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 : 4	**Unit Name : Measurement of high voltage and high current**	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1	In high ohmic series resistance with micro-ammeter method, the protective device with series resistance is connected across the micro-ammeter because **(A) It protects the meter against the high voltages if series resistance fails or flash over** (B) It protect the meter from high currents during breakdown in test object (C) It reduces the error of measurement (D) All of the above	L2
2	The ohmic value of series resistance R is chosen such that a current of _____is allowed for full scale deflection in high ohmic series resistance with micro-ammeter method (A) 1 to 2 μA **(B) 1 to 5 μA** (C) 1 to 10 μA (D) 1 mA	L2
3	High voltage resistor is made with **(A) Carbon alloy and other metallic film resistor** (B) Aluminium wired resistor (C) Copper wired resistor (D) No of the above	L1
4	The limitation of high ohmic resistance with micro-ammeter is (A) Power dissipation and source loading (B) Temperature effect and long time stability (C) Voltage dependencies of resistive element and sensitivity of mechanical stresses **(D) All of the above**	L2
5	The voltmeter used for resistance potential divider is (A) Digital voltmeter (B) Electrostatic voltmeter (C) Generating voltmeter **(D) Moving coil voltmeter**	L1
6	Generating voltmeter is (A) Variable resistance device (B) Variable inductance devices **(C) Variable capacitor electrostatic voltage generator** (D) None of the above	L3
7	Generating voltmeter is used when (A) Very high dc voltage is measured (B) Very high ac voltage is measured **(C) Source loading is prohibited** (D) Impulse voltage peak is measured	L1
8	A generating voltmeter has to be designed so that it can have a range from 20 to 200 kV dc if the indicating meter reads a minimum current of 2μA and maximum current of 25 μA, what should be the capacitance of the generating voltmeter be? (A) 2 pF	L2

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	(B) 0.9 pF (C) 10 µF (D) 0.9 µF	
9	The generating voltmeter is used to measure ac voltages if the speed of the drive motor is (**A) Half the frequency of the voltage to be measured** (B) The frequency of the voltage to be measured (C) Double than the frequency of the voltage to be measured (D) Not related with the frequency of the voltage to be measured	L1
10	The generating voltmeter is calibrated with the help of **(A) Sphere gap** (B) Series impedance voltmeter (C) Series capacitance voltmeter (D) None of above	L2
11	Advantage of generating voltmeter is (A) No source loading (B) No direct connection to HV terminal (C) Calibration is easy **(D) All of above**	L3
12	A series capacitance voltmeter can measure (A) DC voltages (B) AC voltage (RMS) **(C) AC voltage (peak value)** (D) Impulse voltages	L1
13	In series resistance voltmeter method for high AC voltage measurement, the stray ground capacitance effect can be removed by (A) Inserting other parallel capacitor (B) Inserting inductance **(C) Shielding the measuring resistance with another high ohmic resistance** (D) Inserting capacitor in series with measuring resistance	L1
14	Series capacitor voltmeter generates error for (A) High AC voltage with pure sine wave (B) High DC voltage with no ripple (C) High impulse voltage with positive polarity **(D) High AC voltage contains more harmonics**	L2
15	Which kind of ammeter is used for series capacitance voltmeter (A) Moving coil dc microammeter (**B) Rectified element with moving coil dc microammeter** (C) Ac ammeter (D) None of the above	L2
16	CVT when tuned does not have (A) Ratio error (**B) Phase angle error** (C) Both ratio and phase angle errors	L1

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	(D) Temperature error	
17	A CVT is used for (A) High voltage AC measuring device (B) Relaying purpose (C) Coupling condenser for power line carrier communication and relaying **(D) All of above**	L1
18	A CVT has disadvantage that the voltage ratio is susceptible to (A) Humidity variation **(B) Temperature variation** (C) Supply voltage variation (D) Load variation	L2
19	Electrostatic voltmeters can measure (A) Only DC voltage **(B) Both DC and AC voltages up to high frequency** (C) Impulse voltages (D) AC, DC and impulse voltages	L2
20	In Electrostatic voltmeter, the force on the plate is proportional to (A) Cube of applied voltage (B) Applied voltage (**C) Square of applied voltage** (D) Square of charging current	L2
21	What is the maximum voltage that can be measured if the safe working stress is 5kV/cm. (**A) 150 kV** (B) 100 kV (C) 120 kV (D) 200 kV	L3
22	The electrostatic voltmeter is compact and much smaller in size if the insulating medium is (A) Transformer oil (B) Epoxy resin (**C) Compressed gas or vacuum** (D) Air	L3
23	Series capacitor peak voltmeter is working on the principle of **(A) Half-wave rectified current is proportional to the peak value of ac current** (B) Leakage current of the series capacitor is proportional to the peak value of ac current (C) Current of the series inductor is proportional to the peak value of ac current (D) None of above	L3
24	The source of error in series capacitor peak voltmeter is (A) Deviation of frequency (B) Improper rectification (C) Source voltage has more than one peak **(D) All of above**	L3
25	Spear gaps are used to measure (A) DC voltages	L1

