

- Q.28 State advantages of series parallel control
- Q.29 Give difference between pure ac and dc system
- Q.30 What are the various types of service
- Q.31 What are the constituents of power supply system?
- Q.32 Explain types of rectifier connection used
- Q.33 State application of linear induction motor
- Q.34 What are the special requirements of train lighting system
- Q.35 List requirement of railway coach air conditioning.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 What is electric traction system? list various system of track electrification. compare ac and dc system of track electrification
 - Q.37 Explain principle of linear induction motor and how its traction effort control is executed
 - Q.38 What is braking? Explain regenerative braking and its advantages.

No. of Printed Pages : 4
Roll No.

030965C

Electrical
Subject : Modern Electric traction system

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory

(10x1 = 10)

- Q.1 Pantograph is used with
 - a) Electric locomotive b) Diesel Locomotive
 - c) Steam Locomotive d) None of these
- Q.2 Distance between substation depends upon
 - a) Voltage drop b) Type of locomotive
 - c) Current supplied d) None of these
- Q.3 Specific Energy consumption is Maximum in
 - a) Urban service b) Sub urban services
 - c) Main line services d) None of these
- Q.4 Low Frequency operation of overhead line in traction system
 - a) Increase spacing between substation
 - b) Increase line current
 - c) Decrease line voltage
 - d) None of these

- Q.5 Electric motor prefer for the traction work is
- Dc shunt motor
 - dc series motor
 - Dc compound motor
 - single phase ac motor
- Q.6 Pantograph is
- Current collector
 - Smoothing reactor
 - Voltage correction
 - None of above
- Q.7 In plugging of dc motor
- Connection of armature are reversed
 - Connection of field are reversed
 - Both a&B
 - None of above
- Q.8 Parallel operation of traction motor is easier with
- Dc shunt motor
 - DC compound motor
 - DC series motor
 - Induction motor
- Q.9 Function of cut in & cut out switch is
- To connect dynamo to the battery
 - To Reduce Lamp resistance
 - To increase line voltage
 - All of these
- Q.10 Specific energy consumption becomes
- More with distance between stops
 - More with high value of acceleration
 - More with high train resistance
 - All of these

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SECTION-B

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

- Q.11 Modern traction system employs _____
- Q.12 The Schedule speed of train is given by _____
- Q.13 Define tractive effort.
- Q.14 Trolley collector is suitable for _____
- Q.15 Tractive Effort required for traction motor is _____ during starting
- Q.16 In motor generator set, induction motor is _____
- Q.17 Schedule speed is always _____ than average speed.
- Q.18 Dc series motors have _____ starting torque at low speed
- Q.19 Ac fans are _____ reliable than DC fans.
- Q.20 In regenerative braking motor remains connected to supply (T/F)

SECTION-C

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

- Q.21 State main requirement of an ideal traction system.
- Q.22 Why dc system is preferred for sub urban and bran services
- Q.23 Describe speed features of electric traction motor.
- Q.24 Why dc series motor is best suited for the electric traction work.
- Q.25 What do you mean by schedule speed of the train?
- Q.26 What are the advantages and limitations of electric traction?
- Q.27 State advantages of regenerative braking.

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- Q.5 Which of the following has negative temperature coefficient?
- a) Electrolytes b) Brass
c) Silver d) Mercury
- Q.6 Which of the following is unit of inductance ?
- a) ohm b) Henry
c) Faraday d) None
- Q.7 In a.c. circuits, the a.c meters measure
- a) R.M.S. value b) peak values
c) Mean value d) mean square value
- Q.8 The form factor will be
- a) 1.0 b) 1.1
c) 1.187 d) 1.100
- Q.9 Power factor of the magnetising component of a transformer is
- a) Zero b) unity
c) 0.8 lagging d) 0.8 leading
- Q.10 In the left hand rule, thumb always represents
- a) Voltage b) magnetic field
c) current d) Direction of force on conductor

(2)

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SECTION-B

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

- Q.11 The resistance of a magnetic circuit is similar to of an electric circuit.
- Q.12 Define D.C.
- Q.13 Define ohm's law.
- Q.14 Define conductance.
- Q.15 What is power factor.
- Q.16 The Thevenin voltage is the _____.
- Q.17 Good conductors have resistance.
- Q.18 What is self induction ?
- Q.19 What is unit of power ?
- Q.20 What are eddy currents ?

