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S.No	*Questions with multiple choice*	*Answer*
1	How many types of faults occur in a system? A)2 B)3 C)5 D)Many	B
2	System-short circuits may occur due to _____ A) Line to line contacts B) Line to neutral contacts if neutral is not earthed C) Line to neutral contacts if neutral is earthed D) LL and LG faults	D
3	Overload relays are of…… type. A)Induction B)Solid state C)Thermal D)Electromagnetic E)All above	E
4	The relay operating speed depends upon A) The spring tension B) The rate of flux built up C) Armature core air gap D) All of the above	D
5	In order that current should flow without causing excessive heating or voltage drop, the relay contacts should A) Have low contact resistance B) Be clean and smooth C) Be of sufficient size and proper shape D) Have all above properties	D
6	Burden of a protective relay is the power A) Required to operate the circuit breaker B) Absorbed by the circuit of relay C)Developed by the relay circuit D) None of these	B
7	Protective relays are devices that detect abnormal conditions in electrical circuits by measuring A) Current during abnormal condition B) Voltage during abnormal condition C) Constantly the electrical quantities which differ during normal and abnormal conditions D) None of the above	C
8	Resistance grounding is used for voltage between A) 33kVto66kV B) HkVto33kV C) 3.3kVandllkV D) None of the above	C
	Ungrounded neutral transmission system is not	

9	recommended because of system A) Insulation being overstressed due to over voltages B) Insulation overstress may lead to failure and subsequent phase to phase faults C) Being inadequately protected against ground fault D) All of the above	D
10	Discrimination between main and back up protection is provided by the use of relays which are A) Fast B) Sensitive C) Slow D) None of the above	C
11	Induction cup relay is operated due to changes in A) Current B) Voltage C) Impedance D) All of the above	D
12	What is switchgear? A) An apparatus used for switching, controlling and protecting the electrical circuits and equipments. B) It detects the faults only. C) It corrects the faults only. D) All of the above.	D
13	When does the circuit breaker operate in the line? A) When power is to be supplied. B) When the line is to be tested. C) Whenever the fault occurs in the line. D) Whenever the switch and the relay has to be operated.	C
14	Which device sends the information to the circuit breaker to interrupt the circuit in case of fault? A) Switch B) Relay C) Circuit breaker itself does this function. D) Fuse.	B
15	Outdoor switchgear is generally used for voltage beyond A) 11 KV	C

	B) 33 KV C) 66 KV D) 132 KV	
16	Purpose of backup protection is A) To increase the speed B) To increase a reach C) To leave no blind spot D) To guard against failure of primary	D
17	Switching over voltage arc are more hazardous than lighting surges in case of A) Unbalanced systems B) Low-voltages C) 11 KV systems D) EHV and UHV systems	D
18	Least number of faults are generally reported for A) Transmission lines B) Cables C) Switchgears D) Transformers	B
19	Plug setting of a relay can be changed by changing A) Air gap B) Back up stop C) Number of amphere turns D) All of these	C
20	Basic relay connection requirement is that the relay must operate for A) Load B) Internal faults C) Both (a) and (b) D) None of these	B
21	In a star connected system without neutral grounding, zero sequence currents are A) Zero B) Phaser sum of phase currents C) Same as r.m.s value of phase currents D) Same as peak value of phase currents	A
	The advantage of neutral earthing	

22	A) Safety of personnel B) Reduction of earth fault current C) Elimination of arcing ground D) None of the above	C
23	The neutral wire is coloured A) Black B) Blue C) Red D) Yellow	A
24	Earthing is necessary to give protection against A) Danger of electric shock B) Voltage fluctuation C) Overloading D) High temperature of the conductors	A
25	Solid grounding is addopted for voltages below A) 100 V B) 200 V C) 400 V D) 660 V	D
26	The advantage of neutral earthing is A) Freedom from persistent arcing grounds B) Over voltages due to lightning can be discharged to earth C) Simplified design earth fault protection D) All of the above	D
27	A Three phase transformer having a line voltage ratio of 400/33000 V is connected in the star-delta. The CTs on the 400V side have a CT ratio of 1000/5. What must be the ratio of CTs on the 33000 side? A) 7/5 B) 5/7 C) 3/5 D) 5/2	A
28	A Three phase transformer having a line voltage ratio of 400/33000 V is connected in the star-delta. The CTs on the 400V side have a CT ratio of 1000/5. What will be the current through the pilot wire? A) $5\sqrt{3}$ A	