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	(B) AC peak voltages **(C) DC, AC peak and impulse voltages** (D) Only DC and AC peak voltages	
26	The factor affecting the sparkover voltage of sphere gap is (A) Nearby earthed object (B) Atmospheric condition and humidity (C) Irradiation **(D) All of the above**	L1
27	Spear gap measurement is linear and valid for gap spacing less than or equal to **(A) Radius of the sphere** (B) Diameter of the sphere (C) Half the radius of sphere (D) Two times diameter of the sphere	L2
28	The main factors that affect the spark-over voltage of sphere gap are (A) Humidity and waveform **(B) Nearby Earthed objects and atmospheric conditions** (C) Diameter of the sphere (D) Gap spacing, diameter and waveform	L1
29	For an R-C divider to be compensated, the condition is (A) R1C1=R2C2 (B) R1C2=R2C1 **(C) R1C1=R2Cg** (D) (R1+R2)(C1+C2) < 1 μ second	L2
30	A resistance divider of 1400 kV (impulse) has a high voltage arm of 16 kΩ and a lower voltage arm consisting 16 members of 250 Ω, 2 watts resistors in parallel. The divider is connected with CRO through a cable of surge impedance 75 Ω resistor. Calculate the exact divider ratio (A) 1150 (B) 3067 (**C) 1238** (D) 1467	L1
31	Hall generators are normally used to measure (A) Impulse voltages **(B) Unidirectional impulse currents** (C) Any type of impulse currents (D) Large AC currents	L1
32	The device used to measure high power frequency alternating current is (A) Hall effect generator (**B) Current transformer with electro-optical signal converter** (C) Resistive shunt (D) Capacitive shunt	L1
33	For measuring high impulse currents, the best type of of Shunt is (A) Squirrel cage	L1

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	(B) Bifilar strip (C) Disc **(D) Coaxial tubular (Park type)**	
34	Rogowski coils and high frequency current transformers have bandwidth of about (A) 100 kHz **(B) 10 MHz** (C) 1 MHz (D) 1100 Hz	L1
35	An R-C voltage divider has HV arm capacitance, C1=600pF, reistance = 400 Ω an equivalent ground capacitance Cg=240pF.The effective time constant of the divider in nanosecond is (A) 108 (B) 90 (C) 69 **(D) 32**	L2
36	Shunts used for measuring impulse currents, in the range 10 kA-50 kA will have a resistance of the order of (A) 10 to 25 mΩ **(B) 0.1 to 1 mΩ** (C) 100 to 500 mΩ (D) 0.1 to 1 Ω	L2
37	The type of measuring device preferred for measurement of impulse currents of short duration is **(A) Park's tubular Shunt** (B) Current transformer (C) Hall generator (D) Faraday ammeter	L2
38	Secondary arm of a resistance impulse voltage divider consists of (A) A few resistors connected in series **(B) A few resistors connected in parallel** (C) A single wire round resistor of very high power rating (D) Linear resistor in parallel with a nonlinear resistor of high power rating	L2
39	The resistivity of the materials used as shunts for high currents will be in the range (Ω-cm) (A) 1 to 5 ×10-5 (B) 10-3 (C) 0.5 ×10-6 to 0.5 ×10-7 **(D) 0.2 ×10-6 to 1.5 ×10-6**	L1
40	In high frequency and RF current transformers, the secondary winding is terminated with a resistance of (A) 1 Ω (B) 10 Ω (C) 1 kΩ **(D) 50 Ω or 75 Ω**	L1

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41	To measure high voltage of peak value about 150 kV, the suitable sphere gap would be (diameter in cm) (A) 5 or 10 (B) 10 or 15 **(C) 15 or 25** (D) 50 or 75	L1
42	With a series capacitor voltmeter, a large error will result in when the (A) Capacitance is larger (B) Meter used is an electromechanical meter **(C) Voltage to be measured is non sinusoidal and contents harmonics** (D) None of above	L2
43	Sphere gap measurement of peak voltage has an error of (A) <±1% (B) 5 to 10 % (C) 3 to 5 % **(D) < 3 %**	L1