ROLL NO. : .....

861601335

CLASS : 6TH SEMESTER (NEW SCHEME).
BRANCH : ELECTRICAL ENGINEERING.
SUBJECT : ELECTRICAL POWER- II.
TIME : 3 HRS. MAX. MARKS: 100

Instructions for candidate:-

i. ATTEMPT ANY FIVE QUESTIONS.
ii. ALL QUESTIONS CARRY EQUAL MARKS.
iii. USE BLUE PEN ONLY.

Q1. Classify circuit breakers on the basis of medium used for arc extinction and explain with neat diagram the construction and working of any one circuit breaker in detail. 4, 16

Q2. a. Explain following methods of Arc Extinction
i. High Resistance method ii. Low Resistance method 2x7

b. What is purpose of protective gear? 6

Q3. a. What are advantages and disadvantages of SF_6 circuit breaker over oil or air circuit breaker? 10

b. Name and explain working of different types of Low voltage fuses. 10

Q4. a. Explain following terms as applied to relays:
i. Pick up current ii. Current setting iii. Plug- setting multiplier 10

b. Name and explain three types of structures commonly used for obtaining the phase difference in the fluxes in induction relays. 10

Q5. Name and explain different methods of system (Neutral) Earthing. 20

Q6. Explain with neat circuit diagram the application of Merz- Price Circulating current principle for the protection of Alternator. 20

Q7. a. Explain with neat diagram the construction details and operation of Buchholz Relay. 10

b. What is a voltage Surge? Draw a Typical Lightning voltage surge. 10

Q8. a. Define Tariff. What are objectives of Tariff? 12

b. The yearly consumption of a factory is 40, 00000 units with a maximum demand of 12000kw. Calculate the annual cost of energy if the energy is charged at
i. Rs. 70 per kw demand plus 2 paise per unit
ii. at a flat rate of 5 paise per unit . 8

Q9. Write short notes on following
i. Earthing Screen ii. Overhead Ground Wire
iii. Rod Gap Lightning Arrester iv. Horn Gap Lightning Arrester 4x5

Q10. a. Define following terms
i. Symmetrical Faults ii. Unsymmetrical faults 5

b. A three Phase transmission line operating at 20 Kv and having a resistance of 1Ω and reactance of 4Ω is connected to the generating station bus bars through 5MVA step up transformer having a reactance of 5%. The bus bars are supplied by a 10 MVA Alternator having 10% reactance. Calculate the short circuit KVA fed to symmetrical fault between phases if it occurs
i. at the load end of the transmission line.
ii. at the high voltage terminals of the transformer. 15

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Roll No:.....

Semester : 6th Electrical (New Scheme) Subject : Utilization OF Electrical Energy

T: 3H Max. Marks: 100

Note : Do ANY Five

1. Explain following systems of Electric traction.

i. DC system ii. AC System 2x 10

2a. What do you understand by speed – time curves ? Explain speed time curve of a train running on the main line . 10

b. Explain nature of different Mechanical loads. 10

3a. Enumerate the factors which govern the selection of motors. 10

b. What is a Electric Drive ? Why it is preferred over mechanical Drive? 10

4. What do you understand by Electric breaking? Explain any two methods of Electric breaking. 20

5. Draw and explain Electrical circuits of following :-

i. Refrigerator ii. Water cooler 2 x 10

6. What is resistance welding? What are its various types? Explain any two types with neat sketches . 20

7a. What is Electrolysis ? State and explain Faraday's Laws of Electrolysis. 15

b. What are the applications of electrolysis ? 5

8. What is Dielectric Heating? Name and explain its various applications. 20

9. with the help of circuit diagram explain the construction and working of a fluorescent tube and compare it with tungsten filament lamp . 20

10a. A 230V lamp has a total flux of 2500 lumens and takes a current of 0.5A. Calculate

i. Lumens per watt ii. M. S.C. P per watt. 10

b. Write short note on resistance heating. 10

Roll No:.....

