

No. of Printed Pages : 4

Roll No.

180951/170951/

120951/030951

5th Sem. / Electrical Engg.

Subject : Electrical Machines-II

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

(Course Outcome/CO)

Q.1 Unit of electric energy is _____. (CO-1)

Q.2 Windings of motor are made of _____. (CO-2)

Q.3 Overexcited synchronous machine works as _____. (CO-1)

Q.4 In INDIA Single phase AC voltage is _____. (CO-3)

Q.5 $N_s =$ _____. (CO-3)

Q.6 the rotor core is made of _____. (CO-1)

Q.7 Universal motor runs both on _____. (CO-2)

Q.8 _____ motor runs in steps. (CO-4)

Q.9 The maximum value of Power Factor is _____. (CO-3)

Q.10 _____ motor is used in electric clock. (CO-2)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

Q.11 Define Synchronous Motor. (CO-3)

Q.12 Define Harmonics. (CO-3)

Q.13 Define coil span factor. (CO-1)

Q.14 Define synchronous speed. (CO-3)

Q.15 Define generator. (CO-3)

Q.16 What is stepper motor? (CO-4)

Q.17 Define distribution factor. (CO-1)

Q.18 Define crawling. (CO-3)

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- Q.19 Define universal motor. (CO-3)
- Q.20 What is damper winding. (CO-3)
- Q.21 Define Armature Reaction. (CO-1)
- Q.22 Define split phase motor. (CO-2)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten. 5x8=40

- Q.23 Explain advantages of squirrel cage induction motor. (CO-1)
- Q.24 Discuss working of AC servo motor. (CO-4)
- Q.25 Explain the working principle of Linear Induction motor. (CO-4)
- Q.26 Explain the V-curves of Synchronous machine. (CO-3)
- Q.27 How do we make 1 phase motor self start? (CO-2)
- Q.28 Explain working of reluctance Motor. (CO-2)

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- Q.29 Explain one method of speed control of induction motor. (CO-1)
- Q.30 Explain the effect of excitation on synchronous machine. (CO-3)
- Q.31 Explain working of Universal motor. (CO-4)
- Q.32 Discuss the causes of Hunting. (CO-3)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.33 Explain the various tests performed on 3 phase Induction motor. (CO-1)
- Q.34 Explain construction and working of Star-delta starter of Induction Motor. (CO-1)
- Q.35 Discuss the construction and working of Synchronous Motor. (CO-3)
- Q.36 Explain the working of split phase motors in brief. (CO-2)

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5th Sem. / Electrical Engg.

Subject : Electrical Power-I / Power-I (G.T. & D.E.P.)

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

(Course Outcome/CO)

- Q.1 The most important function performed at the substation is _____. (CO-5)
- Q.2 If the power factor of the load is improved the line losses are _____. (CO-6)
- Q.3 Running cost of _____ plant is lowest. (CO-1)
- Q.4 Diversity factor in a power station is always _____ than unity. (CO-2)
- Q.5 A ring main system of distribution is _____ reliable than radial system. (CO-2)
- Q.6 Economical voltage formula for transmission line is _____. (CO-3)

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Q.7 HVAC Stands for _____. (CO-3)

Q.8 In LT Distribution _____ insulators are used. (CO-4)

Q.9 The chemical formula for heavy water is _____ (CO-1)

Q.10 $KVAR = \text{_____} \tan F$. (CO-6)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

- Q.11 Define Corona. (CO-3)
- Q.12 Define Sag. (CO-3)
- Q.13 Define economizer. (CO-1)
- Q.14 RCC poles are _____ in weight are need _____ Maintenance. (CO-3)
- Q.15 What are the importance of Sag. (CO-3)
- Q.16 Define demand factor. (CO-2)
- Q.17 What is the function of safety Valve in hydro power plant. (CO-1)

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- Q.18 What is the purpose of metallic sheath used in power cables? (CO-4)
- Q.19 Define Load factor. (CO-2)
- Q.20 Define enrichment process. (CO-1)
- Q.21 What are the causes of poor power factor? (CO-6)
- Q.22 Explain radial distribution system. (CO-4)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten. 5x8=40

- Q.23 Explain the effect of power factor on cost of Generation. (CO-2)
- Q.24 What do you mean by conventional and non conventional sources of energy. (CO-1)
- Q.25 Explain how string efficiency is improved? (CO-3)
- Q.26 Discuss the ill effect of poor power factor. (CO-6)
- Q.27 Explain different types of fault occur in underground system. (CO-4)

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- Q.28 What are the merits and demerits of outdoor substation? (CO-5)
- Q.29 What is the function of lightning arrestor in a substation? (CO-5)
- Q.30 Explain various methods by which we can reduce corona? (CO-3)
- Q.31 What are the advantage and disadvantage of Steam power plant. (CO-1)
- Q.32 Explain interconnected system. (CO-4)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.33 Explain Murray Loop test in detail. (CO-4)
- Q.34 Explain the construction and working of nuclear power plant with daigram. (CO-1)
- Q.35 Write the components of a pole mounted substation and their function. (CO-5)
- Q.36 Derive a relation for string efficiency of a three unit string of suspension insulators. (CO-3)

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5th Sem. / Electrical Engg.