SECTION-C

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

- Q.21 Difference between star and delta connection.
- Q.22 What are the various advantage of electrical energy.
- Q.23 Discuss B-H curve.
- Q.24 Explain the concept of electrical energy.
- Q.25 What is thevenin's theorem

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- Q.25 Explain the essential Parts of single phase energy meter. (CO-2)
- Q.26 Differentiate between the Ammeter and Voltmeter instrument. (CO-1)
- Q.27 Explain with diagram of single phase Wattmeter. (CO-1)
- Q.28 Explain the block diagram of digital multimeter. (CO-6)
- Q.29 Write down the five applications of CRO. (CO-6)
- Q.30 Describe LCR meter and their applications. (CO-3)
- Q.31 Describe with diagram and construction of earth tester. (CO-6)
- Q.32 Describe three phase power measurement by using two wattmeter method. (CO-6)
- Q.33 Write a short note on RTD. (CO-7)
- Q.34 Explain the construction and working of displacement measurement using transducer. (CO-5)
- Q.35 Explain construction and working of CT. (CO-4)

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. $2 \times 10 = 20$
- Q.36 Describe with diagram and construction. (CO-2)
A) Synchroscope B) Frequency meter
- Q.37 Explain the principle and construction of the following: (CO-2)
1. Moving coil type instruments.
2. Moving iron type instruments.
- Q.38 Explain the construction and working of a Merz price indicator. (CO-6)

No. of Printed Pages : 4
Roll No.

120932

3rd SEM / Electrical Engg Subject : Electrical Measurements & Measuring Instrument

Time : 3 Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1 = 10)
- Q.1 An ammeter is convertible to a voltmeter by (CO-1)
a) Changing the scale
b) Putting a large resistance in parallel with the actual measuring part of the instrument
c) Putting a large resistance in series with the actual measuring part of the instrument
d) Simply installing the instrument in parallel with the circuit
- Q.2 A pointer of an instrument once deflected returns to zero position, when the current is removed due to (CO-1)
a) Action of gravity b) Mass of the pointer
c) Controlling Torque d) Damping Torques
- Q.3 A measuring system consists of (CO-1)
a) Sensors
b) Variable conversion elements
c) Signal processing elements
d) All of these
- Q.4 The power of a n-phase circuit can be measured by using a minimum of (CO-6)
a) (n-1) wattmeter elements
b) n wattmeter elements

- c) $(n + 1)$ wattmeter elements
d) $2n$ wattmeter elements
- Q.5 Two holes in the disc of energy meter are drilled at the opposite sides of the spindle to (CO-6)
a) Improve its ventilation
b) Eliminate creeping at no load
c) Increase its deflecting torque
d) Increase its braking torque
- Q.6 The cathode of a C.R.O. is usually coated with (CO-5)
a) Alkali metals
b) Tungsten or thorium oxide
c) Copper oxide
d) Barium or strontium oxide
- Q.7 The meter constant of single phase energy meter is expressed in terms of (CO-6)
a) Revolution/kWh b) kW/kWh
c) Amps/kW d) Volts/kWh
- Q.8 An induction wattmeter measures (CO-3)
a) Only the true power
b) The reactive power
c) The apparent power
d) The true power and the reactive power
- Q.9 AC bridges used for the measurement of (CO-3)
a) Resistances
b) Resistances and Inductances
c) Inductances and capacitances
d) Resistances, inductances and capacitances
- Q.10 The Ac Bridge used for the measurement of inductance is (CO-3)
a) Maxwell's inductance bridge
b) Hay's bridge
c) Anderson's bridge, Owen's bridge
d) All of these

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SECTION-B

- Note:** Objective type questions. All questions are compulsory. $10 \times 1 = 10$
- Q.11 The accuracy and precision are two _____ terms. (CO-1)
- Q.12 Analog instrument have a _____ and _____ scale. (CO-1)
- Q.13 A voltmeter contains a _____ resistance in series. (CO-2)
- Q.14 Most commonly used wattmeter is _____ (CO-4)
- Q.15 At high frequencies, the accuracy of all the measuring meters _____ (CO-5)
- Q.16 The secondary of a C.T is never left open circuited. True/False (CO-4)
- Q.17 CRT has one anode and many cathodes. True/False (CO-5)
- Q.18 The dielectric loss can be measured by the _____ bridge. (CO-6)
- Q.19 Power of a three phase system is three times the phase power. True/False (CO-6)
- Q.20 Active transducer is _____ (CO-5)

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. $12 \times 5 = 60$
- Q.21 Write and define the main part of CRT? (CO-6)
- Q.22 Define the following terms with examples? (CO-1)
A) Indicating instruments
B) Integrating instruments
C) Recording instruments
- Q.23 Explain thermocouple in detail. (CO-7)
- Q.24 Discuss a bourdon tube used for pressure measurement. (CO-5)

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No. of Printed Pages : 4

Roll No.

120933/30933

3rd SEM / Electrical, GE, PS, E&E
Subject : Electronic 1 / Basic Electronics

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

Q.1 Which of the following is a pentavalent impurity.

- a) Boron
- b) Arsenic
- c) Carbon
- d) Lead

Q.2 The Collector is _____ doped.

