q.15 Which of the following method of triggering an SCR is most widely used?

- Ans
- ☐ A. Forward voltage triggering
  - ☐ B. Light triggering
  - ☐ C. Thermal triggering
  - ☒ D. Gate triggering

Q.16 Which of the following is a light dependent resistive sensor?

- Ans
- ☒ A. LDR
  - ☐ B. RTD
  - ☐ C. Thermistor
  - ☐ D. Strain gauge

Q.17 Which of the following is WRONG for single-phase motors when compared with 3-phase induction motors?

- Ans
- ☐ A. Low starting torque
  - ☒ B. High efficiency
  - ☐ C. Low power factor
  - ☐ D. Simple and robust construction

Q.18 Which flowmeter must be mounted vertically for fluid flow measurement?

- Ans
- ☒ A. Rotameter
  - ☐ B. Orifice meter
  - ☐ C. Venturi meter
  - ☐ D. Turbine flowmeter

Q.19 Which of the following component is not used in Jones chopper?

- Ans
- ☐ A. Capacitor
  - ☐ B. Diode
  - ☒ C. Saturable reactor
  - ☐ D. Auxiliary thyristor

Q.20 Stefan Boltzmann law states that the total amount of radiation energy emitted from the surface is \_\_\_\_\_ of its absolute temperature.

- Ans
- ☐ A. inversely proportional to the fourth power
  - ☒ B. directly proportional to the fourth power
  - ☐ C. inversely proportional to the square
  - ☐ D. directly proportional to the square

Section : Discipline4

Q.1 0.5 Torr = \_\_\_\_\_ micron

- Ans
- ☐ A. 5
  - ☐ B. 5000
  - ☒ C. 500
  - ☐ D. 50

Q.2 Express the sinusoid as phasor:

$$i(t) = 7 \cos (2t + 40^\circ).$$

- Ans
- ☒ A.  $14 \angle 20^\circ$  A
  - ☒ B.  $7 \angle 40^\circ$  A
  - ☒ C.  $7 \angle 20^\circ$  A
  - ☒ D.  $14 \angle 40^\circ$  A

Q.3 If a short transmission line is expressed in terms of generalized ABCD constants, then the value of line constant C is \_\_\_\_\_.

- Ans
- ☒ A. Infinity
  - ☒ B. Zero
  - ☒ C. Unity
  - ☒ D. Undefined

Q.4 A conductor carries 2 A current. What will be the number of electrons passing through the conductor in every second?

- Ans
- ☒ A.  $12.5 \times 10^{19}$
  - ☒ B.  $6.25 \times 10^{19}$
  - ☒ C.  $12.5 \times 10^{18}$
  - ☒ D.  $6.25 \times 10^{18}$

Q.5 If temperature is increased, then the resistance of \_\_\_\_\_ will increase.

- Ans
- ☒ A. Iron
  - ☒ B. Glass
  - ☒ C. Mica
  - ☒ D. Silicon

Q.6 With reference to distribution systems, state TRUE/FALSE for following statement:

1. The overhead system is much more flexible than the underground system.
2. For same size of conductors, the current carrying capacity of under ground conductor is more than overhead conductor.

- Ans
- ☒ A. 1-False, 2-True
  - ☒ B. 1-False, 2-False
  - ☒ C. 1-True, 2-False
  - ☒ D. 1-True, 2-True

Q.7 For a transmission line, the ratio of receiving end power to the sending end power of a transmission line is known as the \_\_\_\_\_.

- Ans
- ☒ A. Transmission efficiency
  - ☒ B. Transmission losses
  - ☒ C. Transmission constant
  - ☒ D. Transmission coefficient

Q.8 A coil of 9 H is mutually coupled with a coil of 16 H, If the mutual inductance between the two coils is 6H, find the coefficient of coupling.

- Ans
- ☐ A. 0.6
  - ☐ B. 0.7
  - ☒ C. 0.5
  - ☐ D. 0.8

Q.9 If a cable of homogeneous insulation has maximum stress of 5 kV/mm, then the dielectric strength of insulation should be \_\_\_\_\_

- Ans
- ☐ A. 2.5 kV/mm
  - ☐ B. 1.5 kV/mm
  - ☒ C. 5 kV/mm
  - ☐ D. 3.5 kV/mm

Q.10 Which of the following is a soft magnetic material?

- Ans
- ☒ A. Iron-silicon alloy
  - ☐ B. Tungsten steel
  - ☐ C. Carbon steel
  - ☐ D. Alnico

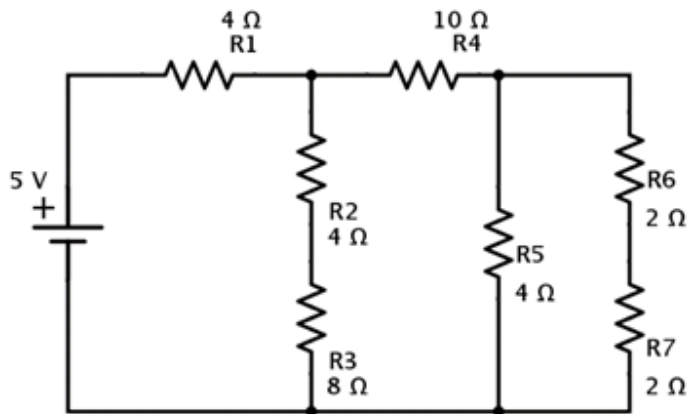
Q.11 For intrinsic semiconductors, which of the following statement is correct?

- Ans
- ☐ A. Density of electrons is less than the density of holes
  - ☐ B. Density of electrons is more than the density of holes
  - ☒ C. Density of electrons is equal to the density of holes
  - ☐ D. Trivalent or pentavalent impurity is always present.

Q.12 A \_\_\_\_\_ is a conductor which connects the sub-station (or localized generating station) to the area where power is to be distributed.

- Ans
- ☐ A. Distributor
  - ☐ B. Service mains
  - ☐ C. Fuse link
  - ☒ D. Feeder

Q.13 Find the current through the resistor  $R_1$  in following circuit:



- Ans
- ☐ A. 1.0 A
  - ☐ B. 2.0 A
  - ☒ C. 0.5 A
  - ☐ D. 0.25 A

Q.14 \_\_\_\_\_ in magnetic circuit is analogous to current in electric circuit.

- Ans
- ☐ A. Permeance
  - ☒ B. Flux
  - ☐ C. Reluctance
  - ☐ D. Magnetomotive force

Q.15 Which of the following is NOT an insulator?

- Ans
- ☐ A. Rubber
  - ☒ B. Germanium
  - ☐ C. Porcelain
  - ☐ D. Mica

Q.16 Identify the diode shown in following figure:



- Ans
- ☒ A. Photodiode
  - ☐ B. LED
  - ☐ C. Zener diode
  - ☐ D. Varactor diode

Q.17 Four transmission lines have their lengths as 30 km, 60 km, 90 km and 120 km. How many lines are medium transmission lines?