Subject : PLC and Microcontrollers

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

(Course Outcome/CO)

- Q.1 Full form of PLC is _____ (CO-1)
Q.2 8051 is _____ Pin IC. (CO-7)
Q.3 SCADA stands for _____. (CO-6)
Q.4 Define bus. (CO-7)
Q.5 Define memory. (CO-2)
Q.6 Full form of RTC is _____. (CO-3)
Q.7 PSW stands for _____. (CO-7)
Q.8 Full form of EPROM is _____. (CO-2)

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- Q.9 Full form of LCD is _____ (CO-10)
Q.10 Memory size of 8051 (ROM) is _____ (CO-7)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

- Q.11 Define timer. (CO-3)
Q.12 Define counter. (CO-3)
Q.13 Define MOV instruction. (CO-3)
Q.14 Define assembly language. (CO-9)
Q.15 Define interrupt. (CO-8)
Q.16 What is SFR? (CO-7)
Q.17 Define stack pointer. (CO-7)
Q.18 Define Rung. (CO-4)
Q.19 Define PORT. (CO-2)
Q.20 Full form of RTC is _____. (CO-3)
Q.21 What is Relay? (CO-1)

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Q.22 What is up counter? (CO-3)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten. 5x8=40

Q.23 Explain advantages of PLC over Relays. (CO-1)

Q.24 Explain the power supply section of PLC. (CO-2)

Q.25 Explain any two arithmetic instructions of PLC. (CO-3)

Q.26 Explain the use of Ladder Programming. (CO-4)

Q.27 Explain application of PLC in Packaging. (CO-5)

Q.28 Discuss the role of SCADA in industry. (CO-6)

Q.29 What is the difference between Microprocessor and Microcontroller? (CO-7)

Q.30 Explain various interrupts of 8051. (CO-8)

Q.31 Explain any two SFRs of 8051. (CO-7)

Q.32 Explain data transfer operation. (CO-9)

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SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.33 Draw the building block of PLC and explain function of each block in detail. (CO-1)

Q.34 Explain pin diagram of 8051 microcontroller with neat diagram. (CO-7)

Q.35 Explain keyboard interfacing with microcontroller. (CO-10)

Q.36 Write short note any two

i) Memory structure of PLC (CO-2)

ii) Addressing modes of 8051 (CO-8)

iii) Applications of 8051. (CO-11)

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5th Sem. / Electrical Engg.

Subject : Instrumentation

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

(Course Outcome/CO)

- Q.1 LVDT stands for _____. (CO-4)
- Q.2 _____ is an example of passive transducer. (CO-2)
- Q.3 Potentiometer is used to measure _____. (CO-4)
- Q.4 Bourdon tube are made up of _____. (CO-4)
- Q.5 Define measurement. (CO-1)
- Q.6 Electromagnetic flow meter is independent of liquid density? (True/False) (CO-1)
- Q.7 PH value varies form _____ to _____? (CO-4)

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Q.8 Pyrometers are used for measuring _____. (CO-4)

Q.9 Load cell converts force into an _____. (CO-2)

Q.10 Bellows are used to measure _____. (CO-4)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

- Q.11 What is the importance of measurement? (CO-1)
- Q.12 Define Hygrometer. (CO-2)
- Q.13 Define humidity. (CO-4)
- Q.14 What are the two applications of capacitive transducer? (CO-4)
- Q.15 What do you mean by inverse transducer? (CO-2)
- Q.16 Define Active transducer. (CO-2)
- Q.17 Write any two applications of LVDT. (CO-4)
- Q.18 What is stroboscope? (CO-4)
- Q.19 Define Pneumatic load cell. (CO-4)

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- Q.20 Define pressure. (CO-5)
Q.21 Define pyrometry. (CO-5)
Q.22 Define Relative humidity. (CO-5)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten. 5x8=40

