



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22

Programme – Diploma in Computer Science & Engineering

Course Name – Electrical Technology

Course Code - DCSE206

(Semester II)

Time allotted : 1 Hrs.15 Min.

Full Marks : 60

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question)

1 x 60=60

Choose the correct alternative from the following :

- (1) If 1 A current flows in a circuit, the number of electrons flowing through this circuit is

a) 0.625×10^{19}	b) 1.6×10^{19}
c) 1.6×10^{-19}	d) 0.625×10^{-19}
- (2) Materials which easily allow the passage of electric current are known as _____

a) Insulators	b) Conductors
c) Dielectrics	d) Semi-conductors
- (3) Which, among the following is a unit for resistivity?

a) ohm/metre	b) ohm/metre ²
c) ohm-metre	d) ohm-metre ²
- (4) Which of the following is not an expression power?

a) $P=VI$	b) $P=I.I.R$
c) $P=V.V/R$	d) $P=I/R$
- (5) Kilowatt-hour(kWh) is a unit of?

a) Current	b) Power
c) Energy	d) Resistance
- (6) Out of the following, which one is not a source of electrical energy?

a) Solar cell	b) Battery
c) Potentiometer	d) Generator
- (7) A battery converts _____

a) Electrical energy to chemical energy	b) Mechanical energy to electrical energy
c) Chemical energy to electrical energy	d) Chemical energy to mechanical energy

- (8) Which of the following statements are true about metals?
- a) Metals have a positive temperature coefficient
 - b) Metals have a negative temperature coefficient
 - c) Metals have zero temperature coefficient
 - d) Metals have infinite temperature coefficient
- (9) What is the unit of temperature coefficient?
- a) ohm/centigrade
 - b) ohm-centigrade
 - c) Centigrade-1
 - d) centigrade
- (10) In a parallel circuit, we consider _____ instead of impedance.
- a) Admittance
 - b) Inductance
 - c) Capacitance
 - d) Resistance
- (11) In a series R-L circuit, V_L ___ V_R by ___ degrees.
- a) lags, 45
 - b) lags, 90
 - c) leads, 90
 - d) leads, 45
- (12) The power factor at resonance in R-L-C parallel circuit is
- a) Zero
 - b) 0.08 lagging
 - c) 0.8 leading
 - d) Unity
- (13) Which, among the following is the correct expression for admittance?
- a) $Y = Z$
 - b) $Y = 1/Z$
 - c) $Y = Z^2$
 - d) $Y = 1/Z^2$
- (14) If the impedance of a system is 4 ohm, calculate its admittance
- a) 0.25 ohm-1
 - b) 4 ohm
 - c) 25 ohm-1
 - d) 0.4 ohm-1
- (15) Quality factor-Q of a resonant circuit signifies:
- a) Loss in the resonant circuit
 - b) Gain in the resonant circuit
 - c) Magnetic energy stored in the circuit
 - d) Electric energy stored in the circuit
- (16) The form factor is the ratio of
- a) Peak value to r.m.s. value
 - b) r.m.s. value to average value
 - c) Average value to r.m.s. value
 - d) None of the above
- (17) Pure inductive circuit
- a) Consumes some power on average
 - b) Takes power from the line during some part of the cycle and then returns back to it during other part of the cycle
 - c) Does not take power at all from a line
 - d) None of the above
- (18) Alternating current measured in a transmission line will be
- a) Peak value
 - b) Average value
 - c) RMS value
 - d) Zero
- (19) The frequency of an alternating current is
- a) The speed with which the alternator runs
 - b) The number of waves passing through a point in one second
 - c) The number of cycles generated in one minute
 - d) The number of electrons passing through a point in one second
- (20) According to Kirchoff's voltage law,
- a) The algebraic sum of all the e.m.f's in the circuit is zero
 - b) Algebraic sum of e.m.f's plus algebraic sum of voltage drops is equal to zero

- c) Algebraic sum all the voltage drops in the circuit is zero
- d) All of these
- (21) A heater is rated as 230 V, 10 kW, A.C. The value 230 V refers to
- a) Average voltage
- b) r.m.s. voltage
- c) Peak voltage
- d) None of the above
- (22) The r.m.s. value of a sinusoidal A.C. current is equal to its value at an angle of _____ degrees.
- a) 90
- b) 60
- c) 45
- d) 30
- (23) In a parallel R-C circuit, the current always _____ the applied voltage
- a) Lags
- b) Leads
- c) Remains in phase with
- d) None of the above
- (24) Power factor of electric bulb is
- a) Zero
- b) Lagging
- c) Leading
- d) Unity
- (25) Ohm is unit of all of the following except
- a) Inductive reactance
- b) Capacitive reactance
- c) Resistance
- d) Capacitance
- (26) What is the unit of magnetic flux density
- a) Weber
- b) Tesla
- c) Weber/m
- d) Weber-1
- (27) The magnetic materials which are strongly attracted by the magnet is
- a) Diamagnetic materials
- b) Paramagnetic materials
- c) Ferromagnetic materials
- d) Anti ferromagnetic materials
- (28) Permanent magnet are manufactured by
- a) Copper sulphate
- b) Iron and cobalt
- c) Cobalt and nickel
- d) ALNICO
- (29) The direction of magnetic lines of force is
- a) from south pole to north pole
- b) from north pole to south pole
- c) from one end of the magnet to another
- d) none of the above
- (30) Fleming's left hand rule is used to find
- a) direction of magnetic field due to current carrying conductor
- b) direction of force on a current carrying conductor in a magnetic field
- c) direction of flux in a solenoid
- d) polarity of a magnetic pole
- (31) Substances which have permeability less than the permeability of free space are known as
- a) ferromagnetic
- b) paramagnetic
- c) diamagnetic
- d) bipolar
- (32) Susceptibility is positive for
- a) non-magnetic substances
- b) diamagnetic substances
- c) ferromagnetic substances
- d) none of the above
- (33) Unit for quantity of electricity is
- a) ampere-hour
- b) watt