Semester : 6TH Electrical (New Scheme) Subject : Utilization OF Electrical Energy

T: 3H Max. Marks: 100

Note : Do ANY Five

1. Explain following systems of Electric traction.

i. DC system ii. AC System 2x 10

2a. What do you understand by speed – time curves ? Explain speed time curve of a train running on the main line . 10

b. Explain nature of different Mechanical loads. 10

3a. Enumerate the factors which govern the selection of motors. 10

b. What is a Electric Drive ? Why it is preferred over mechanical Drive? 10

4. What do you understand by Electric breaking? Explain any two methods of Electric breaking. 20

5. Draw and explain Electrical circuits of following : -

i. Refrigerator ii. Water cooler 2 x 10

6. What is resistance welding? What are its various types? Explain any two types with neat sketches . 20

7a. What is Electrolysis ? State and explain Faraday's Laws of Electrolysis. 15

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i. Lumens per watt ii. M. S.C. P per watt. 10

b. Write short note on resistance heating. 10

Roll No:- .....

Semester : 6TH Electrical (New Scheme) Max. Marks: 100

Subject : Basics Of Management TIME : 3H

Note : Do ANY Five

1. Explain different types /tools of Intellectual property rights. 20
2. What do you understand by customer relationship Management? Name and explain its types. 20
3. Explain following levels of Hierarchical Management structure
   i. Top level Management
   ii. Lower level management 2 X 10
4. Explain the importance of healthy work culture in an organization. 20
5. Explain Maslow's Need Hierarchy Theory of Motivation. 20
6. What do you understand by term " INCENTIVES"? Name and explain different types of incentives. 20
7. Write short notes on following
   i. Functional organization
   ii. Job Satisfaction 2x 10
8. Define following terms
   i. Excise duty ii. Income tax
   iii. Customer satisfaction iv. Total Quality Management 4 x 5
9. Give difference between Marketing and selling. 20
10. Name and explain different performance appraisal methods. 20

Roll No:.....

Semester : 6TH Electrical (New Scheme) Max. Marks: 100
Subject : Modern Electric Traction (Elective – II) T: 3H

Note : Do ANY Five

1a. What are the various advantages and disadvantages of Electric traction system over other systems. 10

b. Discuss the various types of Rectifier connections used in electric Locomotive. 10

2a. Name various systems of track electrification. Discuss Single Phase low frequency A.C. system in detail. 10

b. Elaborate the comparison between pure AC system over DC system. 10

3a. Discuss the various factors affecting specific energy consumption of a train. 10

b. What do you mean by Tractive effort ? Discuss and derive the expression for total tractive effort. 10

4. What are the various constituents of Power Supply System? Discuss in detail the Feeding And Sectioning arrangements. 20

5a. With the help of a block diagram, show the various components of an electric locomotive Discuss in detail the functions of On load Tap changer and smoothing choke. 20

6. What are Traction Motors? Discuss with examples the desirable characteristics of traction motors. 20

7. What do you mean by Electric Braking? Discuss Rheostatic braking of DC series motor. 20

8. With the help of a schematic diagram, discuss the Double battery system of Train Lighting. 20

9. What are the various electrical equipments for Power generation and air conditioning control of Railway Coaches ? Briefly discuss its each component. 20

10. Write short notes on:

i. Train lighting systems and its requirements.

ii. Suitability of DC Series Motor as traction motor.

8617020B7

ROLL NO. : .....

CLASS : 6TH SEMESTER (NEW SCHEME)
BRANCH : ELECT / MECH / AUTO / WT / FT / E&C / MED ELTS / COMP / IT / ARCH / I&C / GT / T&T.
SUBJECT : BASICS OF MANAGEMENTS.

TIME : 3 HRS. MAX. MARKS: 100

INSTRUCTIONS FOR CANDIDATE:
i. ATTEMPT ANY FIVE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.
ii. USE BLUE PEN ONLY.

1	Define the term Management. State its features. How does Management differ from Administration?	20
2(a)	Describe the organization structure suitable for large sized organization.	10
(b)	Explain the methods of improving motivation in an organization.	10
3	Explain in detail the code of professional ethics.	20
4	What is Leadership? Discuss the need and importance of leadership in management of business organization.	20
5	Define and explain the salient features of Factory Act 1948.	20
6(a)	Define Preventive maintenance. What are the objectives of preventive maintenance?	10
(b)	Explain briefly the terms: patents and copyrights	10
7	"Success or failure of a consumer is directly related to Pricing Decision." Comment. Explain nature and importance of cost- benefit analysis.	20
8	Explain in detail Excise duty and custom duty	20
9	Explain the need and importance of Customer Relationship Management	20
10	Explain in detail the concept of Quality Assurance.	20

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861601336

ROLL NO. : .....

