No. of Printed Pages : 4
Roll No. .....

180962/170962

6th Sem / Elect. Engg.

Subject : Industrial Electronics & Control of Drives

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 A UJT is mainly used as _____
a) controlled rectifier
b) uncontrolled rectifier
c) timing circuit for triggering of SCRs
d) controlled rectifier and triggering of SCRs

Q.2 A TRIAC is a _____ swtich.
a) unidirectional b) mechanical
c) bidirectional d) omnidirectional

Q.3 A SCR is a _____ layer _____ junction device
a) 2.3 b) 2, 4
c) 4, 3 d) 3, 4

Q.4 A UJT is a _____ terminal device.
a) two b) four
c) three d) five

Q.5 Dual converters can be operated in _____
a) only 1st quadrant b) only 2nd quadrant
c) only 3rd quadrant d) all 4 quadrants

https://www.hsbteonline.com

Q.6 A chopper circuit converts _____
a) DC to DC b) AC to DC
c) DC to AC d) AC to AC

Q.7 In a lead acid battery, active material for positive plate is _____
a) lead b) lead dioxide
c) lithium d) sulphuric acid

Q.8 The full form of UPS is _____
a) universal power supply
b) uninterruptive power supply
c) universal power system
d) None of the above

Q.9 The duty cycle of a chopper is expressed by _____
a) $T_{on}/T_{on}+T_{off}$ b) T_{on}/T_{off}
c) $T_{on}\times(T_{on}+T_{off})$ d) $T_{on}\times T_{off}$

Q.10 The voltage source inverter allows a variable frequency supply to be obtained from a _____ source.
a) ac supply
b) dc supply
c) both ac & dc supply
d) only positive ac supply

https://www.hsbteonline.com

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 What is the full form of UJT?

Q.12 Draw the symbol of DIAC and list it's one application.

Q.13 What do you mean by Heat sink?

Q.14 Define the term "String efficiency".

Q.15 What is the function of inverter?

Q.16 List any two advantages of three phase converters.

Q.17 Define AC drive.

Q.18 What is the full form of SMPS?

Q.19 What is commutation?

Q.20 Give the advantages of TRIAC.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain the action of a SCR with the help of two transistor analogy.

Q.22 Show and explain the basic construction of a UJT.

Q.23 Explain with diagram, the working of single phase half controlled full wave rectifier.

Q.24 Give the applications of TRIAC.

Q.25 Explain the function of freewheeling diode.

Q.26 Discuss the applications of cycloconverter.

https://www.hsbteonline.com

Q.27 Explain various methods of triggering a thyristor.

Q.28 Explain the working principle of dual converter with the help of diagram.

Q.29 What do you mean by step-up chopper? Explain it's working.

Q.30 How the speed reversal of a dc motor is achieved using dual converter?

Q.31 Give comparison between online, offline and line interaction UPS.

Q.32 Write a short note on CVT.

Q.33 Explain how constant current inverter drives works.

Q.34 Why sealed maintenance free batteries are preferred over lead acid batteries?

Q.35 Write down the merits and demerits of series inverter.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Draw and explain the V-I characteristics of a SCR.

Q.37 What is cyclo converter? Explain single phase to single phase circuit step-up cyclo-converter.

Q.38 What are the differences between voltage source inverter and current source inverter?

https://www.hsbteonline.com

No. of Printed Pages : 4
Roll No. 2216509007

220952

5th Sem. / Electrical
Subject : Power System

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. **(6x1=6)**

Q.1 Which of the following plants will have the highest capital cast?

a) Nuclear Power Plant b) Diesel Power Plant

c) Thermal Power Plant d) None of these

Q.2 Power from generating stations is carried over long distance through

a) Distribution lines b) Transmission Lines

c) Substations d) None of these

Q.3 Which of the following D.C. Distribution system is simplest and cheapest in first cost?

a) Radial b) Inter connected

c) Ring Main d) All of these

Q.4 The value of power factor may be

a) More than one

b) Less than one

c) More or Less than one

d) None of these

Q.5 The area under the load curve represents

a) System Voltage b) Current

c) Energy consumed d) Maximum demand

Q.6 An over excited synchronous motor operates at

a) Leading power factor

b) Lagging power factor

c) Unity power factor

d) 0.5 lagging power factor

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 An indoor substation is _____ expensive than outdoor substation.