- Ans
- ☐ A. 3
  - ☐ B. 4
  - ☐ C. 1
  - ☒ D. 2

Q.18 Which of the following statement is CORRECT for magnetic circuit?

- Ans
- ☐ A. Iron is a perfect magnetic insulator.
  - ☒ B. The reluctance of magnetic circuit is not constant.
  - ☐ C. Flux cannot be set in air.
  - ☐ D. Reluctance causes the waste of energy.

Q.19 If the operating voltage is in the range from 22 kV to 33 kV, the cable is called \_\_\_\_\_.

- Ans
- ☐ A. High-tension cable
  - ☒ B. Super-tension cable
  - ☐ C. Extra high-tension cable
  - ☐ D. Extra super voltage cable

Q.20 If a  $50\ \Omega$  resistor carries 10 mA current through it, find the voltage drop across the resistor.

- Ans
- ☐ A. 50 V
  - ☐ B. 5 V
  - ☐ C. 500 V
  - ☒ D. 0.5 V

Section : Discipline5

Q.1 For a thermal power plant, thermal efficiency is 50% and electrical efficiency is 60%. Find the overall efficiency.

- Ans
- ☐ A. 55%
  - ☐ B. 40%
  - ☐ C. 70%
  - ☒ D. 30%

Q.2 Galvanized steel wire can not be used as \_\_\_\_\_.

- Ans
- ☐ A. Earth wire
  - ☐ B. Stay wire
  - ☒ C. Fuse wire
  - ☐ D. Structural component

Q.3 In hydroelectric power plant, automatic butterfly valve is provided for the protection of \_\_\_\_\_.

- Ans
- ☐ A. Dam
  - ☐ B. Spillways
  - ☒ C. Penstock
  - ☐ D. Surge tank

Q.4 Convert  $(10011101)_2$  into equivalent hexadecimal number.

- Ans
- ☐ A.  $(8D)_{16}$
  - ☐ B.  $(9E)_{16}$
  - ☒ C.  $(9D)_{16}$
  - ☐ D.  $(8E)_{16}$

Q.5 Convert  $(128)_{10}$  into equivalent binary number.

- Ans
- ☐ A.  $(10001000)_2$
  - ☒ B.  $(10000000)_2$
  - ☐ C.  $(11000000)_2$
  - ☐ D.  $(10000010)_2$

Q.6 A center-tapped full wave rectifier requires \_\_\_\_\_.

- Ans
- ☐ A. 8 diodes
  - ☐ B. 4 diodes
  - ☐ C. 1 diode
  - ☒ D. 2 diodes

Q.7 With reference to common emitter configuration of transistor, which of the following is WRONG?

- Ans
- ☐ A. High output resistance
  - ☒ B. High input resistance
  - ☐ C. Voltage gain greater than unity
  - ☐ D. Current gain greater than unity

Q.8 Following symbol is used for \_\_\_\_\_.

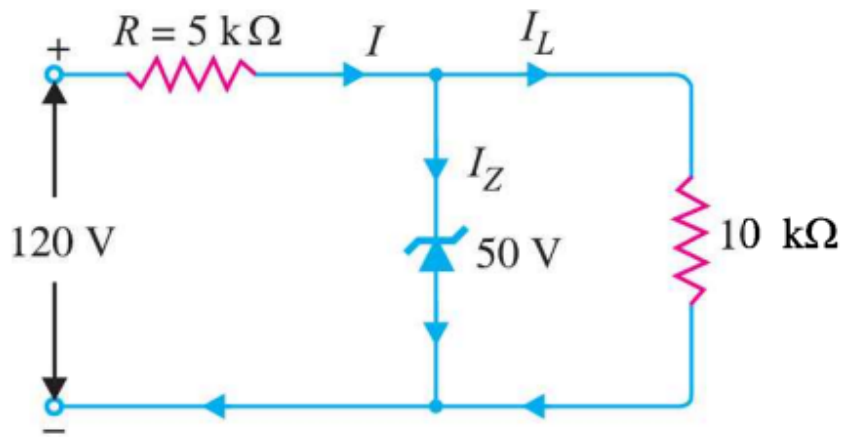


- Ans
- ☒ A. Distribution fuse board with switches
  - ☐ B. Mains fuse board with switches
  - ☐ C. Mains fuse board without switches
  - ☐ D. Distribution fuse board without switches

Q.9 \_\_\_\_\_ is an apparatus in which nuclear fuel is subjected to nuclear fission.

- Ans
- ☒ A. Nuclear reactor
  - ☐ B. Heat exchanger
  - ☐ C. Alternator
  - ☐ D. Turbine

Q.10 For the circuit shown below, find the voltage drop in series resistor R:



- Ans
- ☒ A. 60 V
  - ☒ B. 70 V
  - ☒ C. 80 V
  - ☒ D. 50 V

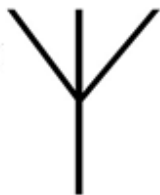
Q.11 In 8085 microprocessor, the stack pointer is a \_\_\_\_\_ register used as a memory pointer.

- Ans
- ☒ A. 4-bit
  - ☒ B. 32-bit
  - ☒ C. 16-bit
  - ☒ D. 8-bit

Q.12 The process of making operating point independent of temperature changes or variations in transistor parameters is called \_\_\_\_\_.

- Ans
- ☒ A. Stabilization
  - ☒ B. Biasing
  - ☒ C. Saturation
  - ☒ D. Amplification

Q.13 In electrical drawings following symbol is used for \_\_\_\_\_.



- Ans
- ☒ A. Earthing
  - ☒ B. Fan
  - ☒ C. Antenna
  - ☒ D. Fuse

Q.14 In 8085 microprocessor, the meaning of the instruction MOV B, C is \_\_\_\_\_.

- Ans
- ☐ A. Clear the contents of register B and register C
  - ☐ B. Transfer the contents of register B and register C to accumulator
  - ☐ C. Transfer the contents of register B to register C
  - ☒ D. Transfer the contents of register C to register B

Q.15 As compared to vacuum tube, transistor has \_\_\_\_\_.

- Ans
- ☒ A. Low power dissipation
  - ☐ B. High input impedance
  - ☐ C. Low voltage gain
  - ☐ D. High supply voltage

Q.16 How many I/O ports are available in a multipurpose programmable interface 8155?

- Ans
- ☐ A. 5
  - ☐ B. 4
  - ☒ C. 3
  - ☐ D. 6

Q.17 A two-input gate gives HIGH output only when both the inputs are LOW or HIGH at the same time. Identify the logic gate.

- Ans
- ☐ A. XOR
  - ☒ B. XNOR
  - ☐ C. NOR
  - ☐ D. OR

Q.18 Which of the following is NOT an example of combinational circuit?