- a) Lightly
- b) Heavily
- c) Medium
- d) None

Q.3 At room temperature, intrinsic semiconductor acts as:

- a) Copper wire
- b) Insulator
- c) Conductor
- d) None

Q.4 Rectification Efficiency of half wave rectifier is:

- a) 40.6%
- b) 25.4%
- c) 80.2%
- d) None

Q.5 The point of intersection of dc and ac load line is:

- a) A-Point
- b) Q-Point
- c) T-Point
- d) None

Q.6 The function of emitter in PNP transistor is:

- a) to inject holes into collector
- b) to inject electrons in collector
- c) to inject holes into base
- d) None

Q.7 Semiconductors have _____ bonds

- a) Ionic
- b) Covalent
- c) Both a & b
- d) None

Q.8 P-type semiconductor is formed by adding:

- a) Trivalent
- b) Pentavalent
- c) Quadrant
- d) None

Q.9 The ideal Value of stability factor is

- a) 1
- b) 0
- c) infinte
- d) 100

Q.10 Zener diode is used in:

- a) Breakdown
- b) Forward region
- c) Biasing region
- d) None

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SECTION-B

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

- Q.11 Define constant current source?
- Q.12 Define extrinsic semiconductor?
- Q.13 JFET stands for _____
- Q.14 Draw symbol of NPN transistor?
- Q.15 Define semiconductor?
- Q.16 MOSFET stands for _____?
- Q.17 Define ideal diode?
- Q.18 Define multistage amplifier?
- Q.19 Draw PNP transistor.
- Q.20 Define current gain.

SECTION-C

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

- Q.21 Write a note on Photo Diode ?
- Q.22 Explain the mechanism of current flow in PN Junction ?
- Q.23 Explain loading effect in multistage amplifiers?
- Q.24 Explain the concept of doping.
- Q.25 Explain half wave rectifier working.

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- Q.26 What is stabilization of operating point.
- Q.27 What is effect of temperature on Intrinsic and Extrinsic Semiconductor.
- Q.28 Explain drift and diffusion current.
- Q.29 Explain pie filter circuit.
- Q.30 What is difference between actual and constant voltage source.
- Q.31 Give energy band structure of Germanium.
- Q.32 What is Zener diode and its characteristics.
- Q.33 Explain the working of PNP transistor.
- Q.34 Explain working of P Channel JFET.
- Q.35 Explain working of Direct Coupled Amplifier.

SECTION-D

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

- Q.36 Explain the working of RC Coupled Amplifier with its block diagram and its frequency response and applications?
- Q.37 Describe the following :-
 - (a) H Parameters
 - (b) Energy band structure of Insulator & Semiconductor
- Q.38 Difference between BJT, JFET and MOSFET.

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- Q.29 Explain Piezoelectric Effect.
- Q.30 Discuss the working principle of astable multivibrator.
- Q.31 What is advantage of voltage IC regulator over other regulators.
- Q.32 Explain working of Phase shift oscillator.
- Q.33 Explain in brief working of Class A amplifiers.
- Q.34 Explain effects of Negative feedback on Gain and Bandwidth of an amplifier.?
- Q.35 Explain transistor as Switch.

SECTION-D

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

- Q.36 Explain various diode clamping circuits.
- Q.37 Explain Emitter follower circuit and its applications.
- Q.38 Explain the working of complementary PUSH PULL amplifiers and its advantages.

No. of Printed Pages : 4
Roll No.

120943

4th Sem. / Elect/ PS/E&E.

Subject : Electronics - II

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Push Pull amplifier use
- a) Class A b) Class B
c) Class C d) Class AB
- Q.2 Negative Feedback
- a) Increase voltage gain
b) Decrease voltage gain
c) Decrease voltage gain
d) None
- Q.3 Positive feedback is used in
- a) Oscillators b) Amplifiers
c) Alternator d) None
- Q.4 Parallel RLC circuit is used in following application
- a) Low pass filter b) Band pass filter
c) Band pass filter d) None

- Q.5 Integrator circuit is _____
 a) High pass filter b) Low pass filter
 c) Band pass filter d) None
- Q.6 Hartley Oscillator uses
 a) Negative feedback b) A tickler coil
 c) Split inductor d) Quartz
- Q.7 Reactance of a series RLC circuit at resonance is equal to
 a) Resistance b) Capacitive
 c) zero d) inductive
- Q.8 When RC ckt is used as differentiator circuit, output is taken across
 a) capacitor b) resistor
 c) source voltage d) None
- Q.9 Monostable vibrator has only _____ stable state
 a) two b) one
 c) no d) three
- Q.10 An OPAMP, has _____ number of inputs
 a) three b) two
 c) one d) None

SECTION-B

- Note:** Objective Completion type questions. All questions are compulsory. 10x1=10
- Q.11 A 555 timer is 8 pin IC. (True/False)
- Q.12 What is clamping?

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- Q.13 What is damped oscillations?
- Q.14 To generate square wave, _____ multivibrator is used?
- Q.15 Oscillators uses _____ type of feedback.
- Q.16 Gain of emitter follower circuit is _____?
- Q.17 SVRR means _____.
- Q.18 What is negative feedback?
- Q.19 What is power amplifier.
- Q.20 Cross over distortion occurs in _____ type of amplifiers.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 What do you mean by offset even voltages and currents?
- Q.22 Differentiate between voltage and power amplifiers?
- Q.23 Discuss the effect of negative feedback on gain and bandwidth?
- Q.24 Explain RC as intergrator circuits.
- Q.25 What do you mean by Class A amplifier. Explain?
- Q.26 What are the essentials of an oscillator circuit.
- Q.27 Write a short note on Tuned collector oscillator”.
- Q.28 Explain the OP-Amp with summing amplifier.