Q.8 Load factor of a plant is generally _____ than unity

Q.9 Heavier the conductor, smaller will be the sag. (True/False)

Q.10 Steam turbine converts _____ energy in to _____ energy.

Q.11 A line which connects the consumer to the supply is called distributor. (True/False)

Q.12 Power factor is the ratio of _____ to apparent power.

SECTION-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Name & Explain different types of line supports used for overhead lines.

Q.14 Compare HVAC transmission system VS HVDC transmission system.

Q.15 Define the following terms:-

a) Power system b) Power factor

Q.16 What is sag in overhead lines? What is the importance of sag?

Q.17 What are the requirements of a good Distribution system?

Q.18 Name all the types of faults occur in overhead system.

Q.19 What are the functions of Substation?

Q.20 What are the disadvantages of low power factor?

Q.21 Define Tariff and Name different types of Tariff.

Q.22 Discuss any four advantages and disadvantages of Diesel Power Station.

SECTION-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 Write a short note on :-

a) Merits & demerits of nuclear Power Plant.

b) Advantages of Interconnection of power stations

Q.24 What is Substation? Name and explain various components of Pole Mounted Substation?

Q25 Describe Murray Loop test for location of Earth fault and short circuit fault in underground cable.

No. of Printed Pages : 4
Roll No. 2216509.0017

220951

5th Sem/ Electrical
Subject : Electric Vehicle Technology

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Which of the following is a key benefit of using Electric Vehicles (EVs)? (CO1)

a) Higher carbon emissions

b) Low operating costs

c) Limited range

d) High fuel prices

Q.2 Which battery type is predominantly used in modern electric vehicles? (CO4)

a) Zinc Chloride b) Lead Acid

c) Lithium-Ion d) Nickel-Cadmium

Q.3 Which of the following is a type of Electric Vehicle? (CO1)

a) Internal Combustion Engine Vehicle

b) Plug-in Hybrid Electric Vehicle

c) Gasoline Vehicle

d) Diesel Vehicle

Q.4 What is the main purpose of an Electric Vehicle Charger? (CO3)

a) To increase the vehicle's speed

b) To store energy in the battery

c) To control the vehicle's temperature

d) To recharge the battery

Q.5 What is an Electric Vehicle (EV)? (CO1)

a) A vehicle that runs on gasoline

b) A vehicle powered by electricity

c) A vehicle powered by hydrogen

d) A vehicle with a solar panel

Q.6 What is the primary purpose of a Battery Management System (BMS) (CO4)

a) To increase the speed of the vehicle

b) To monitor and manage battery performance

c) To recharge the battery faster

d) To enhance the cooling of the battery.

Section-B

Note: Objective/Completion type questions. All questions are compulsory.

(6x1=6)

Q.7 What is one major regulatory policy affecting electric vehicles in India. (CO1)

Q.8 Charging Electric Vehicles using solar energy is known as _____ charging. (CO3)

Q.9 Name of advantage and one disadvantage of using Lithium-Ion batteries in EVs. (CO4)

Q.10 Describe the role of an inverter in an electric vehicle drive system. (CO2)

Q.11 Identify one significant difference in the operational mechanisms of Simple EVs versus Hybrid EVs.(CO5)

Q.12 What is the primary function of a regenerative braking system in an EV? (CO4)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Describe the advantages of using Electric Vehicles over traditional vehicles. (CO2)

Q.14 Compare the advantages and disadvantages of Brushless DC motor and Switched Reluctance motors in electric vehicles. (CO2)

Q.15 Discuss the main components of an EV charge and their functions. (CO3)

Q.16 Analyze the construction and working of Lithium-Ion batteries, focusing on their advantages for electric vehicles. (CO4)

Q.17 Explain how safety precautions can mitigate risks associated with charging electric vehicles. (CO3)

Q.18 Describe the various types of Hybrid Electric Vehicles and how they differ in operation and efficiency.(CO5)

Q.19 What are the environmental benefits of using Electric Vehicles compared to traditional fossil fuel vehicles? (CO1)

Q.20 Discuss the challenges associated with implementing widespread EV charing infrastructure. (CO3)

Q.21 Explain the significance of battery cooling systems in prolonging the lifespan of EV batteries. (CO4)