- Ans
- ☒ A. Flip-flop
  - ☐ B. Encoder
  - ☐ C. Adder
  - ☐ D. Multiplexer

Q.19 Which gate is shown with following symbol?



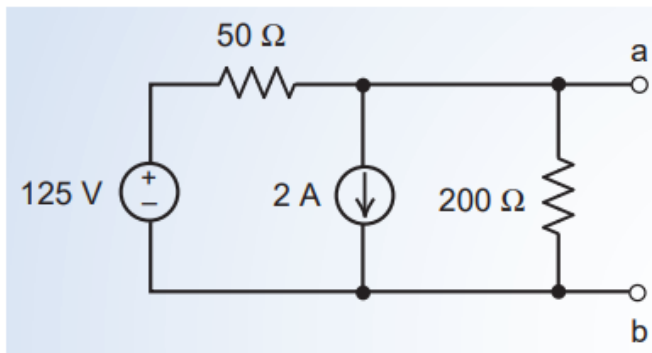
- Ans
- ☐ A. NAND
  - ☒ B. NOR
  - ☐ C. NOT
  - ☐ D. OR

Q.20 In thermal power plant, flue gases do not pass through the \_\_\_\_\_.

- Ans
- ☐ A. Air-preheater
  - ☐ B. Economizer
  - ☐ C. Superheater
  - ☒ D. Condenser

Section : Discipline6

Q.1 Find the Thevenin's voltage and Thevenin's resistance between the terminals 'a' and 'b' in following circuit:



- Ans
- ☒ A.  $V_{TH} = 20 \text{ V}$ ,  $R_{TH} = 40 \text{ } \Omega$
  - ☐ B.  $V_{TH} = 25 \text{ V}$ ,  $R_{TH} = 50 \text{ } \Omega$
  - ☐ C.  $V_{TH} = 25 \text{ V}$ ,  $R_{TH} = 40 \text{ } \Omega$
  - ☐ D.  $V_{TH} = 20 \text{ V}$ ,  $R_{TH} = 50 \text{ } \Omega$

Q.2 Find the co-factor of 3 in the given determinant.

$$\begin{vmatrix} 1 & 2 & 0 \\ -1 & 3 & 4 \\ 5 & 6 & 7 \end{vmatrix}$$

- Ans
- ☐ A. -27
  - ☒ B. 7
  - ☐ C. -4
  - ☐ D. 8

Q.3 What is the order of the majority charge carriers' electrons in silicon due to thermal excitation at 300 K?

- Ans
- ☒ A.  $10^{24}$
  - ☐ B.  $10^{16}$
  - ☐ C.  $10^{12}$
  - ☐ D.  $10^8$

Q.4 The mass of which atom is taken as the base while defining atomic mass of an element?

- Ans
- ☒ A. Carbon
  - ☐ B. Oxygen
  - ☐ C. Neon
  - ☐ D. Hydrogen

Q.5 Which of the following is NOT a valid method of speed control of dc motor?

- Ans
- ☐ A. Variation of armature voltage
  - ☐ B. Variation of field flux
  - ☒ C. Variation of load
  - ☐ D. Variation of armature resistance

Q.6 If the maximum demand on the power station is 80 MW and the demand factor is 0.8, find the connected load.

- Ans
- ☒ A. 100 MW
  - ☐ B. 80 MW
  - ☐ C. 64 MW
  - ☐ D. 120 MW

Q.7 State TRUE/FALSE with reference to the diversity factor of the power plant:

1. Diversity factor is always less than unity.
2. The greater the diversity factor, the lesser is the cost of generation of power.

- Ans
- ☐ A. 1-True, 2-True
  - ☐ B. 1-True, 2-False
  - ☒ C. 1-False, 2-True
  - ☐ D. 1-False, 2-False

Q.8 The energy of the photon released ( $E_2 - E_1$ ) is given as  $h \cdot \gamma$ , where  $\gamma$  is the frequency of the radiation. Determine the value of  $h$ .

- Ans
- ☐ A.  $8.854 \times 10^{-34} \text{ Js}$
  - ☐ B.  $6.623 \times 10^{-24} \text{ Js}$
  - ☐ C.  $8.854 \times 10^{-24} \text{ Js}$
  - ☒ D.  $6.623 \times 10^{-34} \text{ Js}$

Q.9 For a single-phase half wave controlled rectifier with resistive load and supplied through a 230 V, 50 Hz supply, the maximum value of output voltage is \_\_\_\_\_.

- Ans
- ☐ A.  $\frac{230}{2\pi}$
  - ☐ B.  $\frac{230\sqrt{2}}{2\pi}$
  - ☐ C.  $\frac{115\sqrt{2}}{\pi}$
  - ☒ D.  $\frac{230\sqrt{2}}{\pi}$

Q.10 Find the value of 'a' so that the given matrix is singular.

$$\begin{bmatrix} 1 & -2 & 0 \\ 2 & a & 4 \\ 2 & 1 & 1 \end{bmatrix}$$

- Ans
- ☐ A. 2
  - ☒ B. 16
  - ☐ C. 4
  - ☐ D. 1

Q.11 Find the coefficient of  $x^6y^3$  in the expansion of  $(x + 2y)^9$ .

- Ans
- ☒ A. 672
  - ☐ B. 1354
  - ☐ C. 336
  - ☐ D. 2016

Q.12 Calculate the molality of a solution containing 4 g of sodium hydroxide (NaOH) in 500 g of water. (Molecular mass of sodium hydroxide = 40.)

- Ans
- ☐ A. 8 m
  - ☐ B. 0.8 m
  - ☒ C. 0.2 m
  - ☐ D. 2 m

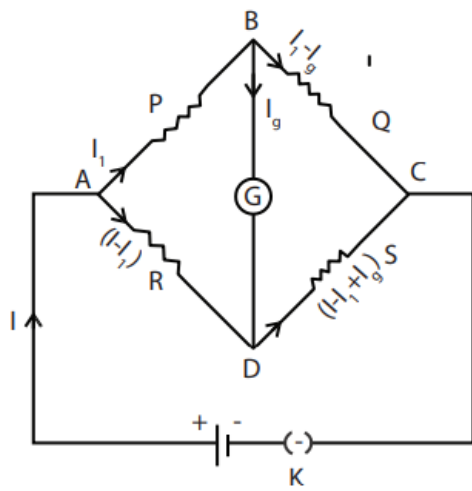
Q.13 Usually the field winding of a DC shunt machine has a \_\_\_\_\_ number of turns and \_\_\_\_\_ cross sectional area.

- Ans
- ☐ A. Large, large
  - ☐ B. Small, small
  - ☒ C. Large, small
  - ☐ D. Small, large

Q.14 Sterilisation is the process of killing the bacteria. It is done by:

- Ans
- ☐ A. oxidation
  - ☐ B. reduction
  - ☐ C. osmosis
  - ☒ D. chlorination

Q.15



Derive the relation between the resistances P, Q, R and S by applying Kirchhoff's laws to the given Wheatstone bridge.

