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BIEE-018

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

00892

December, 2017

BIEE-018 : HIGH VOLTAGE ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. Scientific calculator is allowed. Assume any suitable data, if missing.*

1. A 12-stage impulse generator has a 0·12 μF condenser. The wave front and the wave tail resistances connected are 800 ohms and 5000 ohms respectively. If the load condenser is 1000 PF, find the front and tail times of the impulse wave produced. *10*

2. Explain with diagrams, different types of rectifier circuits for producing high DC voltages. *10*

3. Define the front and tail times of an impulse wave. What is the tolerance allowed as per specifications ? *10*

4. What are the factors that influence conduction in pure liquid dielectrics and in commercial liquid dielectrics ? *10*

5. What are the requirements of an oscillograph for impulse and high frequency measurement in high voltage test circuits ? *10*

6. What is the operating duty cycle test on a surge diverter ? Why is it more significant than other tests ? *10*

7. Explain the different electric tests performed on isolators and circuit breakers. *10*

8. What is Paschen's Law ? How do you account for the minimum voltage for breakdown under a given 'pxd' condition ? *10*

9. Define Townsend's first and second ionization coefficients. How is the condition for breakdown obtained in a Townsend discharge ? *10*

10. Explain the phenomena of electrical conduction in liquids. How does it differ from that of gases ? *10*