Q.22 Describe the environmental benefits of Electric Vehicles. (CO1)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 Describe the history and evolution of Electric Vehicles. How has the industry grown in recent years? (CO1)

Q.24 Explain the working principles and construction of any two types of motors used in Electric vehicles. (CO2)

Q25 Write a detailed note on different types of batteries used in Electric Vehicles and their respective advantages and disadvantages. (CO4)

No. of Printed Pages : 4
Roll No. 2216509017

220954A

5th Sem. / Electrical
Subject : Solar Panel Installation & Maintenance

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. **(6x1=6)**

Q.1 A photovoltaic cell works on the principle of (CO1)

a) Conversion of energy b) Photovoltaic effect

c) Both of them d) None of them

Q.2 Which is not a type of tracking system (CO2)

a) Active system b) Passive system

c) Hybrid system d) Open loop system

Q.3 The conversion efficiency of a solar PV system refers to: (CO1)

a) Power consumed by the system

b) Power output from sunlight

c) The efficiency of converting sunlight to electricity

d) Efficiency of solar panel cleaning

Q.4 The tool used to evaluate a site for shading issue is called. (CO3)

a) Pyranometer b) Angle finder

c) Solar path finder d) Clamp meter

Q.5 Which of the following is a component of the Balance of Systems in PV installations? (CO2)

a) Combiner box b) Charge controller

c) Grounding system d) All of the above

Q.6 The solar panels may be cleaned at least._____ time in a year (CO5)

a) 2 b) 3

c) 4 d) 5

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define PV Module. (CO1)

Q.8 Expand MPPT. (CO2)

Q.9 Define Net Meter. (CO5)

Q.10 Define Tilt angle. (CO2)

Q.11 Solar tracking systems are used to _____. (CO3)

Q.12 A clamp meter is a tool used to measure_____.(CO4)

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Write the factors that must kept in mind while selecting a site for PV system. (CO1)

Q.14 Write four function of solar charge controller. (CO2)

Q.15 Write notes on I-V characteristics of a PV cell. (CO1)

Q.16 Write four diffrences between On-grid and Off-grid solar PV systems. (CO3)

Q.17 What are the various components of a PV system. (CO2)

Q.18 Explain series connections of PV Module. (CO2)

Q.19 Explain Photovoltaic effect. (CO1)

Q.20 What electrical safety precautions should be taken during PV system installation. (CO4)

Q.21 Define PV mounting structure. Define its types in brief. (CO3)

Q.22 Write any four steps of battery maintenance. (CO5)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. **(2x8=16)**

Q.23 Explain in detail the design methodology for a solar PV system. (CO3)

Q.24 Explain precautions and general tips for maintenance of solar PV system. (CO5)

Q25 Briefly discuss BOS. (CO2)

No. of Printed Pages : 4 220934
Roll No. .....

3rd Sem / Electrical

Subject : Electrical Engineering Materials

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The forbidden gap in a conductor is (CO1)

a) Large b) Small

c) Nil d) Any of the above

Q.2 A pure semiconductor under ordinary conditions, behaves like (CO2)

a) Conductor

b) An Insulator

c) A magnetic materials

d) A ferroelectric materials

Q.3 Glass is basically (CO1)

a) anhydride b) oxide

c) arsenic d) chloride

https://www.hsbteonline.com

Q.4 Soft magnetic materials are used for making (CO3)

a) Temporary magnets

b) Permanent magnets

c) Both Permanent & temporary magnets

d) All of the above

Q.5 The choice of solder depends on (CO2)

a) cost

b) nature of metal to be soldered

c) required mechanical strength

d) all of the above

Q.6 Effect of rise in temperature on the insulating materials is to (CO3)

a) decrease resistance

b) increase resistance

c) both decreases & insulation resistance

d) none of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 What is doping in semiconductor? (CO1)

Q.8 Expand C.R.G.O. (CO2)

https://www.hsbteonline.com

Q.9 Define Valence band? (CO1)

Q.10 Paper & wood are hygroscopic in nature. (T/F) (CO2)

Q.11 Give two examples of diamagnetic materials? (CO3)

Q.12 What is fuse? (CO1)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Explain how conduction takes place in conductors and semiconductors? (CO3)

Q.14 Define low resistivity and high resistivity materials with example? (CO2)

Q.15 Discuss any four properties of copper as a conducting materials? https://www.hsbteonline.com (CO1)