Ans

- ☒ A.  $\frac{P}{S} = \frac{Q}{R}$
- ☒ B.  $\frac{P}{Q} = \frac{R}{S}$
- ☒ C.  $\frac{P}{S} = \frac{R}{Q}$
- ☒ D.  $\frac{S}{Q} = \frac{P}{R}$

Q.16 निम्नलिखित में से कौन सा लकड़ी से कोयले के निर्माण का पहला चरण है?

Ans

- ☒ A. बिटुमेनी कोयला
- ☒ B. पीट
- ☒ C. ऐन्थ्रासाइट कोयला
- ☒ D. लिग्नाइट

Q.17 How many electrons can be accommodated in the M cell of an atom?

Ans

- ☒ A. 2
- ☒ B. 18
- ☒ C. 8
- ☒ D. 32

Q.18 If the maximum demand on the plant is equal to the plant capacity, then the reserve capacity of the plant will be \_\_\_\_\_.

Ans

- ☒ A. 10%
- ☒ B. 20%
- ☒ C. Zero
- ☒ D. 50%

Q.19



The given symbol represents:

Ans

- ☐ A. an electrolytic capacitor
- ☐ B. a paper capacitor
- ☐ C. a variable capacitor
- ☒ D. a trimmer capacitor

Q.20 The force (F) that exists between two point-source charges ( $Q_1$  and  $Q_2$ ) in air is:

Ans

- ☐ A.  $F = \frac{8.854 \times 10^{12} \cdot Q_1 Q_2}{d^2}$
- ☐ B.  $F = \frac{6.023 \times 10^{18} \cdot Q_1 Q_2}{d^2}$
- ☒ C.  $F = \frac{9 \times 10^9 \cdot Q_1 Q_2}{d^2}$
- ☐ D.  $F = \frac{6 \times 10^{28} \cdot Q_1 Q_2}{d^2}$

Section : Discipline7

Q.1 Find  $\frac{dy}{dx}$  for the equation  $x^2 \sin y = C$ .

Ans

- ☒ A.  $\frac{dy}{dx} = \frac{-2}{x} \tan y$
- ☐ B.  $\frac{dy}{dx} = \frac{-2}{x} \cot y$
- ☐ C.  $\frac{dy}{dx} = \frac{2}{x} \tan y$
- ☐ D.  $\frac{dy}{dx} = \frac{2}{x} \cot y$

Q.2 Find the magnitude and direction of the resultant of two forces 30 N and 40 N acting at right angles to each other.

Ans

- ☐ A. 70 N;  $\tan^{-1}(0.57)$
- ☒ B. 50 N;  $\tan^{-1}(1.333)$
- ☐ C. 50 N;  $\tan^{-1}(0.8)$
- ☐ D. 70 N;  $\tan^{-1}(1.333)$

Q.3 Resonance frequency ( $f_r$ ) for a parallel RLC circuit is given as:

Ans

☒ A.  $\frac{1}{2\pi} \sqrt{\frac{1}{LC} + \frac{L^2}{R^2}}$

☒ B.  $\frac{1}{2\pi} \sqrt{\frac{1}{LC} - \frac{R^2}{L^2}}$

☒ C.  $\frac{1}{2\pi} \sqrt{\frac{1}{LC} + \frac{R^2}{L^2}}$

☒ D.  $\frac{1}{2\pi} \sqrt{\frac{1}{LC} - \frac{L^2}{R^2}}$

Q.4 Find the modulus and argument of the complex number  $\frac{1-i}{1+i}$ .

Ans

☒ A. 5, 0

☒ B. 1,  $\infty$

☒ C. 5,  $\infty$

☒ D. 1, 0

Q.5 Which of the following symbols is used to show diameter of a circle in engineering drawing?

Ans

☒ A.  $\odot$

☒ B.  $\phi$

☒ C.  $\varnothing$

☒ D.  $\psi$

Q.6 Evaluate  $\int (2 + \sin x)^3 \cos x \, dx$ .

Ans

☒ A.  $\frac{(2 + \sin x)^4}{4} + C$

☒ B.  $\frac{(2 + \cos x)^3}{3} + C$

☒ C.  $\frac{(2 + \sin x)^3}{3} + C$

☒ D.  $\frac{(2 + \cos x)^4}{4} + C$

Q.7 The quality factor for a RLC series resonance circuit is:

Ans

✗ A.  $Q = \frac{1}{R} \sqrt{\frac{C}{L}}$

✗ B.  $Q = \frac{1}{2\pi\sqrt{LC}}$

✓ C.  $Q = \frac{1}{R} \sqrt{\frac{L}{C}}$

✗ D.  $Q = \frac{R}{2\pi\sqrt{LC}}$

Q.8 Which of the following are used for the insulating leaves between commutator segments?

Ans

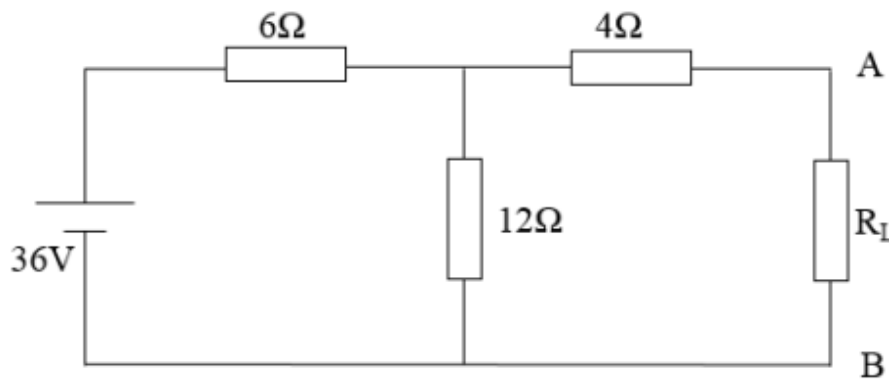
✓ A. Mica sheets

✗ B. Polyvinylchloride

✗ C. Porcelain

✗ D. Bakelite

Q.9



What will be the maximum power transferred from the source to the load in the given circuit?

Ans

✗ A. 8 watts

✗ B. 32 watts

✓ C. 18 watts

✗ D. 72 watts

Q.10 Time of Flight (T) of the Projectile is given as  
(u = initial velocity,  $\alpha$  = angle of projection):

Ans

✗ A.  $T = \frac{u \sin \alpha}{g}$

✗ B.  $T = \frac{u \sin \alpha}{2g}$

✗ C.  $T = \frac{2u \sin \alpha}{g^2}$

✓ D.  $T = \frac{2u \sin \alpha}{g}$

Q.11 A current of 10 A flows in a circuit with a  $45^\circ$  angle of lag when the applied voltage is 100 V. Find the resistance and reactance in the circuit.