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- Q.5 Full form of SWG
 a) Steel wire gauge
 b) Standard wound gauge
 c) Standard wire gauge
 d) None of these
- Q.6 For marriages and other function _____ wiring is preferred.
 a) Cleat wiring
 b) Casing capping wiring
 c) Conduit wiring
 d) Batten wiring
- Q.7 Full form of VIR
 a) Vulcanized Indian Rubber
 b) Volume Indian Rubber
 c) Versatile Indian rubber
 d) Batten wiring
- Q.8 The wire which connect energy meter of consumer with the nearest poll is called
 a) Distribution line b) transmission line
 c) Service line d) Bus bar
- Q.9 The starter is used with _____ motors.
 a) A.C. b) D.C.
 c) Both A.C. & D.C. d) None of these
- Q.10 The maximum recommended load for lightning sub circuit is
 a) 400 W b) 500 W
 c) 700 W d) 800 W

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SECTION-B

- Note:** Objective Completion type questions. All questions are compulsory. (10x1=10)
- Q.11 The third pin in a 3 pin shoe is for _____ terminal.
- Q.12 The value of earth resistance for large power stations is _____.
- Q.13 A person who prepare estimate is called _____.
- Q.14 Full form of TPICN.
- Q.15 Anti-climbing device and danger plate should be provided on each pole for overhead line 6.6 KV and above. (True/False)
- Q.16 Procurement work like installation of substation, purchase of heavy machinery is generally carried through _____.
- Q.17 In which method labour charges are calculated according to the total area covered by building.
- Q.18 A pole mounted substation is an _____ substation.
- Q.19 Define book value.
- Q.20 The cost added to the estimate due to unknown events like Natural disaster is _____.

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Define estimating and state its purposes.
- Q.22 Prepare a specimen tender notice for the setup of 11 KV substation.
- Q.23 Name the various methods of calculating Labour charges and explain any one of them.
- Q.24 Write a note on contingency.
- Q.25 Explain cleat wiring.
- Q.26 Describes the various types of wires or cables usually used in internal wiring of building.

(3) 120945/30945

- Q.26 Describe the various methods for torque measurement.
- Q.27 Explain electronic pH measurement.
- Q.28 Explain the basic principle of ultrasonic flow meter?
- Q.29 Explain briefly the elements of general measurement system.
- Q.30 Write a short note on gauge materials and their selections.
- Q.31 Explain piezoelectric type transducers.
- Q.32 Explain the basic concept of load cell.
- Q.33 What are methods for measurement of vibrations?
- Q.34 Describe the importance of measurements?
- Q.35 Explain pressure measurement by using pirani gauge.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 How the pressure is measured by using Bourdon tube. Give its advantages and disadvantages?
- Q.37 Explain the construction and principle of working of an L.V.D.T.
- Q.38 Explain the different types of Force measuring devices and their principles.

No. of Printed Pages : 4
Roll No.

120946

Elect., Power Station Engg, Elect. & Eltx Engg.

Subject : Instrumentation

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Loads cells are used for measuring_____
- Large weights only
 - Small weights only
 - Weights moving in high speed
 - Slowly moving weights
- Q.2 Electrical strain gauge works on the principle of_____.
- Variation of resistance
 - Variation of capacitance
 - Variation of inductance
 - Variation of area
- Q.3 Strain gauge, LVDT and thermocouple are examples of
- Active transducers
 - Passive transducers
 - Analog transducers
 - Primary transducers

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(1)

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- Q.4 The pH value of pure water is _____.
- a) 5 b) 1
c) 7 d) 14
- Q.5 Which of the following represent active transducer?
- a) Strain gauge b) Thermistor
c) LVDT d) Thermocouple
- Q.6 Piezoelectric means _____
- a) Electric polarization
b) Electric dielectric
c) Pressure electricity
d) Polar dielectric
- Q.7 A capacitive transducer works on the principle of _____
- a) Inductance b) Capacitance
c) resistance d) reluctance
- Q.8 Piezoelectric materials are well cut for _____
- a) Good dimension
b) Good coupling coefficient
c) Compact shape of device
d) Increasing frequency
- Q.9 Which of the following cannot be measured using potentiometer?
- a) DC voltage
b) Temperature
c) Resistance
d) None of the mentioned
- Q.10 Capacitive transducer displays _____
- a) Linear behavior
b) Non-linear behavior
c) Exponential behavior
d) tangential behavior

(2)

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SECTION-B

- Note:** Objective Completion type questions. All questions are compulsory. (10x1=10)
- Q.11 Electromagnetic flow meters works on the principle of _____.
- Q.12 Expand RTD?
- Q.13 Pressure gauges are used to measure _____ and _____?
- Q.14 The load cell converts _____ into electrical signal.
- Q.15 PH value of acid is _____ 7.
- Q.16 A hygrometer measures the value of _____ directly.
- Q.17 Piezo electric crystal can act as an Inverse transducer. (True/False)
- Q.18 Bourdon tube is used for _____.
- Q.19 Expands LVDT.
- Q.20 _____ transducer do not require auxiliary power source to produce their output.