CLASS : 6TH SEMESTER (NEW SCHEME).
BRANCH : ELECTRICAL ENGINEERING.
SUBJECT : MODERN ELECTRIC TRACTION (ELECTIVE – II).
TIME : 3 HRS. MAX. MARKS: 100

Instructions for candidate:-

i. ATTEMPT ANY FIVE QUESTIONS.
ii. ALL QUESTIONS CARRY EQUAL MARKS.
iii. USE BLUE PEN ONLY.

Q1. a. What are different types of electric traction systems? 10
b. Explain following terms as applied to ac locomotive 10
i. Rectifier connections ii. Tap changer

Q2. Explain the desirable characteristics of Traction motors in detail 20

Q3. a. Explain Single phase Low frequency system of Track Electrification. 10
b. Give Comparison between pure AC and DC systems of track Electrification. 10

Q4. a. What is a tractive Effort? What are different types of functions performed by the tractive effort developed by a traction unit? 10
b. Draw and explain speed time curve for main line service. 10

Q5. Explain following as applied to power supply arrangement for AC track Electrification. 20
i. Substation ii. Sectioning and paralleling post 20

Q6. Draw the Block Diagram of an AC locomotive and explain function of each block in detail.

Q7. a. Explain Torque-Armature current, Speed -Armature current and speed -torque characteristics of dc series motor. 1
b. write short note on Modified train lightning system. 6

Q8. a. What are the requirements of breaking system? 1
b. Explain Rheostatic braking in dc series and shunt motors. 1

Q9. a. Name systems of train lightning and explain working of single battery system in detail.
b. what is silicon blocker rectifier.

Q10. Write short notes on following terms used in Rail coach Air Conditioning
i. Main control Panel ii. Air conditioning unit motors
iii. Batteries iv. Start Delta Starter

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CLASS : 6TH Semester (New Scheme) Roll No. : .....
Branch : Electrical Engineering
Subject : PROGRAMMABLE LOGIC CONTROLLERS & MICROCONTROLLERS
M. Marks : 100 Time : 3 Hours

Note: Attempt any FIVE Questions

Q1. Draw the Pin diagram of MC-51. Also explain the function of following Pins in MC-8051. (10, 2 X 5)
i) PIN NO 9 ii) PIN NO 29

Q2. Explain the different addressing modes of MC-8051. (20)

Q3. (a) What are SFRs? Discuss briefly.
(b) Discuss the Design and interfacing of keypad with MC-8051. (10, 10)

Q4. What are assembler directives? Why are these called as pseudo instructions? Explain the following assembler directives giving format and examples of each.
(i) ORG (ii)) EQU (iii) END (4, 4, 12)

Q5. (a) Draw block Diagram of PLC, showing its different components. (12)
b) Enlist different programming languages used in PLC. (08)

Q6. Explain the following in PLC.
a) Programming Device b) Power Supply (12, 8)

Q7. List down ten instructions used in PLC. Explain any two. (10 x 1, 2 X 5)

Q8. (a) Discuss following in PIC Micro controllers.
i) Separate Data Bus and Address Bus. ii) Pipelining operation

(b) Discuss the application of microcontrollers in Automobiles and transportation. (10, 10)

Q9. State any logical control problem and hence develop a ladder logic program for the same. (20)

Q10. Write short notes on
(a) Applications of PLC (10)
(b) Processor scan cycle in PLC (10)

8617011

ROLL NO. : .....

CLASS : 6TH SEMESTER (NEW SCHEME)
BRANCH : MECH /ELECT / ME / E&C / COMP / IT / ARCH / AUTO / WT / T&T / FT / GT / I&C.
SUBJECT : BASICS OF MANAGEMENT.

TIME : 3 HRS. MAX. MARKS: 1

INSTRUCTIONS FOR CANDIDATE:-
i. ATTEMPT ANY FIVE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.
ii. USE BLUE PEN ONLY.

Q1. Define 'Management'. Explain the functions of management.

Q2. Define 'Values'. What is the importance of values? Explain the factors which affect the individual behaviour.

Q3. (a) Explain the hierarchical management structure.

(b) Differentiate between manager and leader.

Q4. Define 'Leadership'. What are its characteristics? Explain.

Q5. Explain the salient features of Minimum Wages Act, 1948.

Q6. Define 'Human resource development'. What are its objectives? Explain.

Q7. Explain the steps involved in manpower planning process:

Q8. (a) Explain 'Just in time' concept.

(b) Explain 'Total quality management.'