- Ans
- ☐ A.  $7.07 \Omega$ ;  $10 \Omega$
  - ☒ B.  $7.07 \Omega$ ;  $7.07 \Omega$
  - ☐ C.  $10 \Omega$ ;  $10 \Omega$
  - ☐ D.  $5 \Omega$ ;  $7.07 \Omega$

Q.12 The current carrying capacity of aluminium is \_\_\_\_\_ that of copper and its density being approximately \_\_\_\_\_ that of copper.

- Ans
- ☐ A. 60%;  $\frac{1}{3}$
  - ☐ B. 75%;  $\frac{2}{3}$
  - ☐ C. 60%;  $\frac{2}{3}$
  - ☒ D. 75%;  $\frac{1}{3}$

Q.13 Which of the following is a ferro electric material?

- Ans
- ☐ A. Polyester Resin
  - ☐ B. Quartz
  - ☐ C. Polymethylmethacrylate
  - ☒ D. Rochelle salt

Q.14 The acceleration due to gravity at P on the surface is  $g = \frac{GM}{R^2}$ , where M is the mass of the earth and R is the radius of earth. The value of G is:

- Ans
- ☐ A.  $3.6733 \times 10^{-5} \text{ N m}^2 \text{ kg}^{-2}$
  - ☒ B.  $6.6733 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$
  - ☐ C.  $3.6733 \times 10^{-7} \text{ N m}^2 \text{ kg}^{-2}$
  - ☐ D.  $6.6733 \times 10^{-9} \text{ N m}^2 \text{ kg}^{-2}$

Q.15 \_\_\_\_\_ lines are used for drawing centre lines of circles, cylinders, etc. The same lines are also used to show the axis of symmetry in symmetrical objects.

- Ans
- ☐ A. Leader
  - ☐ B. Hatched
  - ☐ C. Thread
  - ☒ D. Chain

Q.16 A branch is a path in an electrical network that connects two:

- Ans
- ☐ A. meshes
  - ☐ B. current sources
  - ☐ C. loops
  - ☒ D. nodes

Q.17 A capacitor supplied from 250 volts DC mains, takes 25 milli coulombs. What will be its charge if the voltage is raised to 1000 V?

- Ans
- ☐ A. 1 coulomb
  - ☐ B. 5 coulomb
  - ☐ C. 0.5 coulomb
  - ☒ D. 0.1 coulomb

Q.18 If position vectors of the points A and B are:

$$2\vec{i} + \vec{j} - \vec{k} \text{ and } 5\vec{i} + 4\vec{j} - 3\vec{k}, \text{ find } |\overrightarrow{AB}|.$$

- Ans
- ☐ A.  $\sqrt{50}$
  - ☐ B.  $\sqrt{34}$
  - ☐ C.  $\sqrt{68}$
  - ☒ D.  $\sqrt{22}$

Q.19 Which of the following diodes has a negative resistance region?

- Ans
- ☐ A. Varactor diode
  - ☐ B. Zener diode
  - ☐ C. Schottky diode
  - ☒ D. Tunnel diode

Q.20 अर्धचालक में क्रिस्टल के नियमित परमाणुओं के बीच अतिरिक्त परमाणु होने पर दोष क्या कहलाता है?

- Ans
- ☐ A. स्थान-भ्रंश (Dislocation)
  - ☐ B. रिक्तिका (Vacancies)
  - ☒ C. अंतराली (Interstitial)
  - ☐ D. स्थानापन्न (Substitutional)

Section : Discipline8

Q.1 Find the leakage current ( $I_{CEO}$ ) of the common-emitter transistor when  $\alpha = 0.95$  and  $I_{CBO} = 10 \mu A$ .

- Ans
- ☐ A. .25 mA
  - ☐ B. .25  $\mu A$
  - ☒ C. .2 mA
  - ☐ D. .2  $\mu A$

Q.2 Input resistance of a MOSFET amplifier is very high due to:

- Ans
- ☐ A. extremely high leakage current of its drain capacitor
  - ☐ B. depletion of current carriers
  - ☐ C. negative gate-source voltage
  - ☒ D. extremely small leakage current of its gate capacitor

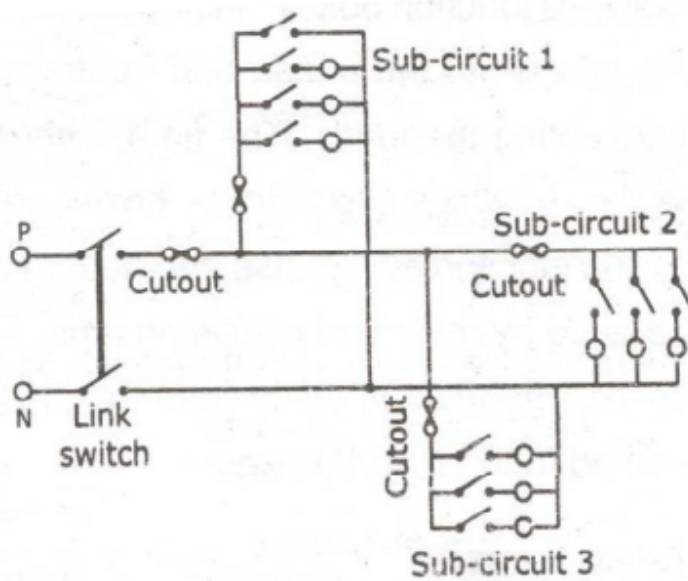
Q.3 A 132 kV transmission line has the following data. Wt. of conductor = 800 kg/km, Length of span = 260 m, Ultimate strength = 3125 kg, Safety factor = 2. Calculate the height above ground at which the conductor should be supported. Ground clearance required is 10 metres.

- Ans
- ☒ A. 12 m
  - ☒ B. 14 m
  - ☒ C. 13.5 m
  - ☒ D. 14.6 m

Q.4 A moving coil instrument of resistance  $0.2\ \Omega$  gives a full-scale deflection of 500 mA. Calculate the shunt value for the metre to measure current up to 25 A.

- Ans
- ☒ A. 101 m $\Omega$
  - ☒ B. 204 m $\Omega$
  - ☒ C. 408 m $\Omega$
  - ☒ D. 308 m $\Omega$

Q.5



Identify the type of electrical wiring system in the given figure.

- Ans
- ☒ A. Joint box system
  - ☒ B. Circular system
  - ☒ C. Looping system
  - ☒ D. Tree system

Q.6 Determine the pitch (or coil span) factors for the armature winding having 36 stator slots, 4 poles, coil span 1 to 8.

- Ans
- ☒ A.  $\cos 20^\circ$
  - ☒ B.  $\cos 30^\circ$
  - ☒ C.  $\cos 10^\circ$
  - ☒ D.  $\cos 40^\circ$

Q.7 Which of the following statement is NOT true when pi-filter and L-section filters are compared?

