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**Question Paper Code: 99302**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Elective

Electrical and Electronics Engineering

19UEE902 – High Voltage Engineering

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Void discharge are classified as CO1- R
  - (a) External partial discharges
  - (b) Internal partial discharges
  - (c) Anode
  - (d) None of these
2. The ideal lightning arrester is the one which CO1- U
  - (a) Stops the flow of electric current above rated voltage
  - (b) Conducts electric current above rated voltage
  - (c) Non polar
  - (d) None of the above
3. ----- transmission line has reflection coefficient as one CO2-U
  - (a) Open circuit
  - (b) short circuit
  - (c) long
  - (d) None of the above
4. Minimum sparking potential of air is about[CO2Understanding] CO2-U
  - (a) 100V
  - (b) 4.4KV
  - (c) 40V
  - (d) 325 V
5. Electrical conduction in gases was first studied in 1905 CO3-U
  - (a) loeb
  - (b) Maxwell
  - (c) Townsend
  - (d) hertz
6. Cockcroft Walton circuits is used for CO3- U
  - (a) Dc voltage generaton
  - (b) Ac voltage generation
  - (c) both a and b
  - (d) None of the above

7. To measure a high voltage of peak value about 150kv the suitable sphere gap would be CO4- U
- (a) 5cm                      (b) 10cm                      (c) 15or 25cm                      (d) 50cm
8. What do you mean by tesla coil? CO4- U
- (a) a radio frequency oscillator                      (b) cascaded transformer
- (c) coreless transformer                      (d) none of the above
9. The voltage control circuit cannot use resistance potential dividers because CO5- U
- (a) They involve a large power loss                      (b) They cause distortion of waveform
- (c) They do not give smooth variation of voltage                      (d) They have non linear characteristics
10. Cascaded transformer is used for CO5- R
- (a) DC voltage generation                      (b) AC voltage generation
- (c) both a and b                      (d) none of the above

PART – B (5 x 2= 10 Marks)

11. What are the causes of over voltages in electric Power system? CO1- U
12. What are the characteristics of corona discharge? CO2- U
13. what are the advantage of series resonance circuit? CO3 -U
14. Give the advantages of electrostatic voltmeter. CO4 -U
15. What are the different test conducted on insulators? CO5 -U

PART – C (5 x 16= 80Marks)

16. (a) Explain step by step procedure to draw and constructing Bewley's lattice diagram? CO1- U      (16)
- Or
- (b) (i) What are the mechanisms by which lightning strokes develop and induce over voltages on over head power lines? CO1- U      (10)
- (ii) Write short notes on ground rods as protective devices CO1- U      (6)
17. (a) Explain in detail the streamer theory of breakdown in gases and also explain the formation of secondary avalanche with neat diagram CO2- U      (16)
- Or
- (b) (i) Explain the various theories that explain breakdown in commercial liquid dielectrics. CO2- U      (10)
- (ii) Discuss about the various properties of composite dielectrics. CO2- U      (6)

18. (a) Identify the generator which having moving belt and brushes that transfer charge continuously to a large spherical conducting shell, which produces several million volts that is used for accelerating charged particles. CO3- Ana (16)
- Or
- (b) Explain with neat diagram MARX circuit and its operations CO3- U (16)
19. (a) Explain briefly various types of peak reading voltmeters? CO4- U (16)
- Or
- (b) What is CVT? Explain how CVT can be used for high voltage AC Measurements CO4- U (16)
20. (a) Explain the method of impulse testing of high voltage transformer. CO5- U (16)
- Or
- (b) Draw the layout for synthetic testing and explain the procedure. CO5- U (16)