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Explain any one electrical method of level measurement.
- Q.22 List the different methods of speed measurement. Explain any one method.
- Q.23 Give the advantages of Electrical Transducers.
- Q.24 What is relative humidity? Explain any one type of hygrometer.
- Q.25 Explain the working principle of bimetallic thermometer.

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No. of Printed Pages : 4

Roll No. 120953/030953/105853

5th Sem./ Electrical

Subject : Industrial Electronics and Control of Drives (IECD)

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 An SCR is a _____ switch.
a) unidirectional b) bidirectional
c) three directional d) four directional
- Q.2 The SCR is turned-off when the anode current falls below
a) break over voltage
b) forward current rating
c) latching current
d) holding current
- Q.3 ADIAC is turned on by
a) breakover voltage b) gate current
c) gate voltage d) none of the above
- Q.4 Which device can be used in a chopper circuit ?
a) BJT b) MOSFET
c) GTO d) all of the above

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- Q.5 The single phase bridge type cyclo-converts uses _____ number of SCRs
a) four b) eight
c) six d) none of the above
- Q.6 Static UPS requires
a) Only Rectifier
b) Only Inverter
c) Both rectifier & Inverter
d) None of the above
- Q.7 SCRs are connected in parallel to fulfill the _____ demand.
a) high voltage b) high current
c) size d) efficiency
- Q.8 The load voltage of a chopper can be controlled by varying the
a) duty cycle b) firing angle
c) reactor position d) extinction angle
- Q.9 If the firing angle in an SCR rectifier is decreased, the output is
a) increased b) decreased
c) maximum d) remain unaffected
- Q.10 When SCR starts conducting, then _____ losses all control
a) gate b) anode
c) cathode d) anode Supply

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SECTION-B

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

- Q.11 For wide range speed control _____ drives are used.
- Q.12 Draw symbol of SCR.
- Q.13 Which material is used for making heat sinks.
- Q.14 A semi converter operates in _____ quadrant and a full converter operates in _____ quadrant.
- Q.15 An SCR has _____ terminals.
- Q.16 Expand SMPS.
- Q.17 Which method is used to control the speed of DC shunt motor above normal speed?
- Q.18 A chopper converts _____.
- Q.19 List any one application of SCR.
- Q.20 Define UJT.

SECTION-C

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

- Q.21 Explain working of UJT as a Relaxation oscillator.
- Q.22 Draw the VI characteristics of DIAC and explain its working.
- Q.23 List five advantages of AC drive over DC drive.
- Q.24 Draw and explain the circuit diagram for single phase, half controlled full wave rectifier.

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- Q.25 Explain the working principle of series inverter with the help of circuit diagram.
- Q.26 Explain the different methods of triggering of an SCR.
- Q.27 Define UPS and explain the working of on line UPS.
- Q.28 Describe cyclo-converter controlled AC drive.
- Q.29 Differentiate between Latching current and holding current.
- Q.30 Define commutation. Explain natural commutation.
- Q.31 Explain the series operation of thyristor.
- Q.32 Describe the battery charger used in UPS.
- Q.33 Draw and explain the block diagram for speed control of DC motor using chopper drive.
- Q.34 List five applications of dual converters.
- Q.35 Write a short note on Maintenance of storage devices.

SECTION-D

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

- Q.36 Draw VI characteristics of SCR. Explain the construction and working of SCR.
- Q.37 Explain how variable frequency AC drive works.
- Q.38 Explain the working of three phase bridge inverter with the help of circuit diagram.

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No. of Printed Pages : 4

Roll No. 120955/30955/105855

5th Sem./ Electrical, GE, Power Station Engg.

Subject : Digital Electronics & Microprocessors

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Which of the following is not a positional number system?
a) Roman Number system
b) Octal Number System
c) Binary Number System
d) Hexadecimal Number System
- Q.2 The only function of NOT gate is to _____
a) Stop signal
b) Invert input signal
c) Act as a universal gate
d) None of the above
- Q.3 In Boolean algebra, the bar sign (-) indicates _____
a) OR operation b) AND operation
c) NOT operation d) None of the above
- Q.4 A _____ value is represented by a Boolean expression.
a) Positive b) Recursive
c) Negative d) Boolean

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- Q.5 What is the function of an enable input on a multiplexer chip?
a) To apply Vcc
b) To connect ground
c) To active the entire chip
d) To active one half of the chip
- Q.6 In J-K flip-flop, the function $K=J$ is used to realize _____
a) D flip-flop b) S-R flip-flop
c) T flip-flop d) S-K flip flop
- Q.7 How many control lines are present in analog to digital converter in addition to reference voltage?
a) Three
b) Two
c) One
d) None of the mentioned
- Q.8 Disk and tapes are type of
a) Serial memory
b) combinational memory
c) state memory
d) flip flop
- Q.9 In 8085, 16-bit address bus, which can address upto?
a) 16KB b) 32KB
c) 64KB d) 128KB
- Q.10 There are _____ general purpose registers in 8085 processor.
a) 5 b) 6
c) 7 d) 8