Q.16 Give any four properties of PVC? (CO1)

Q.17 Give any four applications of soft magnetic materials? (CO3)

Q.18 Explain epoxy resin with examples? (CO2)

Q.19 Describe the suitability of minerals oil as insulating cum cooling medium in power transformers? (CO3)

Q.20 Write a short note lead soldering. (CO1)

https://www.hsbteonline.com

Q.21 Write a short note HRC fuse (CO1)

Q.22 Write any four properties of Mu metal? (CO2)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain the properties and application of (CO1)

i) Mica

ii) Silicon Rubber

Q.24 List and explain various materials required for fabrication of motors, generators? (CO3)

Q.25 What are the Magnetic materials and give classification of magnetic materials with examples. (CO2)

https://www.hsbteonline.com

No. of Printed Pages : 4 220932
Roll No. .....

3rd Sem / Electrical

Subject : Electrical Measurement & Instrumentation

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 O in CRO stands for: (CO4)

a) Oscillator b) Oscillatory

c) Oscilloscope d) Oxiloscope

Q.2 Which type of instrument is prone to "creeping"? (CO2)

a) Voltmeter b) Power Factor Meter

c) Ammeter d) Energy Meter

Q.3 Extremely low resistance can be measured by : (CO1)

a) Earth Tester b) Meggar

c) Ohmmeter d) The Kelvin Bridge

https://www.hsbteonline.com

Q.4 LVDT is_____ type of device. (CO5)

a) Inductive b) Resistive

c) Capacitive d) None of the above

Q.5 A voltmeter should be connected in: (CO2)

a) Series

b) Parallel

c) Either Series or Parallel

d) Depends on Load Rating

Q.6 What does "C" stand for in "CT"? (CO1)

a) Complementary b) Complex

c) Current d) Complete

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Expand CRT? (CO1)

Q.8 Range of an ammeter can be extended by connecting resistance in parallel. (T/F) (CO1)

Q.9 Define DSO? (CO4)

Q.10 Provide an example of a recording instrument? (CO1)

https://www.hsbteonline.com

Q.11 Write down one use of Thermistor? (CO2)

Q.12 Give one application of indicating instruments? (CO1)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Describe the 2-wattmeter method for power measurement in a 3ø system? (CO3)

Q.14 Provide a brief explanation of a Meggar? (CO1)

Q.15 Explain construction and working of a bourdon tube? (CO1)

Q.16 Differentiate LVDT and RVDT? (CO5)

Q.17 Draw a block diagram of a digital multimeter and list three of its applications? (CO2)

Q.18 Compare 3ø and 1ø energy meter? (CO1)

Q.19 Explain the significance of reactive power in an electrical system? (CO3)

Q.20 Discuss importance of transducers in electrical measurement? (CO5)

Q.21 Explain one method for pH measurement using suitable diagram? (CO2)

Q.22 Write a note on Piezoelectric Transducer? (CO5)

https://www.hsbteonline.com

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Draw and explain construction and working principle of 3ø energy meter (induction type) ? (CO1)

Q.24 Compare moving coil and moving iron instruments? Give four merits and demerits of each? (CO3)

Q.25 What is frequency meter? Describe the dynamometer type frequency meter using a suitable diagram? (CO4)

https://www.hsbteonline.com
Whatsapp @ 9300930012
Send your old paper & get 10/-
अपने पुराने पेपर्स भेजे और 10 रुपये पायें,
Paytm or Google Pay से

https://www.hsbteonline.com

No. of Printed Pages : 4
Roll No. .....

220933

3rd Sem. / Electrical

Subject : Analog & Digital Electronics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The number of valence electrons in trivalent impurity are (CO-1)

a) 6 b) 5

c) 4 d) 3

Q.2 A JFET is a _____ device. (CO-2)

a) Unipolar b) Bipolar

c) Both a and b d) None of the above

Q.3 What is the rectifier's efficiency of half wave? (CO-2)

a) 40% b) 40.6%

c) 81% d) 81.6%

https://www.hsbteonline.com

Q.4 An inverter is also called as _____ gate. (CO-3)

a) NAND b) NOT

c) NOR d) AND

Q.5 The basic storage element in digital systems is (CO-4)

a) Counter b) Encoder

c) Flip Flop d) Mux

Q.6 The number of select lines for 1:16 DEMUX are _____ (CO-4)

a) 1 b) 4

c) 2 d) 3

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 PIV stands for _____ (CO-1)