Q9. Define 'Customer relationship management'. What are its functions? Explain.

Q10. What is 'inspection'? Describe the functions and objectives of inspection.

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ROLL NO. : .....

861601315

CLASS : 6TH SEMESTER (NEW SCHEME).
BRANCH : ALL EXCEPT (TEXTILE TECH./CIVIL/PHE/QSCM.
SUBJECT : BASICS OF MANAGEMENT.
TIME : 3 HRS.

MAX. MARKS: 100

Instructions for candidate:-

i. ATTEMPT ANY FIVE QUESTIONS.
ii. ALL QUESTIONS CARRY EQUAL MARKS.
iii. USE BLUE PEN ONLY.

Q1. What are the principles of management? Explain the importance of management.

Q2. What is departmentalization? What are the advantages of departmentalization?

Q3. Write a short note on the following:

i. Motivation.
ii. Components of culture.

Q4. What do you understand by work culture? Explain the importance of healthy work culture in an organization?

Q5. Enumerate the leadership qualities. Differentiate between a manager and a leader.

Q6. What are incentives? Explain the various types of incentives and why there is need of incentives.

Q7. Write short note on the following:

i. Process of recruitment and Selection.
ii. JIT.

Q8. Differentiate between marketing and selling.

Q9. Write short notes on the following:

i. Cost-benefit analysis.
ii. Total quality management.

Q10. What is Intellectual Property Right? What is the importance of intellectual property report?

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Roll No:.....

Semester: 6TH Electrical (New Scheme) Max. Marks: 100

Subject : Utilization Of Electrical Energy T: 3H

Note: Attempt any FIVE Questions

1. What are different types of electric breakings? Explain with circuit diagram any one type of electric breaking . 20

2. *Name the type of motors used for following applications:*

i. Domestic Mixie ii Hair Dryers iii. Domestic Refrigerators
iv. Textile Mills v. Cranes vi. Sewing Machine
vii. Vacuum cleaners viii. Drilling Machines ix. Washing Machine
x. Electric Traction 20

3a. What are advantages of Electric Drives over other forms of drives? 10

b. Draw the block diagram of an electric locomotive. 10

4. *Explain the following terms as applied in electric Traction system*

i. Overhead catenary wire ii. Pantograph collector

iii. Speed time curve of main line service 6 , 6 , 8

5. *Draw an Electrical Circuit of Refrigerator and explain its working. 20*

6a. *State Laws of Electrolysis. 10*

b. What are the applications of Galvanizing and Anodizing? 10

7. *Name different types of Arc welding and explain any one type of arc welding with neat Diagram. 20*

8. *Explain Dielectric heating? What are its applications in various industrial fields? 20*

9. Describe the construction and working of any one type of incandescent lamps. 20

10a. *State laws of Illuminations. 10*

b. What are advantages of Electric Heating over other forms of heating? 10

MJ-13
Class: 6th Semester Roll No: .....
Branch: Electrical Engineering
Subject: Electrical Power – II (Power Generation & System Protection)
Max Marks: 100 Time: 3 Hours

Note: Attempt any FIVE questions. All questions carry equal marks.

Q1. (a) What is Hydro Electric power station. Draw schematic Arrangement of Hydro Electric power station and explain function of each component.

(b) Explain the function of following:

(i) Condenser (ii) Economiser (iii) Boiler

Q2. (a) Name five sources of energy and give a brief account of each.

(b) What are advantages of SF6 circuit breaker over oil or air circuit breaker.

Q3. (a) Define following terms:

(i) Load curve (ii) Connected load (iii) Maximum Demand

(iv) Plant use factor (v) Peak load power station

(b) The maximum demand on a power station is 200MW. If Annual load factor is 45%. the total energy generated in a year.

Q4. (a) What do you understand by switchgear.

(b) What is a circuit breaker.

(c) How does a circuit breaker differ from a switch.

(d) What is meant by current chopping.

(e) Why is current chopping considered a series draw back in a circuit breaker.

(f) Name and explain any two methods of Arc Extinction in circuit breakers.

Q5. Classify CB'S on the basis of medium used for Arc extinction and explain any one type of CB in detail.

Q6. (a) Name different types of fuses and define following terms as applied to fuses:

(i) Current rating of a fuse (ii) Fusing current

(iii) Prospective current (iv) Total operating Time

(b) What do you understand by Earthing Mat.

Q7. (a) Explain working of distance relay.

