

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE			
Winter Examination – 2022			
Course: B. Tech.		Branch : Electrical Engineering	Semester :VI
Subject Code & Name: BTEEC605A Elective-VII A. Switch Gear and Protection			
Max Marks: 60		Date:	Duration: 3 Hr.
<b>Instructions to the Students:</b>			
1. All the questions are compulsory.			
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.			
3. Use of non-programmable scientific calculators is allowed.			
4. Assume suitable data wherever necessary and mention it clearly.			
		(Level/CO)	Marks
<b>Q. 1</b>	<b>Solve Any Two of the following.</b>		<b>12</b>
A)	Explain with block diagram Static relay with merits and demerits.	Understand	6
B)	Explain Primary and backup protection.	Understand	6
C)	With neat diagram describe the induction disc and induction cup type relay.	Understand	6
<b>Q.2</b>	<b>Solve Any Two of the following.</b>		<b>12</b>
A)	Explain in details with diagram SF6 C.B. Also write merits and demerits.	Understand	6
B)	Provide a detailed explanation of Miniature Oil Circuit Breaker (MOCB), including a diagram, and discuss its merits and demerits.	Understand	6
C)	Derive the expression for re-striking voltage of in case of a circuit breaker.	Apply	6
<b>Q. 3</b>	<b>Solve Any Two of the following.</b>		<b>12</b>
A)	Draw a general block diagram of a Numerical Type Relay and explain its merits and demerits in detail.	Understand	6
B)	Provide a detailed explanation, along with a block diagram, of a microprocessor-based overcurrent relay.	Understand	6
C)	Draw and explain the characteristics of impedance relay and MhO relay.	Apply	6
<b>Q.4</b>	<b>Solve Any Two of the following.</b>		<b>12</b>
A)	Explain in details busbar protection schemes.	Understand	6
B)	With neat diagram describe the operation of Buchholz relay used for transformer protection.	Understand	6
C)	With neat diagram explain the alternator protection against the stator faults.	Understand	6
<b>Q. 5</b>	<b>Solve Any Two of the following.</b>		<b>12</b>
A)	What is the significance of power system earthing. Explain in detail the different methods used for earthing?	Apply	6
B)	With neat diagram explain the percentage differential protection of	Apply	6

	transformer.		
C)	With neat diagram explain the construction and operating principle of lightning arrester.	Understand	6
	*** End ***		

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Electrical Engineering Semester :VI

Subject Code & Name: BTEEC605A & SWITCH GEAR AND PROTECTION

Max Marks: 60

Date:29/08/2022

Duration: 3.45 Hr.

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/C O)	Marks
<b>Q. 1 Solve Any Two of the following.</b>		
A) Explain Principle of working and characteristics of attracted armature type relay	CO1	6
B) What are Different types of Distance Relays explain impedance relay in detail.	CO2	6
C) Explain Microprocessor based overcurrent relay with diagram and flow chart.	CO2	6
<b>Q.2 Solve Any Two of the following.</b>		
A) Explain construction and working principle of Minimum oil Circuit Breaker	CO1	6
B) For 132KV system, the reactance and capacitance up to the location of C.B is 3 ohm and 0.015 microfarad respectively calculates following: a) Frequency of Transient Oscillation. b)The maxi Value of restriking Voltage Across the contacts of C.B c)The maxi value of RRRV	CO3	6
C) What are characteristics of SF6 gas and explain Puffer type SF6 Circuit breaker	CO2	6
<b>Q. 3 Solve Any Two of the following.</b>		
A) Explain Numerical protection working principle,types and advantages and disadvantages of numerical relay.	CO1	6
B) What are different method of Earthing explain its advantages explain one in detail.	CO2	6
C) Explain construction working surge absorber its application.	CO2	6
<b>Q.4 Solve Any Two of the following.</b>		
A) Explain the circulating current protection of Busbar also explain linear couplers.	CO1	6

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|---|-----|---|
| B) Explain high impedance differential protection of Busbar.        | CO2 | 6 |
| C) Explain the parallel feeder protection and ring main protection. | CO2 | 6 |

**Q. 5 Solve Any Two of the following.**

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| A) Explain Alternators Stator fault protection system.   | CO1 | 6 |
| B) Explain Unbalanced load protection for alternator.(Negative phase sequence [NPS] protection   | CO2 | 6 |
| C) Explain Buchholz relay with neat diagram explain its advantages & Disadvantages, application. | CO2 | 6 |

**\*\*\* End \*\*\***