- c) joule
- (34) The unit of magnetic flux is
- a) Henry
- c) ampere-turn/weber
- (35) Permanent magnets are normally made of
- a) alnico alloys
- c) cast iron
- (36) The unit of retentivity is
- a) weber
- c) ampere turn/metre
- (37) Reciprocal of reluctance is
- a) reluctivity
- c) permeability
- (38) Which is not a part of DC machine
- a) Yoke
- c) Armature
- (39) A transformer cannot work on the DC supply because _____
- a) There is no need to change the DC voltage
- c) A DC circuit has more losses
- (40) A transformer transforms _____
- a) voltage
- c) both voltage and current
- (41) Unit for quantity of electricity is
- a) ampere-hour
- c) joule
- (42) The generating voltage and frequency in India is about?
- a) 11 kV and 60 Hz
- c) 220 kV and 60 Hz
- (43) The fuse blows off by
- a) burning
- c) melting
- (44) A fuse is connected
- a) in series with circuit
- c) either in series or in parallel with circuit
- (45) The main function of a fuse is to
- a) protect the line
- c) protect the appliance
- (46) Miniature circuit breaker is a small
- a) fuse
- c) electromagnetic switch
- d) coulomb
- b) weber
- d) ampere/metre
- b) aluminium
- d) wrought iron
- b) weber/sq. m
- d) ampere turn
- b) permeance
- d) susceptibility
- b) Commutator
- d) Breather
- b) Faraday's laws of electromagnetic induction are not valid since the rate of change of flux is zero
- d) Cannot be determined
- b) current
- d) frequency
- b) watt
- d) coulomb
- b) 11 kV and 50 Hz
- d) 220 kV and 50 Hz
- b) arcing
- d) none of the above
- b) in parallel with circuit
- d) none of the above
- b) open the circuit
- d) prevent excessive currents
- b) magnetic switch
- d) two way switch

- (47) Single line diagram does not represent:
- a) Ratings of machines
 - b) Delta connection of transformer winding
 - c) Neutral wire of transmission lines
 - d) Star connection of transformer winding
- (48) Distributors fed at both ends has an advantage of _____
- a) continuous supply
 - b) fault isolation
 - c) being economical
 - d) all of the mentioned
- (49) What is the main reason for using the high voltage for the long distance power transmission?
- a) Reduction in the time of transmission
 - b) Reduction in the transmission losses
 - c) Increase in system reliability
 - d) None of these
- (50) If there are two bulbs connected in series and one blows out, what happens to the other bulb?
- a) The other bulb stops glowing
 - b) The other bulb continues to glow with the same brightness
 - c) The other bulb also burns out
 - d) The other bulb glows with increased brightness
- (51) The frequency of domestic power supply in India is
- a) 200 Hz
 - b) 100 Hz
 - c) 60 Hz
 - d) 50 Hz
- (52) Full form of MCB
- a) Miniature Circuit Breaker
 - b) Mini Circuit Breaker
 - c) Minimum Current Breaker
 - d) Maximum Current Breaker
- (53) Which of the following is/are the advantages of carbon brush over the copper brush?
- a) They are not hard as copper brush
 - b) In case of any sparking they will be less damaged than copper brushes
 - c) They are self lubricating in nature
 - d) All of the above
- (54) Commutator in DC generator is used for
- a) collecting of current
 - b) reduce losses
 - c) increase efficiency
 - d) convert AC armature current in to DC
- (55) The generating action and motoring action in d.c. machine is determined by
- a) Fleming's left hand rule, Fleming's right hand rule
 - b) Fleming's right hand rule, Fleming's left hand rule
 - c) Both by Fleming's left hand rule
 - d) Both by Fleming's right hand rule
- (56) As the load on d.c. motor increases, the current drawn by motor
- a) Increases
 - b) Decreases
 - c) Remains same
 - d) None of these
- (57) The brush contact losses in a d.c. Machine is
- a) Directly proportional to the current
 - b) Directly proportional to the square of current
 - c) Inversely proportional to the current
 - d) Inversely proportional to the square of current
- (58) Emf and torque produced in a DC machine are proportional to _____ and _____ respectively.
- a) Armature speed and armature emf
 - b) Armature emf and armature speed
 - c) Armature current and armature emf
 - d) Armature speed and armature current

(59) Armature winding is mounted on a _____

a) Rotor

b) Stator

c) Not required

d) Can be mounted anywhere on stator or rotor

(60) The armature in DC machines is always placed on rotor because _____

a) Otherwise commutation will not be possible

b) Otherwise there will not be any induced emf

c) Otherwise current will not flow

d) Can be placed anywhere