(b) What are the fundamental requirements of a protective relay.

Q8. Describe the Merz- Price circulating current system for protection of Delta / Delta Transformer.

Q9. (a) Describe Differential protection for Bus.

(b) What are the causes of overvoltage. Explain Briefly.

Q10. Write short notes on following (any two).

(i) Rod Gap LA (ii) Horn Gap LA (iii) Metal Oxide LA

MJ-13
Class: 6th Semester
Branch: Electrical Engineering
Subject: Microcontrollers and PLCs (Elective-II)
Max Marks: 100

Roll No: .....

Time: 3 Hours

Note: Attempt any FIVE questions. All questions carry equal marks.

Q1. Draw and explain the block diagram of 8051 microcontroller. (20)

Q2. (a) Explain how the internal memory is organized in 8051.

(b) What are special functions registers (SFRs). (12,08)

Q3. Explain the addressing modes of 8051 microcontroller. (20)

Q4. Explain how the 7-segment display is interface with 8051. (20)

Q5. (a) What is PLC. Explain the advantages of PLCs over electromagnetic relays.

(b) What are the applications of PLCs. (12,08)

Q6. (a) Explain the BIT instructions of 8051.

(b) Explain the principle of PLC. (10,10)

Q7. Write the ladder diagram programming by using ladder diagrams for basic gates and universal gates. (20)

Q8. (a) Explain how the memory is organized in PLCs.

(b) Write the compare instructions of PLC. (14,06)

Q9. Write down the steps for entering and testing by using PLC for the following operations

(a) Ladder Logic

(b) Timers (20)

Q10. Write short notes :

(i) Assembler Directives

(ii) Timer instructions (20)

Roll No:.....

Semester: 6TH Electrical (New Scheme) Max. Marks: 100

Subject : Electrical Power- II T: 3H

Note : Do ANY Five

1. Name and explain different types of tariffs. 20
2. Explain with neat diagram the construction and operation of induction type Directional Over current relay. 20

3a. What are the various causes of over voltages? 10

b. Explain with single line diagram the differential protection for Busbar. 10

4. Describe the Merz – Price circulating current system for the protection of delta delta transformer . 20
5. What do you understand by earthing? Explain any one method of earthing. 20
6. Name and explain any two types of lightning arrestors. 20

7a. Explain the principle of operation of differential relay. 10

b. What is difference between a circuit breaker and an isolator. 10

8. Explain with neat diagram the construction and working of any one type of oil circuit breaker . 20

9a. What are different methods of arc extinction. 10

b. Define following terms

i. Making capacity of circuit breaker ii. Breaking capacity of circuit breaker 2 x 10

10. Name different types of faults in overhead lines and classify them into symmetrical and unsymmetrical faults . 12

b. write equations for

i. %age reactance at base KVA ii. Short circuit KVA for 3- phase circuit. 8

861601334

ROLL NO. : 1020

CLASS : 6TH SEMESTER (NEW SCHEME).
BRANCH : ELECTRICAL ENGINEERING.
SUBJECT : PROGRAMMABLE LOGIC CONTROLLERS (PLC's) & MICROCONTROLLERS.
TIME : 3 HRS. MAX. MARKS: 100

Instructions for candidate:-
i. ATTEMPT ANY FIVE QUESTIONS.
ii. ALL QUESTIONS CARRY EQUAL MARKS.
iii. USE BLUE PEN ONLY.

Q1. a. What is a PLC? Name some leading manufacturers of PLC. 10
b. What are advantages of Electromagnetic relays over PLC? 10

Q2. a. Explain working principle of PLC. 10
b. Explain the memory structure in PLC. 10

Q3. a. Describe the features of hand held terminal. 10
b. Discuss the application of PLC for Door bell operation and draw necessary logic ladder diagram program. 20

Q4. Name and explain various comparison instructions used in PLC. 20

Q5. Draw a ladder diagram program to show a timer used to a light ON for 10 Seconds when start push button is pressed. The time base =0.1 Sec. A stop push button is used to reset the system. 20

Q6. Name and explain different types of Memories in 8051 Microcontroller. 20

Q7. a. What are SFR's (special Function registers)? For what purpose they are used in 8051 Microcontroller? 10
b. Discuss briefly the process of interfacing 7 segments Display with MC- 8051. 1

Q8. Explain Timer operation in 8051 Microcontroller.