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SECTION-B

Note: Objective Completion type questions. All questions are compulsory. $10 \times 1 = 10$

- Q.11 _____ is the radix of octal number.
- Q.12 The complimentary function is represented by _____ gate.
- Q.13 Demultiplexer is the reverse of _____.
- Q.14 According to Boolean Algebra $A+1 =$ _____.
- Q.15 How many bytes are there in 1KB _____.
- Q.16 A half adder includes a NAND gate with _____ gate.
- Q.17 The commonly used D/A converter is a _____ network.
- Q.18 8085 has _____ number of instructions.
- Q.19 LCD stands for _____.
- Q.20 CMOS stands for _____.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

$12 \times 5 = 60$

- Q.21 Convert 110101 into decimal number .
- Q.22 What is difference between analog & digital signals?
- Q.23 Explain with the help of truth table, the working of NAND and NOR gates.
- Q.24 State and prove Demorgan's Theorems.
- Q.25 What is difference between combinational and sequential circuit.

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- Q.26 What is a D flip flop? Discuss its applications.
- Q.27 Explain with the help of necessary how will you convert a digital signal to analog signal.
- Q.28 What are various register of 8085? Discuss their function.
- Q.29 Draw the PIN diagram of 8085.
- Q.30 Write short note on Counters.
- Q.31 Write an assembly language program to add two members and store your result in memory location 2003H.
- Q.32 What are universal gates? Why these are called as universal?
- Q.33 Discuss in brief different types of semiconductor memories.
- Q.34 What do you understand by EPROM and PROM? Explain.
- Q.35 Define the term bit, byte and word.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. $2 \times 10 = 20$

- Q.36 Draw block diagram of 8085 microprocessor? Explain function of ALU.
- Q.37 Reduce the following expression using K-map for function with variables A,B,C and D $Y = \sum (0,2,4,6,8,9,12)$
- Q.38 Write short notes on :
- D/A converters
 - A/D converters

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- Q.23 Write five advantages of electric heating.
- Q.24 Explain flash butt welding.
- Q.25 Write the five advantages of electric traction.
- Q.26 Define electro-deposition. Write the factors governing electro-deposition.
- Q.27 Write a note on Ecofriendly refrigerants.
- Q.28 Explain conductor rail system used for track electrification.
- Q.29 Write any five advantages of electric drive over mechanical drive.
- Q.30 Explain flood lighting.
- Q.31 Write the essential properties of resistance heating element.
- Q.32 Write a short note on Metro railway.
- Q.33 Explain the causes of failure of heating elements?
- Q.34 Explain the process of MIG welding.
- Q.35 Explain the circuit of water cooler.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. $2 \times 10 = 20$
- Q.36 Describe with neat sketch, the principle and operation of a sodium vapour lamp. Also write its uses.
- Q.37 Describe the various accessories used for track electrification.
- Q.38 Explain the principle of air conditioning. Draw and explain the electric circuit of refrigerator.

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120961

6th SEM / Electrical Subject : Utilization of Electrical Energy (UEE)

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Candela is the unit of
a) Luminous flux b) Luminous intensity
c) Wavelength d) None of the above
- Q.2 Which of the following will need the highest level of illumination?
a) Proofreading b) Bed Room
c) Hospital d) Railway platforms
- Q.3 Heat transfer by conduction will not occur when
a) Bodies are kept in vacuum
b) Bodies are immersed in water
c) Bodies are exposed to thermal radiations
d) Temperatures of the two bodies are identical
- Q.4 _____ has the highest value of thermal conductivity.
a) Copper b) Aluminium
c) Brass d) Steel

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- Q.5 The method of heating used in an electric room heat convector is
- Resistance heating
 - Induction heating
 - Dielectric heating
 - Arc heating
- Q.6 Rating of a domestic refrigerator is of the order of
- 0.1 ton
 - 5 tons
 - 10 tons
 - 40 tons
- Q.7 The consideration involved in the selective of the type of electric drive for a particular application depends upon
- Speed control range and its nature
 - Starting Nature
 - Environmental condition
 - All of the above
- Q.8 In _____ drive each machine is driven by its own separate motor with the help of gears and pulley
- Individual drive
 - Multi motor drive
 - Group Drive
 - None of the above
- Q.9 The electrodes used for projection welding are
- Flat and smaller in diameter
 - Flat and larger in diameter
 - Round and smaller in diameter
 - Round and larger in diameter

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- Q.10 For supply on 25 kV, 50 Hz single phase, suitable motor for electric traction is
- ac single phase split phase motor
 - ac single phase universal motor
 - dc shunt motor
 - dc series motor

SECTION-B

Note: Objective type questions. All questions are compulsory. $10 \times 1 = 10$

- Q.11 Define Electric heating
- Q.12 Expand CFL.
- Q.13 Which electrode is used in TIG welding.
- Q.14 Negative ions are also called _____.
- Q.15 Which supply is used in electroplating?
- Q.16 Define Electric Drive.
- Q.17 In which braking, the motor is disconnected from supply and is made to run as generator?
- Q.18 Unit of refrigeration is _____.
- Q.19 Name the commonly used material as refrigerants.
- Q.20 Expand EMU.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. $12 \times 5 = 60$

- Q.21 Define Light. Explain the of shadow in lighting design?
- Q.22 Differentiate between incandescent and fluorescent lamp.