Ans ☐ A.

In pi-filter, the DC output voltage is much larger than that can be had from an L-section filter with the same input voltage.

☐ B.

In pi-filter, the capacitor is to be charged to the peak value hence the RMS current in supply transformer is larger as compared in case of L-section filter.

☐ C. Voltage regulation in case of pi-filter is very poor.

☒ D.

In pi-filter, ripples are more in comparison to those in shunt capacitor or L-section filter.

Q.8

| A | B | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

The given truth table belongs to a logic gate whose inputs are A and B and output is Y. Identify the gate.

Ans ☐ A. NAND

☐ B. NOR

☒ C. EXCLUSIVE-NOR

☐ D. EXCLUSIVE-OR

Q.9 The 8085 microprocessor registers include a \_\_\_\_\_ bit accumulator, an \_\_\_\_\_ bit flag register.

Ans ☒ A. 8; 8

☐ B. 8; 4

☐ C. 16; 4

☐ D. 16; 8

Q.10 A hall of size 20 m by 25 m is to be illuminated with 40 lux. If lamp efficiency is 100 lumens / watt, utilisation factor is 0.8 and candle power depreciation is 25%, then the total wattage required is:

Ans ☐ A. 6 kW

☐ B. 2.25 kW

☒ C. 1 kW

☐ D. 4.5 kW

#### Section : English Language and Comprehension1

Q.1 Select the option that correctly expresses the given sentence in active voice.

We were taught Physics by Mr Narayanan.

Ans ☐ A. Mr Narayanan had taught us Physics.

☐ B. Mr Narayanan teaches us Physics.

☐ C. Mr Narayanan has taught us Physics.

☒ D. Mr Narayanan taught us Physics.

**Q.2** Select the most appropriate option to fill in the blank.

She will take care of all arrangements, \_\_\_\_\_?

- Ans**
- ☐ A. isn't she
  - ☐ B. hasn't she
  - ☒ C. won't she
  - ☐ D. can't she

**Q.3** Select the most appropriate option to fill in the blank.

This island is \_\_\_\_\_ heaven for tourists.

- Ans**
- ☐ A. Any
  - ☐ B. An
  - ☒ C. A
  - ☐ D. The

**Q.4** Select the most appropriate option to fill in the blank.

\_\_\_\_\_ physical development \_\_\_\_\_ intellectual maturity are equally important.

- Ans**
- ☐ A. Although, yet
  - ☐ B. Whether, or
  - ☒ C. Both, and
  - ☐ D. Such, as

**Q.5** Select the option that correctly expresses the given sentence in direct speech.

Mother told him that she couldn't live without him.

- Ans**
- ☐ A. Mother said him, "I can't live without him."
  - ☐ B. Mother said to him, "You can't live without me."
  - ☐ C. Mother told to him, "She can't live without you."
  - ☒ D. Mother said to him, "I can't live without you."

**Q.6** Select the most appropriate option to fill in the blank.

They aren't moving into their new house today, \_\_\_\_\_?

- Ans**
- ☐ A. aren't they
  - ☒ B. are they
  - ☐ C. isn't it
  - ☐ D. is it

**Q.7** Select the most appropriate option to fill in the blank.

She found a \_\_\_\_\_ clue which we had missed out.

- Ans**
- ☐ A. much crucial
  - ☐ B. most crucial
  - ☐ C. more crucial
  - ☒ D. crucial

**Q.8** Select the most appropriate option to fill in the blank.

I am ready to assume higher responsibilities, \_\_\_\_\_?

- Ans**
- ☐ A. shall I
  - ☐ B. can't I
  - ☐ C. am I
  - ☒ D. aren't I

**Q.9** Select the most appropriate option to fill in the blank.

My friend's house is \_\_\_\_\_ from school than mine.

- Ans**
- ☒ A. far
  - ☒ B. more farther
  - ☒ C. farther
  - ☒ D. farthest

**Q.10** Select the most appropriate option to fill in the blank.

I hope I will get the leave for my brother's wedding when I \_\_\_\_\_ for it.

- Ans**
- ☒ A. apply
  - ☒ B. will apply
  - ☒ C. will have applied
  - ☒ D. will be applying

**Q.11** Select the most appropriate option to fill in the blank.

The children \_\_\_\_\_ laughter at the sight of the clown.

- Ans**
- ☒ A. broke into
  - ☒ B. broke out
  - ☒ C. broke off
  - ☒ D. broke up

**Q.12** Select the most appropriate option to fill in the blank.

\_\_\_\_\_ enormous cloud of dust was seen in the sky.

- Ans**
- ☒ A. An
  - ☒ B. The
  - ☒ C. No word
  - ☒ D. A

**Q.13** Select the most appropriate option to fill in the blank.

The audience was \_\_\_\_\_ by the singer's melodious voice.

- Ans**
- ☒ A. carried out
  - ☒ B. carried on
  - ☒ C. carried away
  - ☒ D. carried off

**Q.14** Select the option that correctly expresses the given sentence in indirect speech.

He said to me, "Why should I help you?"

- Ans**
- ☒ A. He asked me why he should help me.
  - ☒ B. He asked me why should he help me.
  - ☒ C. He asked me why I should help you.
  - ☒ D. He asked me why should I help you.

**Q.15** Select the most appropriate option to fill in the blank.

A crisis often \_\_\_\_\_ the best in people.

- Ans**
- ☒ A. brings in
  - ☒ B. brings out
  - ☒ C. brings round
  - ☒ D. brings down

**Q.16** Select the option that correctly expresses the given sentence in direct speech.

“Pay the rent by tomorrow,” he reminded the tenant.

- Ans**
- ☒ A. He reminded the tenant pay the rent by tomorrow.
  - ☒ B. He reminded the tenant pay the rent by the following day.
  - ☒ C. He reminded the tenant to pay the rent by tomorrow.
  - ☒ D. He reminded the tenant to pay the rent by the following day.

**Q.17** Select the most appropriate option to fill in the blank.

This mystery novel is \_\_\_\_\_ I have read so far.

- Ans**
- ☒ A. better
  - ☒ B. the best
  - ☒ C. best
  - ☒ D. good

**Q.18** Select the most appropriate option to fill in the blank.

You may come in now. I am sorry \_\_\_\_\_ you waiting.

- Ans**
- ☒ A. to have kept
  - ☒ B. to have been kept
  - ☒ C. to keep
  - ☒ D. to be keeping

**Q.19** Select the option that correctly expresses the given sentence in passive voice.

Color this picture with crayons.

- Ans**
- ☒ A. Let this picture have been colored with crayons.
  - ☒ B. Let this picture be coloured with crayons.
  - ☒ C. This picture has been coloured with crayons.
  - ☒ D. This picture is coloured with crayons.

**Q.20** Select the most appropriate option to fill in the blank.

She is looking \_\_\_\_\_ weaker than before.

