



**CHANDIGARH
UNIVERSITY**

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INSTITUTE UIE

DEPARTMENT ACADEMIC UNIT-1

Bachelor of Engineering (Computer Science & Engineering)

Subject Name Basic Electrical & Electronics Engineering

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Revision of

Unit-2



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- Q. 1 220 V dc shunt motor takes 5A and 40A at no load and full load respectively. It has an armature resistance of 0.2 ohm and field resistance of 110 ohm respectively. Iron , Friction and Windages losses are negligible. Then using among parameters find following :
- Determine the armature current at no load
- 3 Amp 4 Amp 5 Amp 2 Amp
- Determine the armature current at full load
- 37 Amp 38 Amp 39 Amp 40 Amp
- Calculate an emf at no load of dc motor
- 220.4 v 215.4 v 219.4 v 213.4 v
- Calculate an emf at full load of dc motor
- 214.4 v 224.4 v 212.4 v 204.4 v
- Determine the ratio of emf at no load to full load
- 2.05 1.03 1.13 1.65

- Q. 2 student is working on 3 phase, 50 Hz 4 pole induction motor having slip 5%. Then selecting the value of slip determine following:
- Calculate the speed of revolving field relative to stator structure
- **1500 RPM** 1600 RPM 1800 RPM 2000 RPM
- Determine frequency of rotor current at slip 5%.
- 3.5 Hz **2.5 Hz** 5.5 Hz 1.5 Hz
- Calculate the rotor frequency at standstill condition
- 45 Hz **50 Hz** 55 Hz 60 Hz
- Calculate the speed of rotor
- 1625 RPM 1700 RPM 1800 RPM **1425 RPM**
- Determine the rotor frequency if supply frequency is changed from 50 Hz to 60 Hz at slip 5%
- 5 Hz **3Hz** 2Hz 4 Hz

- Q .3 A student is working on 4 pole, three phase induction motor at 50 Hz AC supply and it is having a slip of 3%. Then analyze different parameters:
- Calculate the synchronous speed of motor
- 1400 rpm 1450 rpm **1500 rpm** 1550 rpm
- Determine the rotor speed
- 1550 rpm **1455 rpm** 1465 rpm 1400 rpm
- Evaluate the rotor frequency
- 1.6 Hz 1.7 Hz 1.4 Hz **1.5 Hz**
- Calculate the rotor frequency at standstill condition
- 55 Hz **50 Hz** 58 Hz 60 Hz
- Calculate the rotor frequency if supply frequency is changed from 50 Hz to 60 Hz keeping same slip 3%
- 2 Hz 1.5 Hz **1.8 Hz** 1.3 Hz

- Q .4 A 230V dc shunt motor takes 51 A current at full load. Motor has armature resistance and field winding resistance of 0.1 ohm and 230 ohm respectively. By using these parameters determine following
 - Analyze the shunt field current of dc motor
 - 1A 2A 3A 4A
 - Determine the value of armature current
 - 55 A 50A 57A 52A
 - Calculate the emf of dc machine
 - 220 v 225 v 230 v 235 v
 - Determine the value of armature current if input current is changed 51 A to 41A
 - 42 A 45 A 48 A 40 A
- Calculate the emf of dc machine at 41 A input current
- 228 v 225 v 230 v 226 v

- Q .4 A 6 pole induction motor is working on three phase 50 Hz AC supply at no load and at full load. When it runs at no load it has slip of 6% and when runs at full load then slip is 5%. By considering these conditions solve the following:
- Determine its synchronous speed of induction motor.
- Calculate the rotor speed at no load slip Calculate the rotor speed at full load slip Determine the rotor frequency at no load Determine the rotor frequency at full load
- 1150 rpm 1250 rpm **1000 rpm** 1300 rpm
- 960 rpm 930 rpm **940 rpm** 910 rpm
- 1140 rpm 1125 rpm 1340 rpm **950 rpm**
- 2 Hz 4 Hz **3 Hz** 2.5 Hz
- **2.5 Hz** 3 Hz 4 Hz 2 Hz

- Q .4 Assuming an induction motor which is working at supply frequency of 50 Hz ac supply and having 6 poles. The slip of induction motor at no load is 3% and at full load is 6%.
- Determine synchronous speed of an induction motor
- Evaluate the no load speed at 3% slip Calculate the full load speed at 6% slip Evaluate the rotor frequency at no load. Determine the rotor frequency at full load.
- 1200 rpm **1000 rpm** 1100 rpm 1050 rpm
- 960 rpm 980 rpm **970 rpm** 950 rpm
- 900 rpm 850 rpm **940 rpm** 910 rpm
- 1.8 Hz **1.5 Hz** 1.3 Hz 1.6 Hz
- 4 Hz 6 Hz 8 Hz **3 Hz**

Q.1 Function of electrical transducer is to convert

- Electrical signal into non electrical signal
- **Non electrical signal into electrical signal**
- Electrical signal into mechanical signal
- no conversion occurs

Q.2 An inverse transducer is a device which converts

- **An electrical quantity into a non electrical quantity**
- Electrical quantity into chemical quantity
- Electrical energy into thermal energy
- Electrical energy into light energy

Q.3 Transducer which works on continuous signal called

- Passive transducers
- Active transducer
- Digital transducer
- **Analog transducer**

Q.4 A strain gauge is a passive transducer and is employed for converting

- **Mechanical displacement into a change of resistance**
- Pressure into a change of resistance
- Force into a displacement
- Pressure into displacement

Q.5 LVDT is an/a _____ transducer

➤ Magneto-strict ion **Inductive** Resistive Eddy current

Q.6 Which devices used to measure the temperature of an object ?