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- Q.26 Write a short note on SCADA.
- Q.27 Explain any two assembler directives?
- Q.28 Draw the pin diagram PLC micro-controller.
- Q.29 write any four applications of micro-controller.
- Q.30 Different between micro-controller and micro-processor.
- Q.31 Draw the diagram of ADC interfacing with 8051 micro-controller.
- Q.32 write short on PLC operations.
- Q.33 Explain the logical instructions of PLC.
- Q.34 Explain XLC and x10 instructions with diagram.
- Q.35 What are the different addressing modes of 8051 micro-controller?

Section-D

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

- Q.36 Explain the architecture of PLC in detail.
- Q.37 Explain the timer instructions of PLC in detail.
- Q.38 Draw the pin diagram of 8051 micro-controller and explain function of each pin.

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Roll No.

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6th Sem/ Electrical Engg. Subject : PLCs & Microcontrollers

Time : 3 Hrs.

M.M. : 100

Section-A

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

- Q.1 The interrupts which can be ignored are called _____.
- (a) Vectored interrupts
(b) Non vectored interrupts
(c) Maskable interrupts
(d) Non-mask able interrupts.
- Q.2 Therer are _____ type of timers.
- (a) One (b) Two
(c) Three (d) four
- Q.3 _____ counters count zero up to the preset value
- (a) Up counter (b) down counter
(c) UP- Down Counter (d) None of these
- Q.4 Full form of PLC.
- (a) Power Logic Controller.
(b) Programmable Logic Controller.
(c) Power Logic Counter
(d) None of these

Q.5 8051 micro-controller is _____ pin micro-controller.

- (a) 30 (b) 40
(c) 20 (d) 16

Q.6 Which of the following instructions is used transfer data.

- (a) AND (b) MOV
(c) ADD. (d) NOP.

Q.7 How many ports are in 8051 micro controller.

- (a) 2 (b) 3
(c) 4 (d) 5

Q.8 RAM stands for _____

- (a) Random only memory
(b) Read only memory
(c) Random Access memory
(d) none of these

Q.9 How many types of CPU register in PLC

- (a) One (b) Two
(c) Three (d) Four.

Q.10 PLC scanning operation is made up of mainly _____ parts.

- (a) 3 (b) 4
(c) 5 (d) 6

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Section-B

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

Q.11 Define bus.

Q.12 What is full form of CPU?

Q.13 Write any one Arithmetic Instruction.

Q.14 Define Counter.

Q.15 SFR stands for _____.

Q.16 ALE stands for _____.

Q.17 Name the most commonly used PLC programming Language.

Q.18 Define Assembler.

Q.19 PIC stands for _____.

Q.20 PSW stands for _____.

Section-C

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

Q.21 Write any five application of PLC.

Q.22 Summarize the PLC memory organization.

Q.23 What is a ladder programming?

Q.24 Discuss any two SFRs of 8051 micro-controller.

Q.25 Discuss RTC of PLC.

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- Q.27 What are the different factors determining the selection of power cables?
- Q.28 Differentiate between standard efficiency motor and energy efficient motor.
- Q.29 How fine tuning of equipment's helps in saving energy?
- Q.30 Explain different types of losses in motor. Give details about any one type of loss.
- Q.31 Write a short note on geothermal energy.
- Q.32 How cost analysis on life cycle basis affects the selection of motor.
- Q.33 Explain the different areas of energy conservation in domestic sector.
- Q.34 Discuss the three pronged approach.
- Q.35 What are the main functions of BIS?

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 How can you define the term Energy management? What is the need of energy management? How an individual can help in energy management?
- Q.37 Explain the need of energy audit. Discuss the various steps involved in energy audit process.
- Q.38 Discuss the EIA process with help of proper flow chart.

No. of Printed Pages : 4
Roll No.

