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| **Course/Branch** : B.E / EEE | **Year / Semester** :IV/VII | Format No. | NAC/TLP-07a.13 |
| **Subject Code** :EE8701 | **Subject Name** : High Voltage Engineering | Rev. No. | 02 |
| **Unit No** : 5 | **Unit Name : High Voltage Testing & Insulation Coordination** | Date | 30.09.2020 |

**OBJECTIVE TYPE QUESTION BANK**

| S. No. | Objective Questions (MCQ /True or False / Fill up with Choices ) | BTL |
|---|---|---|
| 1 | The electrical field developed within clouds before a lightning stroke occurs can be of the order of<br>(A) 0.1 kV/cm<br>(B) 1 kV/cm<br>(C) 100 kV/cm<br>**(D) 10 kV/cm** | L2 |
| 2 | The maximum voltage gradient at the ground level due to a charged cloud before lightning strikes, can be as high as<br>(A) 1 V/cm<br>(B) 30 V/cm<br>(C) 30 V/m<br>**(D) 300 V/cm** | L2 |
| 3 | The velocity of wind currents required for charge separation inside the moving clouds is of the order<br>(A) 1 to 5 m/s<br>(B) 5 to 10 m/s<br>(**C) 10 to 20 m/s**<br>(D) 50 to 200 m/s | L4 |
| 4 | For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure<br>(A). Average Value<br>(B). Peak Value<br>(C). Quasi-Peak Value<br>(D). **All of these.** | L3 |
| 5 | For Operating Power Frequency Voltages, A Surge Arrester Has To Be A<br>(A). Conductor<br>**(B). Non-Conductor**<br>(C). Semiconductor<br>(D). None Of These | L1 |
| 6 | Failure During Switching Impulse Tests Are Can Be Determined By<br>(A). Visible In Oscillograms<br>(B). Loud Noise Produced<br>(C). External Flashovers<br>(D)**. All Of These** | L1 |
| 7 | Impulse testing of transformers is done using<br>(A). Full wave standard impulse<br>(B). Chopped wave standard impulse<br>(C). Half wave standard impulse<br>**(D). Only (a) and (b)** | L3 |
| 8 | The Maximum rate of rise of surge currents that occur in overhead lines is<br>**(A) 2 to 3 kA/μs** | L3 |

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| | (B) Less than 1kA/μs<br>(C) 5 to 10 kA/μs<br>(D) Greater than 10 kA/μs | |
| 9 | The expected life at the rated stress can be determined by conducting long duration life tests at increased stress for<br>(A). Less than 1 hr<br>**(B). 1 hr to about 1000 hr**<br>(C). More than 1000 hr<br>(D). None of these | L2 |
| 10 | The ground flash over density (N g) in any region due to lightning activity is about (TD=Thunderstorm days)<br>**(A) 0.1 to 0.2 TD/km2-year**<br>(B) 1 to 2 TD/km2-year<br>(C) 30 to 50 TD/km2-year<br>(D) 5 to 15 TD/km2-year | L3 |
| 11 | A 400 Ω Overhead line is connected to a cable having a surge impedance of 50 Ω, the transmission coefficient into the cable is<br>**(A) 2/9**<br>(B) 1/4<br>(C) -16/9<br>(D) 1/9 | |
| 12 | For Surge voltage computation, a transformer is represented by an equivalent circuit of<br>(A) R-L parallel network<br>**(B) L-C parallel network**<br>(C) R-L series network<br>(D) R-L-C series network | L2 |
| 13 | Switching overvoltage in power system networks are of the order of<br>(A) 1.5 pu<br>**(B) 2.5 to 3.5 pu**<br>(C) 10 pu or more<br>(D) 1 pu | L2 |
| 14 | Overhead transmission lines are protected from lightning overvoltages by<br>(A) Counter poise wires<br>(B) Protector tubes<br>**(C) Ground or shielded wires above the main conductors**<br>(D) Shunt reactors | L2 |
| 15 | In order to Limit the overvoltages developed on ground wires due to lightning strokes, the tower footing resistance should be less than<br>(A) 1000 Ω<br>(B) 100 Ω<br>**(C) 25 Ω**<br>(D) 1 Ω | L1 |
| 16 | For a typical heavy duty (10 kA rated) surge arrester, the discharge voltage at rated current | L1 |

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| | will be of the order of<br>(A) 1 pu<br>(B) Less than 2.0 pu<br>(C) More than 3.5 pu<br>**(D) 2.2 to 3.0 pu** | |
| 17 | The material used in gap less surge arresters used in HV power system is<br>(A) Graphite<br>(B) Aluminium oxide<br>**(C) Zinc oxide**<br>(D) Silicon carbide | L2 |
| 18 | Material that is used in surge arresters for EHV and UHV power systems<br>(A) Silicon carbide<br>(B) Zinc oxide<br>**(C) Aluminium oxide**<br>(D) Metal oxide | L2 |
| 19 | The equivalent circuit of a Surge arrester may be represented as<br>(A) Capacitor<br>(B) An inductor<br>**(C) Non linear resistor**<br>(D) Resistor | L2 |
| 20 | Basic impulse level (BIL) of a power system is define as<br>**(A) The minimum insulation impulse withstand voltage of any power equipment or apparatus**<br>(B) The maximum power frequency withstand voltage of any power equipment for apprentice<br>(C) The minimum power frequency withstand voltage of any apparatus or power equipment<br>(D) The peak value of highest system voltages | L3 |
| 21 | The BIL of a power system is usually chosen as<br>(**A) 25% to 30% more than the protective level offered by the protective devices (surge arresters etc**.)<br>(B) 50% more than the protective level offered by the protective devices (surge arresters etc.)<br>(C) 5% to 10% more than the protective level offered by the protective devices (surge arresters etc.)<br>(D) Highest lightning Surge voltage expected. | L3 |
| 22 | The duration of switching surges in GIS is<br>(A) Milliseconds<br>(B) Microseconds<br>**(C) Few nanoseconds and less than a microseconds**<br>(D) Few tens of microseconds | L2 |
| 23 | Indirect strokes near overhead transmission lines induce overvoltages due to<br>(A) Electrostatic induction<br>**(B) Both electrostatic and electromagnetic induction**<br>(C) Only electromagnetic induction<br>(D) Conduction currents through line conductors | L1 |

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| 24 | In EHV and UHV system, ratio of BIL to SIL will be usually<br>(A) Less than unity<br>(B) More than 1.5<br>(C) 1.5 to 2.0<br>(**D) 1.2 to 1.5** | L2 |
| 25 | The Purpose of insulation coordination is to<br>(A) Limit the overvoltages<br>(B) To protect the electrical apparatus against overvoltages<br>(C) **To grade the insulation of different power apparatus and overhead lines such that the list important and easily replaceable apparatus flashes or fails first and the most important one is protected to the highest level.**<br>(D) None the above | L1 |