- Ans**
- ☒ A. much
  - ☒ B. very
  - ☒ C. more
  - ☒ D. too

Section : **English Language and Comprehension2**

**Q.1** Select the misspelt word.

- Ans**
- ☒ A. imminent
  - ☒ B. immediate
  - ☒ C. immoral
  - ☒ D. immature

**Q.2** Select the most appropriate synonym of the given word.

affluent

- Ans**
- ☒ A. wealthy
  - ☒ B. homely
  - ☒ C. friendly
  - ☒ D. primary

**Q.3** Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

- A. Studies have shown that a recess of 45 minutes improves the score of students in tests following the recess period.  
B. Clearly, physical exercise is just one of the necessary ingredients for improving student scores on standardized tests.  
C. The clinical analysis further suggests that physical activity done during recess stimulates the mind.  
D. Students require more recreational time to improve their focus.

**Ans**  A. DBCA  
 B. DACB  
 C. DCAB  
 D. DCBA

**Q.4** Select the most appropriate option to fill in the blank.

I think you will realise your mistake \_\_\_\_\_ soon.

**Ans**  A. much  
 B. too  
 C. pretty  
 D. jolly

**Q.5** Select the most appropriate option to fill in the blanks.

She asked me \_\_\_\_\_ I had learnt to \_\_\_\_\_ a saree.

**Ans**  A. wear, where  
 B. where, where  
 C. wear, wear  
 D. where, wear

**Q.6** Select the most appropriate ANTONYM of the given word.

malign

**Ans**  A. clean  
 B. taint  
 C. smear  
 D. sully

**Q.7** Select the most appropriate meaning of the given idiom.

to take the bull by the horns

**Ans**  A. to face danger boldly  
 B. to check rumours from spreading  
 C. to inflict a crushing defeat on someone  
 D. to restrain anger

**Q.8** Select the most appropriate option to fill in the blanks.

She got \_\_\_\_\_ of playing \_\_\_\_\_ games with her little brother.

**Ans**  A. bored, board  
 B. board, bored  
 C. board. board  
 D. bored, bored

**Q.9** Select the most appropriate meaning of the given idiom.

a man of parts

**Ans**  A. a frivolous person  
 B. a worthless man  
 C. a guilty man  
 D. a man of ability

**Q.10** Select the most appropriate option to fill in the blank.

Why do you want to \_\_\_\_\_ a fuss about everything?

- Ans**
- ☐ A. take
  - ☐ B. have
  - ☐ C. do
  - ☒ D. make

**Q.11** Select the most appropriate ANTONYM of the given word.

**despondent**

- Ans**
- ☐ A. sorrowful
  - ☐ B. dejected
  - ☒ C. spirited
  - ☐ D. melancholy

**Q.12** Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

A. I refused to let go of my grandmother, to accept a death I had not seen coming.

B. It was my turn to take the shovel, but I felt too ashamed to dutifully send her off.

C. So, I refused to throw dirt on her.

D. They covered grandmother's precious mahogany coffin with a brown amalgam of rocks, decomposed organisms, and weeds.

- Ans**
- ☒ A. DBCA
  - ☐ B. BADC
  - ☐ C. DCAB
  - ☐ D. ADCB

**Q.13** Select the most appropriate ANTONYM of the given word.

**indiscreet**

- Ans**
- ☐ A. reckless
  - ☒ B. considerate
  - ☐ C. imprudent
  - ☐ D. heedless

**Q.14** Select the misspelt word.

- Ans**
- ☐ A. jubilant.
  - ☒ B. humilate
  - ☐ C. elusive
  - ☐ D. glorious

**Q.15** Select the option that can be used as a one-word substitute for the given group of words.

**one who makes an official examination of accounts**

- Ans**
- ☐ A. delegate
  - ☐ B. autocrat
  - ☒ C. auditor
  - ☐ D. colleague

**Q.16** Select the most appropriate meaning of the given idiom.

**fight tooth and nail**

- Ans**
- ☐ A. fight unfairly in a battle
  - ☒ B. try very hard to get something
  - ☐ C. make no efforts
  - ☐ D. fight with the aid of allies

**Q.17** Select the option that can be used as a one-word substitute for the given group of words.

**not supporting any side in an argument**

- Ans**
- ☒ A. impartial
  - ☐ B. alien
  - ☐ C. invisible
  - ☐ D. biased

**Q.18** Select the option that can be used as a one-word substitute for the given group of words.

**one who collects postage stamps**

- Ans**
- ☐ A. philanthropist
  - ☒ B. philatelist
  - ☐ C. plagiarist
  - ☐ D. philistine

**Q.19** Select the most appropriate meaning of the given idiom.

**to look back**

- Ans**
- ☒ A. to think about something that happened in the past
  - ☐ B. to turn back from a journey
  - ☐ C. to overlook something which is unimportant.
  - ☐ D. to go back on a decision

**Q.20** Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

- A. Supporting sentences explain the main topic using examples, facts, quotes, etc.
- B. A topic sentence is a precise statement that reflects the main idea of the paragraph.
- C. Finally, a good concluding sentence brings a paragraph to a polished end.
- D. Words chosen for this should not be cluttered and ambiguous as readers will decide to read further based on this.

- Ans**
- ☒ A. BDAC
  - ☐ B. BADC
  - ☐ C. BACD
  - ☐ D. BCAD

Section : **English Language and Comprehension3**

### Comprehension:

Read the given passage and answer the questions that follow.

Nowadays it is not uncommon to travel to a foreign country for medical treatment. Till quite recently the trend was to go to the west that offered the most advanced medical facilities. But over the last decade, thanks to the building of world-class facilities and infrastructure, there has been a marked reversal of the prevalent trend and India is now promoting itself as a heaven for medical tourism. It has on offer the highest level of services, facilities and professional skills for all medical needs.

Several factors combine to make India a preferred destination for medical tourism. On an average, the cost of treatment in India is one-tenth of the cost in the west. Secondly, foreign patients throng Indian hospitals to bypass the long waiting lists and queues in their native countries. Indian hospitals provide immediate attention to patients rather than asking them to wait for several months or even for years for a transplant. Indian doctors are well-equipped to handle bone-marrow transplant, liver and kidney transplants, cardiac surgery, joint replacement surgery, dental and cosmetic surgery in hospitals that match international standards. Of late, Indian hospitals have gained international recognition for their unsurpassed skills, techniques and procedures. Indian doctors, nurses and other medical staff are well versed in English, which makes communication easy with patients from the west. Also, foreign patients can get package deals including flights, transfers, hotels, treatment and post-operative vacation for their medical visits to India. Many patients prefer to combine their leisure and relaxation visits with health care, thus deriving the dual benefit of treatment with travelling and sightseeing.