- Q.23 Explain two methods of displacement measurement. (CO-4)
Q.24 Write short note on Display devices. (CO-5)
Q.25 Describe the signal conditioning? (CO-1)
Q.26 What is thermistor? Write its two applications. (CO-5)
Q.27 Write two advantages and disadvantages of the piezoelectric transducer? (CO-2)
Q.28 Draw the block diagram of measurement system. (CO-1)
Q.29 State and explain principle of electromagnetic flow meter? (CO-4)
Q.30 Why PH measurement is required? (CO-5)

- Q.31 Explain digital method of measurement of torque. (CO-3)
Q.32 Discuss the measurement of pressure by using a Bourdon tube. (CO-4)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.33 Explain the construction, principle and working of LVDT? List the advantages and disadvantages of LVDT? (CO-3)
Q.34 What are the different ways according to which transducers can be classified? List some factors that determine the choice of transducer. (CO-2)
Q.35 Write short note on
(i) Thermocouple (ii) Thermopile (CO-4)
Q.36 Describe the load measurement by using elastic transducer and electrical strain gauge. (CO-5)

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Roll No.

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5th Sem. / Electrical Engineering

Subject : Auto Electrical

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

(Course Outcome/CO)

- Q.1 Chemicals used in a battery are _____.(CO-3)
- Q.2 Specific gravity of fully charged battery is _____. (CO-2)
- Q.3 Alternator is used for _____. (CO-4)
- Q.4 Define low charging rate. (CO-1)
- Q.5 Circuit breaker closes the circuit between _____ and the battery when the generator is producing current. (CO-5)
- Q.6 A generator converts _____ energy to _____ energy. (CO-5)

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Q.7 Positive plate of lead acid battery is _____. (CO-4)

Q.8 _____ indicates the fuel level in a fuel tank. (CO-3)

Q.9 Function of defroster is _____. (CO-4)

Q.10 Type of battery used in a card is _____(CO-1)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

- Q.11 What is the purpose of a separator. (CO-1)
- Q.12 Define normal charging of a battery. (CO-5)
- Q.13 What do you mean by cranking the engine? (CO-4)
- Q.14 Define function of ignition coil. (CO-1)
- Q.15 What is battery testing? (CO-3)
- Q.16 What is the importance of instrument light? (CO-4)
- Q.17 Define ammeter. (CO-3)
- Q.18 Describe need of seat adjuster. (CO-4)

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- Q.19 Define role of regulator. (CO-2)
- Q.20 What is dehydration of a battery? (CO-2)
- Q.21 What is the importance of cable connector? (CO-4)
- Q.22 Define sealed beam. (CO-2)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten. 5x8=40

- Q.23 Describe the process of recharging of a battery. (CO-2)
- Q.24 Explain maintenance free battery. (CO-3)
- Q.25 Write advantages and disadvantages of alternator. (CO-5)
- Q.26 Explain starting motor drive arrangement. (CO-5)
- Q.27 Explain horn relay with neat sketch. (CO-2)
- Q.28 Explain horn circuit with neat sketch. (CO-2)
- Q.29 Explain impulse speedometer. (CO-4)
- Q.30 Enlist five battery defects. (CO-2)

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- Q.31 Explain faults and rectification in wiring system. (CO-2)
- Q.32 Illustrate the control of different sub systems in modern automobiles using micro controller. (CO-2)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.33 Briefly describe the construction of a lead acid battery with neat sketch. (CO-2)
- Q.34 Explain the principle and construction of a starter motor. (CO-5)
- Q.35 Explain construction and working of regulators for D.C. generator. (CO-5)
- Q.36 Write short notes on : (CO-7)
- Temperature gauge.
 - Cable color coding. (CO-4)

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No. of Printed Pages : 4

Roll No.

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5th Sem. / Electrical Engg.

Subject : Solar Panel Installation and Maintenance

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

(Course Outcome/CO)

- Q.1 Tell one safety to work with PV system. (CO-4)
- Q.2 Define hazardous materials at PV workplace. (CO-4)
- Q.3 What is Solar Energy? (CO-1)
- Q.4 Tell about standalone PV system? (CO-1)
- Q.5 Define Tilt Angle. (CO-2)
- Q.6 Write name of one tool required for solar PV installation. (CO-1)
- Q.7 Define MPPT. (CO-5)
- Q.8 Tell one cause of Fire accident at workplace of PV installation. (CO-4)

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Q.9 Define Incentives. (CO-3)

Q.10 Describe team coordination. (CO-3)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

