



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Diploma in Mechanical Engineering
Course Name – Electrical Technology
Course Code - DME206
(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
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- 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

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