Potentiometer Odometer **Thermometers** Galvanometer

Q.7 Direction of rotation of motor is determined by _____

➤ Faraday's law Lenz's law Coulomb's law **Fleming's left-hand rule**

Q.8 The current drawn by the armature of DC motor is directly proportional to _____

➤ **Torque** Speed The voltage across the terminals The number of poles

Q.9 The brushes are _____ in shape.

➤ Triangular **Rectangular** Cylindrical Square

Q.10 These days D.C. motors are widely used in

- Pumping sets
- Air compressors
- **Electric traction**
- Machine shops

Q.11 The frame of an induction motor is usually made of

- Silicon steel **Cast iron** aluminium Bronze

Q.12 The shaft of an induction motor is made of

- Stainless steel **Carbon steel** Cast iron aluminium

Q.13 Slip ring of an induction motor is usually made up of

- aluminium **copper** carbon Phosphorus Bronze

Q.14 A 3-phase 440 V, 50 Hz induction motor has 4% slip. The frequency of rotor current will be

- 50 Hz 25 Hz **2 Hz** 20 Hz

Q.15 With the increase in the intensity of light, the resistance of a photovoltaic cell

Increases **decreases** Remains same infinite

Q.16 Strain gauge is a

- Active device and converts mechanical displacement into a change of resistance
- Passive device and converts electrical displacement into a change of resistance
- **Passive device and converts mechanical displacement into a change of resistance**
- Active device and converts electrical displacement into a change of resistance

Q.17 Thermistor is a transducer. Its temperature coefficient is

- **Negative** Positive zero infinite

Q.18 Potentiometric transducers are used for the measurement of

- Pressure Displacement Humidity **both pressure and displacement**

Q.19 Which D.C. motor is preferred for elevators ?

- Shunt motor series motor Differential compound motor **Cumulative compound motor**

Q.20 A D.C. series motor is that

- **has its field winding consisting of thick wire and less turns**
- has a poor torque
- can be started easily without load
- has almost constant speed

Q.21 which The type of D.C. motor used for shears and punches is

- Shunt motor
- series motor
- Differential compound motor
- **Cumulative compound motor**

Q.22 The transducers which convert input signal into output signal which is discrete function of time is known as..... transducer.

➤ analog active passive **digital**

Q.23 The power mentioned on the name plate of an electric motor indicates

➤ the power drawn in kW the power drawn in kVA the gross power
the output power available at the shaft

Q.24 At standstill condition the value of rotor speed is

1000 rpm 1500 rpm **zero rpm** 2000 rpm

Q.25 Which D.C. motor is generally preferred for cranes and hoists ?

Shunt motor

series motor

Differential compound motor

Cumulative compound motor

Q.26 Thermocouple generate output voltage according to

Circuit parameters Humidity **Temperature** Voltage

Q.27 Self generating type transducers are

- Passive transducers **Active transducer** Linear transducer Non linear transducer

Q.28 The principle of operation of LVDT is based on

- self induction **mutual induction** reluctance permeance

Q.29 Which one is the example of photoemissive cell?

- **LDR** Photo diode Photo transistor Photo multiplier

Q.30 Buses, trains, trolleys, hoists, cranes require high starting torque and therefore make use of

- **DC series motor** DC shunt motor Induction motor Synchronous motor

Q.31 The armature torque of a dc motor is

- field flux
- armature current
- speed alone
- **both field flux and armature current**

Q.32 the function of its If the supply frequency is 50 Hz in single phase induction motor then what will be the rotor frequency at standstill condition

- 60 Hz 55 Hz **50Hz** 45Hz

Q.33 At standstill condition the value of slip is

- 0 1 infinite 10

Q.34 In formula $N_s = 120f/P$, what P represents

- number of path number of phase **number of poles** number of conductor

Q.35 In case of dc series motor the curve between torque and armature current is circular **parabolic** rectangular square

Q.36 The full form of NTC in thermistor

- **negative temperature coefficient** negative temporary coefficient neutral temperature coefficient non temperature coefficient

Q.37 LVDT windings are wound on

- Steel sheets Aluminium **Ferite** Copper

Q.38 Which of the following can be measured with the help of piezo electric crystal?

- **Force** Velocity Sound Pressure

Q.39 If in an induction motor if the supply frequency is 50 Hz and number of poles are 4 then synchronous speed will be

- 1400 rpm 1450 rpm **1500 rpm** 1550 rpm

Q.40 The transducer which requires source of energy is called

active transducer **passive transducer** analog transducer digital transducer