Q.8 MOSFET stands for _____ (CO-2)

Q.9 Draw symbol of npn transistor. (CO-2)

Q.10 10110-10010 = _____ (CO-3)

https://www.hsbteonline.com

Q.11 The modulus of 4 bit binary counter is _____ (CO-4)

Q.12 SIPO stands for _____ (CO-4)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Discuss effect of temperature on the conductivity of intrinsic semiconductors. (CO-1)

Q.14 Draw and explain v-I characteristics of a pn junction diode. (CO-1)

Q.15 Explain how a shunt capacitor removes the ripple. (CO-1)

Q.16 Give the input and output characteristics of transistor in CB configuration. (CO-2)

Q.17 Differentiate between BJT and JFET. (CO-2)

Q.18 Do the following conversions (CO-3)

i) $(75)_8 = (?)_2$

ii) $(1C2)_{16} = (?)_{10}$

Q.19 Explain AND gate with truth table. (CO-3)

https://www.hsbteonline.com

Q.20 Discuss about half adder circuit. (CO-4)

Q.21 Write a short note on 1:8 DE-MUX. (CO-4)

Q.22 Write a short note on RS FF. (CO-4)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Define a rectifier. Discuss about the types of rectifier. Explain any one in detail. (CO-1)

Q.24 Explain in detail working of 4 bit synchronous / asynchronous counter. (CO-4)

Q.25 Write short note on the following.

a) Transistor as an amplifier in CE configuration. (CO-2)

b) NOR gate as universal gate. (CO-3)

(Note: Course outcome/CO is for office use only)

https://www.hsbteonline.com

No. of Printed Pages : 4 220931
Roll No. .....

3rd Sem / Electrical

Subject : Electric Machines - I

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Electrical machine which converts mechanical energy into electrical energy is known as (CO1)

a) Electrical generator b) Electrical motor

c) Transformer d) All of the above

Q.2 Which of the following motors has high starting torque (CO2)

a) DC shunt motor b) DC series motor

c) Both d) None of the above

Q.3 Transformer are rated in (CO5)

a) KW b) KV

c) KWH d) KVA

https://www.hsbteonline.com

Q.4 Which of the following is not a part of transformer (CO5)

a) Conservator b) Breather

c) Buchholz relay d) Exciter

Q.5 Which type of connection in a three phase transformer is used for the substation end of the transmission line? (CO5)

a) Star/Star b) Delta /Delta

c) Star/Delta d) Delta/Star

Q.6 Auto transformer has (CO5)

a) One winding

b) Multiple winding

c) Two winding

d) Does not have winding

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 The efficiency of a D.C. Generator will be maximum when Variable losses = _____ (CO1)

Q.8 DC series motor is a _____ speed motor. (CO2)

https://www.hsbteonline.com

Q.9 The open circuit is used to measure the _____ losses. (CO4)

Q.10 In step down transformer, primary turns are _____ than secondary turns. (CO5)

Q.11 A transformer has no _____ losses. (CO4)

Q.12 The auto-transformer requires _____ Copper than a two winding transformer of same rating. (CO5)

https://www.hsbteonline.com

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 What are the losses on a DC machine? (CO1)

Q.14 Derive the EMF equation for DC generator. (CO1)

Q.15 Differentiate between a generator and motor. (CO1)

Q.16 Write the methods of speed control of DC shunt motor. Explain any one? (CO2)

Q.17 What are the conditions for parallel operation of 3-phase transformer? (CO5)

Q.18 Draw and explain the Short Circuit Test on the Single-phase transformer. (CO4)

Q.19 Draw a phasor diagram of 1-phase transformer for capacitive load. (CO4)

https://www.hsbteonline.com

Q.20 What is Auto-transformer and what are its advantages and disadvantages? (CO3)

Q.21 Explain the concept of overheating due to harmonics in transformer. (CO3)

Q.22 Explain the construction and working of Instrument transformer. (CO3)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain the construction, principle and working of 1-phase transformer with neat sketch (CO5)

Q.24 Explain and draw the various characteristics of a DC series motor. (CO2)

Q.25 Draw and explain the connections of various types of three-phase transformer. (CO5)

https://www.hsbteonline.com