- Q.11 List two Photovoltaic (PV) site safety Resources. (CO-4)
- Q.12 Describe Battery Hazards. (CO-4)
- Q.13 What is a solar Micro grid System? (CO-1)
- Q.14 Describe charge controller. (CO-2)
- Q.15 What is mean of Peak sun hour? (CO-2)
- Q.16 Define solar PV module. (CO-1)
- Q.17 Describe delivery standards of PV system. (CO-3)
- Q.18 Tell about work place coordination. (CO-3)
- Q.19 Define Battery. (CO-2)
- Q.20 What are fire accidents? (CO-4)
- Q.21 Define site survey of PV installation. (CO-1)
- Q.22 Write one application of solar PV system. (CO-2)

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SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten. 5x8=40

- Q.23 Explain any five instructions regarding working safety with Solar PV system. (CO-4)
- Q.24 What is solar micro grid system and what are their major components? (CO-1)
- Q.25 What are the input DC voltage and output AC voltage of an off-grid inverter? (CO-2)
- Q.26 Analyze the working of solar system. (CO-1)
- Q.27 How can PV array can be protected from lightning surges? (CO-2)
- Q.28 List & Explain tools for installation and maintaining Photovoltaic Power system.(CO-1)
- Q.29 Describe occupational health and safety assessment during solar installation. (CO-1)
- Q.30 What are the incentives provided by the company's to setup PV system? (CO-3)
- Q.31 Write short note on delivery standards and personal management during PV installation. (CO-3)

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- Q.32 What is importance of better communication between management and individual at workplace of PV installation? (CO-3)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.33 Write short note on-
- a) Standard test working (STC) condition of a PV module. (CO-2)
 - b) Concept of Solar tracking system. (CO-5)
- Q.34 a) Describe solar energy storage system. (CO-1)
- b) Explain different emergency procedures to be followed during fire accidents. (CO-4)
- Q.35 What is solar array? Explain series & parallel connection of solar cell with suitable diagram. (CO-4)
- Q.36 Explain advantages and disadvantages of solar energy system over conventional Power system. (CO-4)
- (Note:** Course outcome/CO is for office use only)

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No. of Printed Pages : 4

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5th Sem. / Electrical Engg.

Subject : Non-Conventional Sources of Energy

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

(Course Outcome/CO)

- Q.1 The main source of Bio-gas is _____. (CO-4)
- Q.2 What is turbine? (CO-1)
- Q.3 What is primary energy? (CO-7)
- Q.4 MHD is based on _____ law. (CO-4)
- Q.5 Gasification means conversion of solid or liquid into _____. (CO-4)
- Q.6 Write full form of MPPT. (CO-3)
- Q.7 Geo means _____ and Thermal means _____. (CO-4)

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Q.8 Tidal energy utilizes _____. (CO-4)

Q.9 Fuel cells convert chemical energy directly into _____. (CO-5)

Q.10 The micro hydro power plants have capacity up to _____ KW. (CO-5)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

- Q.11 Define diffuse and beam radiation. (CO-3)
- Q.12 List various renewable energy sources. (CO-2)
- Q.13 Define HAWT. (CO-1)
- Q.14 Give the names of various types of wind turbines. (CO-1)
- Q.15 Define fermentation. (CO-4)
- Q.16 What is biomass? (CO-4)
- Q.17 Define geothermal energy. (CO-4)
- Q.18 Write any two applications in fuel cells. (CO-5)
- Q.19 What is polarisation? (CO-3)

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- Q.20 Give two advantages of MHD technology. (CO-5)
- Q.21 Define Mini Hydro Power Plant? (CO-1)
- Q.22 WECS stands for _____? (CO-1)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten. 5x8=40

- Q.23 What are the advantages of nonconventional energy sources? (CO-2)
- Q.24 Differentiate between geothermal and tidal energy. (CO-4)
- Q.25 What are the biomass resources? (CO-4)
- Q.26 What are the main problems associated with MHD generation. (CO-5)
- Q.27 Explain the working of solar water heater. (CO-3)
- Q.28 What is the difference between Mini & Micro hydro plants. (CO-1)
- Q.29 Explain the principle of conversion of solar energy into heat? (CO-3)

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- Q.30 What is Gasifier? Give its advantages. (CO-4)
- Q.31 Compare fuel cell with battery. What are the advantages of fuel cell? (CO-5)
- Q.32 Explain how we can store wind energy. (CO-1)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.33 Draw the block diagram of a photovoltaic system and explain its components. (CO-3)
- Q.34 Describe with neat diagram vapour dominated (dry steam) type geothermal power plant. (CO-4)
- Q.35 What are the various types of fuel cells? Describe any one any of them with neat sketch. (CO-5)
- Q.36 What are wave energy conversion devices. Explain any two with neat diagram. (CO-1)

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