

Register No.:

983

April 2023

Time - Three hours  
(Maximum Marks: 100)

- [N.B. 1. Answer all questions under Part-A. Each question carries 3 marks.  
2. Answer all the questions either (A) or (B) in Part-B. Each question carries 14 marks.]

PART - A

1. State Penstock protective devices and their functions in a hydro power plant.
2. State few advantages and disadvantages of nuclear power plant.
3. List the conductor materials used in overhead transmission lines.
4. List the types of supports used in overhead transmission lines.
5. Name the types of suspension insulators.
6. State the classification of cables.
7. State the methods used to extinguish arc in a Circuit Breaker.
8. Define Arc voltage, Recovery voltage and Restriking voltage.
9. What is instantaneous relay?
10. What is an inverse time relay?

[Turn over....

**PART - B**

11. (a) Draw the schematic of a Thermal power plant and explain.  
(Or)  
(b) Explain hybrid renewable energy systems.
12. (a) State the types of supports used in overhead system and explain with figures.  
(Or)  
(b) A 132 kV transmission line has the following data : Weight of conductor = 680 kg/km ; Length of span = 260 m; Ultimate strength = 3100 kg ; Safety factor = 2.  
Calculate the height above ground at which the conductor should be supported. Ground clearance required is 10 metres.
13. (a) Explain Pin and Suspension insulators with sketches.  
(Or)  
(b) State and explain Performance tests and Routine tests of insulators.
14. (a) Draw and explain the construction and working of cross blast Air Circuit Breaker.  
(Or)  
(b) Draw and explain the construction and working of Residual Current Circuit Breaker.
15. (a) What is Primary and Back up protection? Explain with figure.  
(Or)  
(b) Explain the construction and working of induction type, non-directional over current relay. State its applications.

-----