Code No: 137SD **RA**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, October/November - 2020
SWITCH GEAR AND PROTECTION
(Electrical and Electronics Engineering)

Time: 2 hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
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1. Explain how arc is initiated and sustained in a circuit breaker when the circuit breaker contacts separate. [15]

2. Explain the construction, principle of operation and application of SF_6 circuit breaker. How does this breaker essentially differ from an air blast breaker? [15]

3. Classify the various types of over current relays and give their applications along with approximate characteristics. [15]

4. What is Universal Torque Equation? Using this equation derive the following characteristics:
   a) Impedance relay; b) mho relay.
   Draw the characteristics and indicate clearly the zones of operation and no-operation.[15]

5. What is meant by 3-zone protection? Give such schemes of protection for (a) short length lines and (b) long lines. Give schematic diagrams of contact circuits and explain their principle of operation for these schemes. [15]

6. What is restricted earth fault protection for alternators? Why is this form of protection used for alternators even though it does not provide protection for the complete winding?[15]

7. Explain in detail about Solid Grounding or Effective Grounding. State its advantages and disadvantages. [15]

8. Explain how the rating of a lightning arrester is selected and suggest the best location of a lightning arrester and give the reason for it? [15]

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