120965A/030965A

6th Sem./ Elect. Engg, power Station Engg. Subject : Energy Management

Time : 3 Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)
- Q.1 The inexhaustible energy sources are also known as _____
- Commercial energy
 - renewable energy
 - primary energy
 - non renewable energy
- Q.2 The objective of energy management is _____
- minimizing energy costs
 - minimizing waste
 - minimizing environmental degradation
 - All of the above
- Q.3 The process of producing energy by utilizing heat trapped inside the earth surface is called _____
- Hydrothermal energy
 - geothermal energy
 - solar energy
 - wave energy

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- Q.4 Luxmeter is used to measure _____
 a) Illumination level b) sound intensity
 c) wave harmonics d) speed
- Q.5 BIS stands for _____
 a) Board of Indian standard
 b) Bureau of Indian standards
 c) Bureau of international specifications
 d) Board of International standard
- Q.6 Power factor is the ratio of _____
 a) Active power to the reactive power
 b) active power to the apparent power
 c) apparent power to the active power
 d) reactive power to the apparent power
- Q.7 Wind turbine converts wind power into _____
 a) Potential energy b) wind energy
 c) electrical energy d) mechanical energy
- Q.8 CFL stands for _____
 a) compact fluorescent lamp
 b) constantan filament lamp
 c) closed filament lamp
 d) closed fluorescent lamp
- Q.9 The ocean thermal energy conversion (OTEC) is _____
 a) energy difference
 b) temperature difference
 c) potential difference
 d) kinetic difference
- Q.10 Standard frequency of power supply in India is _____
 a) 100 Hz b) 60 Hz
 c) 50 Hz d) 120 Hz

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SECTION-B

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

- Q.11 What's energy management?
 Q.12 What do you mean by renewable energy sources?
 Q.13 Which lamp is least expensive to buy are the most expensive to operate?
 Q.14 What are the energy efficient devices?
 Q.15 How can we correct power factor?
 Q.16 What is the full form of LCD?
 Q.17 What are the advantages of LED?
 Q.18 What is the full form of LCCA?
 Q.19 What is the formal statement of EIA known as?
 Q.20 What is the main use of power analyzer?

SECTION-C

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

- Q.21 What is the need of energy efficient devices?
 Q.22 What are Non-renewable sources of energy? Give some examples.
 Q.23 Discuss the different strategies of energy management.
 Q.24 What is the effect of voltage fluctuation? Discuss briefly about different methods of tap changing.
 Q.25 Write short note on amorphous core transformer.
 Q.26 What is the importance of power factor?

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- Q.24 Draw and explain basic structure of optical fiber.
- Q.25 Describe the structure of graded index fiber.
- Q.26 Write any four types of OFC losses and define them.
- Q.27 Describe population inversion.
- Q.28 Explain PIN Diode.
- Q.29 List five differences between PIN and APD.
- Q.30 What are basis components of connectors.
- Q.31 Explain working of optical fiber Isolators.
- Q.32 Explain the operating characteristics of LEDs.
- Q.33 Explain snell's law.
- Q.34 Differentiate between step index and graded index fiber.
- Q.35 Explain operating principle of WDM.

Section-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Explain characteristics of LASER DIODE and types of LASERS.
- Q.37 Explain the working Principle of Avalanche photodiode. Describe its construction and working.
- Q.38 Define splicing. Discuss different types of splicer in detail.

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Roll No.

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6th/Sem Electrical Engineering
Subject : Optical Fiber Communication

Time : 3 Hrs.

M.M. : 100

Section-A

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

- Q.1 LED stand for.
- (a) Light Emmission Ray
(b) Light Emmitting Diode
(c) Laser Emitting Diode
(d) Name of these
- Q.2 An optional fiber consist of.
- (a) Core (b) Cladding
(c) Buffer (d) All of these
- Q.3 SOA stand for
- (a) Semiconductor optical Amplifier
(b) Switch optical Amplifier
(c) Semiconductor open Amplifier
(d) None of these.
- Q.4 LAN stand for
- (a) Linear Area Network
(b) Local Area Network.
(c) Local Air Network
(d) None of these.

Q.5 Multimode fiber consists of _____ fiber cables.

- (a) One (b) Two
(c) Three (d) Many.

Q.6 The Principal of light Propagation in optical fiber is based on.

- (a) Reflection (b) Refraction.
(c) Dispersion
(d) Total internal reflection.

Q.7 PVC stand for.

- (a) Polyvinyi calcium (b) Polythene chloride.
(c) Polyvinyl chloride (d) name of these

Q.8 The Core is the _____ part of the fiber, which guides light.

- (a) Inner (b) Outer
(c) Medium (d) Name of these

Q.9 The unit of dispersion is.

- (a) picoseconds/km/nm (b) picoseconds
(c) Kilometer (d) Nanometer.

Q.10 Light propagates mainly along the _____ of the fiber.

- (a) cladding (b) Buffer
(c) Core (d) None of these

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Section-B

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

Q.11 Dispersion causes the light pulse to get _____ (narrowed/broadened).

Q.12 The Pin Diode operates in _____ biased region.

Q.13 Refractive index of a core is more than cladding. (T/F)

Q.14 Write optical frequency range.

Q.15 LASER Stands for _____.

Q.16 LED is a non coherent source of light. (T/F)

Q.17 The attenuation losses are measured in terms of _____ (bel/decibel/del).

Q.18 The sensitivity of LED is _____ as compared to LASER dioder.

Q.19 APD Stands for _____.

Q.20 The optional fiber couplers are _____ in nature. (unidirectional/ Bidirectional)

Section-C

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

Q.21 Explain the block diagram of optical Fiber communication system.

Q.22 What are different types of optical switches?

Q.23 Write five comparisons between inter modal and intramodal dispersion.

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