Several tour organizers now work in collaboration with renowned hospitals to guide and coordinate the travel plans of their clients. They take care of the specific medical needs of the clients along with planning a vacation for the patient as well as their companions. A very important aspect of medicine is the recovery phase. It has been statistically demonstrated that patients recover faster with a much higher success rate when their treatment includes practices that enhance physical, mental and emotional well-being. An additional advantage that India offers is this respect is that here, along with allopathy, patients can also go for Ayurveda, yoga and meditation, which speed up the healing process.

#### SubQuestion No : 1

**Q.1 Based on your reading of the passage, it can be concluded that**

- Ans**
- ☒ A. the inflow of tourists visiting India for treatment will increase substantially.
  - ☐ B. Indian doctors will be encouraged to speak different foreign languages.
  - ☐ C. the patients in western countries do not trust the medical facilities in India.
  - ☐ D. good doctors in the western countries are too busy to attend to patients in time.

### Comprehension:

Read the given passage and answer the questions that follow.

Nowadays it is not uncommon to travel to a foreign country for medical treatment. Till quite recently the trend was to go to the west that offered the most advanced medical facilities. But over the last decade, thanks to the building of world-class facilities and infrastructure, there has been a marked reversal of the prevalent trend and India is now promoting itself as a heaven for medical tourism. It has on offer the highest level of services, facilities and professional skills for all medical needs.

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#### SubQuestion No : 2

**Q.2 Select the correct option.**

- A. World class facilities and infrastructure is available in India.**
- B. Foreign patients can derive dual benefit of treatment with tourism.**

- Ans**
- ☐ A. Statement A is the result of statement B.
  - ☐ B. Statement B is the cause of statement A
  - ☐ C. Statements A and B are not related.
  - ☒ D. Statement A is the cause of statement B

**Comprehension:**

Read the given passage and answer the questions that follow.

Nowadays it is not uncommon to travel to a foreign country for medical treatment. Till quite recently the trend was to go to the west that offered the most advanced medical facilities. But over the last decade, thanks to the building of world-class facilities and infrastructure, there has been a marked reversal of the prevalent trend and India is now promoting itself as a heaven for medical tourism. It has on offer the highest level of services, facilities and professional skills for all medical needs.

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**SubQuestion No : 3**

**Q.3 What is the most appropriate title for the passage?**

- Ans**
- ☒ A. Global Medical Tourism
  - ☒ B. Medical Tourism in India
  - ☒ C. Advancement in Medical Science
  - ☒ D. Vacation in Foreign Locations

**Comprehension:**

Read the given passage and answer the questions that follow.

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**SubQuestion No : 4**

**Q.4 People preferred to go to the west for medical treatment because of**

- Ans**
- ☒ A. advanced facilities
  - ☒ B. medical policies
  - ☒ C. economical treatment
  - ☒ D. experienced doctors

**Comprehension:**

Read the given passage and answer the questions that follow.

Nowadays it is not uncommon to travel to a foreign country for medical treatment. Till quite recently the trend was to go to the west that offered the most advanced medical facilities. But over the last decade, thanks to the building of world-class facilities and infrastructure, there has been a marked reversal of the prevalent trend and India is now promoting itself as a heaven for medical tourism. It has on offer the highest level of services, facilities and professional skills for all medical needs.

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**SubQuestion No : 5**

**Q.5** According to the passage, which of these does NOT accelerate the healing process?

- Ans**
- ☒ A. Homeopathy
  - ☐ B. Yoga
  - ☐ C. Ayurveda
  - ☐ D. Meditation

**Comprehension:**

Read the given passage and answer the questions that follow.

The victory of the small Greek democracy of Athens over the mighty Persian Empire in 490 B.C. is one of the most famous events in history. Darius, king of the Persian Empire, was furious because Athens had interceded for the other Greek city-states in revolt against Persian domination. In anger the king sent an enormous army to defeat Athens. He thought it would take drastic steps to pacify the rebellious part of the empire.

Persia was ruled by one man. In Athens, however, all citizens helped to rule. Ennobled by this participation, Athenians were prepared to die for their city-state. Perhaps this was the secret of the remarkable victory at Marathon, which freed them from Persian rule. On their way to Marathon, the Persians tried to fool some Greek city-states by claiming to have come in peace. The frightened citizens of Delos refused to believe this. Not wanting to abet the conquest of Greece, they fled from their city and did not return until the Persians had left. They were wise, for the Persians next conquered the city of Eritrea and captured its people.

Tiny Athens stood alone against Persia. The Athenian people went to their sanctuaries. There they prayed for deliverance. They asked their gods to expedite their victory. The Athenians refurbished their weapons and moved to the plain of Marathon, where their little band would meet the Persians. At the last moment, soldiers from Plataea reinforced the Athenian troops.

The Athenian army attacked, and Greek citizens fought bravely. The power of the mighty Persians was offset by the love that the Athenians had for their city. Athenians defeated the Persians in both archery and hand combat. Greek soldiers seized Persian ships and burned them, and the Persians fled in terror. Herodotus, a famous historian, reports that 6,400 Persians died, compared to only 192 Athenians.

**SubQuestion No : 6**

**Q.6** The main reason for the success of the Athenians was their

- Ans**
- ☒ A. love and devotion towards their city state
  - ☐ B. staunch belief in Gods
  - ☐ C. huge stock of arms and ammunitions
  - ☐ D. help from the soldiers of Plataea

**Comprehension:**

Read the given passage and answer the questions that follow.

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**SubQuestion No : 7**

**Q.7** The tone of the passage is

- Ans**
- ☒ A. satirical
  - ☒ B. regretful
  - ☒ C. laudatory
  - ☒ D. humorous

**Comprehension:**

Read the given passage and answer the questions that follow.

The victory of the small Greek democracy of Athens over the mighty Persian Empire in 490 B.C. is one of the most famous events in history. Darius, king of the Persian Empire, was furious because Athens had interceded for the other Greek city-states in revolt against Persian domination. In anger the king sent an enormous army to defeat Athens. He thought it would take drastic steps to pacify the rebellious part of the empire.

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**SubQuestion No : 8**

**Q.8** Which of the following is NOT true?

- Ans**
- ☒ A. The citizens of Delos fled from their city in fear.
  - ☒ B. The Persians were no match for the Athenians in archery.
  - ☒ C. Herodotus was the general of the Persian army.
  - ☒ D. The Persian empire suffered defeat at Marathon.

**Comprehension:**

Read the given passage and answer the questions that follow.

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**SubQuestion No : 9**

**Q.9 To suppress the rebellion, Darius sent his army to**

- Ans**
- ☒ A. Eritrea
  - ☒ B. Persia
  - ☒ C. Athens
  - ☒ D. Delos

**Comprehension:**

Read the given passage and answer the questions that follow.

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**SubQuestion No : 10**

**Q.10 The Persians managed to capture the people of**

- Ans**
- ☒ A. Athens
  - ☒ B. Plataea
  - ☒ C. Eritrea
  - ☒ D. Delos