Q9. a. Differentiate between Assembler and Compiler.
b. List down and explain various Assembler directives used in MC 8051.

Q10. a. Discuss briefly main features of PIC microcontroller.
b. List down various applications of Microcontroller.

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861601336

LL NO. : .....

SS : 6TH SEMESTER (NEW SCHEME).
NCH : ELECTRICAL ENGINEERING.
ECT ... (ELECTIVE – III)

MAX. MARKS: 100

Roll No:.....

Semester : 6TH Electrical (New Scheme) Subject : Utilization OF Electrical Energy
T: 3H Max. Marks: 100

Note : Do ANY Five

1. Explain following systems of Electric traction.
   i. DC system ii. AC System 2x 10

2a. What do you understand by speed – time curves ? Explain speed time curve of a train running on the main line . 10

b. Explain nature of different Mechanical loads. 10

3a. Enumerate the factors which govern the selection of motors. 10

b. What is a Electric Drive ? Why it is preferred over mechanical Drive? 10

4. What do you understand by Electric breaking? Explain any two methods of Electric breaking. 20

5. Draw and explain Electrical circuits of following : -
   i. Refrigerator ii. Water cooler 2 x 10

6. What is resistance welding? What are its various types? Explain any two types with neat sketches . 20

7a. What is Electrolysis ? State and explain Faraday's Laws of Electrolysis. 15

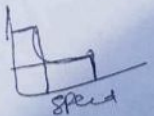
b. What are the applications of electrolysis ? 5

8. What is Dielectric Heating? Name and explain its various applications. 20

9. with the help of circuit diagram explain the construction and working of a fluorescent tube and compare it with tungsten filament lamp . 20

10a. A 230V lamp has a total flux of 2500 lumens and takes a current of 0.5A. Calculate
   i. Lumens per watt ii. M. S.C. P per watt. 10

b. Write short note on resistance heating. 10



ROLL NO. : .....

861601335

CLASS : 6TH SEMESTER (NEW SCHEME).
BRANCH : ELECTRICAL ENGINEERING.
SUBJECT : ELECTRICAL POWER- II.
TIME : 3 HRS. MAX. MARKS: 100

Instructions for candidate:-

i. ATTEMPT ANY FIVE QUESTIONS.
ii. ALL QUESTIONS CARRY EQUAL MARKS.
iii. USE BLUE PEN ONLY.

Q1. Classify circuit breakers on the basis of medium used for arc extinction and explain with neat diagram the construction and working of any one circuit breaker in detail. 4, 16

Q2. a. Explain following methods of Arc Extinction
i. High Resistance method ii. Low Resistance method 2x7

b. What is purpose of protective gear? 6

Q3. a. What are advantages and disadvantages of SF_6 circuit breaker over oil or air circuit breaker? 10

b. Name and explain working of different types of Low voltage fuses. 10

Q4. a. Explain following terms as applied to relays:
i. Pick up current ii. Current setting iii. Plug- setting multiplier 10

b. Name and explain three types of structures commonly used for obtaining the phase difference in the fluxes in induction relays. 10

Q5. Name and explain different methods of system (Neutral) Earthing. 20

Q6. Explain with neat circuit diagram the application of Merz- Price Circulating current principle for the protection of Alternator. 20

Q7. a. Explain with neat diagram the construction details and operation of Buchholz Relay. 10

b. What is a voltage Surge? Draw a Typical Lightning voltage surge. 10

Q8. a. Define Tariff. What are objectives of Tariff? 12

b. The yearly consumption of a factory is 40, 00000 units with a maximum demand of 12000kw. Calculate the annual cost of energy if the energy is charged at
i. Rs. 70 per kw demand plus 2 paise per unit
ii. at a flat rate of 5 paise per unit . 8

Q9. Write short notes on following
i. Earthing Screen ii. Overhead Ground Wire
iii. Rod Gap Lightning Arrester iv. Horn Gap Lightning Arrester 4x5

Q10. a. Define following terms
i. Symmetrical Faults ii. Unsymmetrical faults 5

b. A three Phase transmission line operating at 20 Kv and having a resistance of 1Ω and reactance of 4Ω is connected to the generating station bus bars through 5MVA step up transformer having a reactance of 5%. The bus bars are supplied by a 10 MVA Alternator having 10% reactance. Calculate the short circuit KVA fed to symmetrical fault between phases if it occurs
i. at the load end of the transmission line.
ii. at the high voltage terminals of the transformer. 15

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