	B) 5/√3 A C) 5 A D) 1/5 A	A
29	The neutral of the three phase 20 MVA, 11kV alternator is earthed through a resistance of 5 ohms, the relay is set to operate when there is an out of balance current of 1.5 A. The CTs have a ratio of 100/5. What percentage of the winding is protected against L-G faults? A) 76.4 B) 77.8 C) 73 D) None of the mentioned	D
30	The neutral of the three phase 20 MVA, 11kV alternator is earthed through a resistance of 5 ohms, the relay is set to operate when there is an out of balance current of 1.5 A. The CTs have a ratio of 100/5. What percentage of the winding is protected against earth faults? A) 76.4 B) 77.8 C) 73 D) None of the mentioned	A
31	If all the sequence voltages at the fault point in a power system are equal, then fault is _____ A) LLG fault B) LG fault C) Three phase to ground fault D) Line to Line fault	A
32	What is the full form of MCB? A) Miniature contact breaker B) Mini circuit breaker C) Miniature circuit breaker D) Mini contact breaker	C
33	Directional relays are based on flow of A) Power B) Current C) Voltage wave D) All of the above	A
34	A differential relay measures the vector difference between	

	A) Two currents B) Two voltages C) Two or more similar electrical quantities D) None of the above	C
35	The relay with inverse time characteristic will operate within A) 1.5 sec B) 5 to 10 sec C) 5 to 20 sec D) 20 to 30 sec	C
36	Inverse time current relays are used for the protection of A) Feeders B) Transformers C) Alternators D) Both A and B	D
37	IDMT relays are used to protect the power transformers against A) External short-circuitB) Over loads C) Internal short-circuits D) Both A and B	D
38	distance protection, the relay measures A) Negative sequence impedance of the light from relay up to the fault point B) Positive sequence impedance of the line from relay up to the fault point C) Self impedance of the line from relay up to the fault point D) Zero sequence impedance of the line from relay up to the fault point	B
39	The relay used for phase fault protection of short transmission lines is A) Reactance relay B) Impedance relay C) Mho relay D) IDMT relay	A
	Where severe synchronising swing occur, the relay	

40	employed is A) Impedance relay B) Mho relay C) Reactance relay D) Induction relay	B
41	For the protection of lines against faults involving variable fault resistance, the preferred relaying scheme is a A) Plain impedance relay B) Directional over-current relay C) Mho relay D) Reactance relay	D
43	For ground fault we prefer A) Plain impedance relay B) Directional over current relay C) Mho relay D) Reactance relay	D
44	Admittance relay A) Nondirectional relay B) Directional relay C) Differential relay D) None of the above	B
45	For the protection of stator winding of an alternate against internal fault involving ground the relay used is a A) Biased differential relay B) Directional over-current relay C) Plain impedance relay D) Buchholz relay	A
46	For the protection of a large squirrel cage induction motor against single phase normally A) An over-current relay is used B) Differential relay is used C) Directional relay is used D) Negative sequence current sensitive relay is used	D
	Inverse time current relays are used for the protection	

47	of A) Feeders B) Transformers C) Alternators D) Both A and B	D
48	IDMT relays are used to protect the power transformers against A) External short-circuit B) Over loads C) Internal short-circuits D) Both A and B	D
49	In distance protection, the relay measures A) Negative sequence impedance of the light from relay up to the fault point B) Positive sequence impedance of the line from relay up to the fault point C) Self impedance of the line from relay up to the fault point D) Zero sequence impedance of the line from relay up to the fault point	B
50	The relay used for phase fault protection of short transmission lines is A) Reactance relay B) Impedance relay C) Mho relay D) IDMT relay	A
51	Where severe synchronising swing occur, the relay employed is A) Impedance relay B) Mho relay C) Reactance relay D) Induction relay	B
52	For the protection of lines against faults involving variable fault resistance, the preferred relaying scheme is a A) Plain impedance relay B) Directional over-current relay	

	C) Mho relay D) Reactance relay	D
53	For ground fault we prefer A) Plain impedance relay B) Directional over current relay C) Mho relay D) Reactance relay	D
54	Admittance relay A) Nondirectional relay B) Directional relay C) Differential relay D) None of the above	B
55	Buchholz relay is used to protect against A) Inter-turn fault B) External faults C) Rotor faults D) Every internal faults	D
56	Instantaneous relay should operate within A) 0.0001 sec B) 0.001 sec C) 0.01 sec D) 0.1 sec	C
57	Which of the following is a directional relay? A) Reactance relay B) Mho relay C) Reactance relay D) Both (b) and (c)	D
58	Which of the following is an instantaneous relay? A) Induction type B) Shaded pole type C) Thermocouple type D) Permanent magnet moving coil type	D
59	Who invented electrical relay? A) Grueblerowen B) Joseph Henry C) Philip Vaughan D) Robert Abalakov	B
60	What is the full form of MCB? A) Miniature contact breaker B) Mini circuit breaker	

	C) Miniature circuit breaker D) Mini contact breaker	C
61	Which electrical relay contact tip material has the highest electrical conductivity? A) Silver B) Alloy of silver and copper C) Alloy of silver and tungsten D) Alloy of silver and Nickel	A
62	Electro mechanical relay's (EMR) needs to be manually turned "ON" and "OFF". A) True B) False	A
63	Plug setting of a electromagnetic relay can be altered by varying A) Number of ampere turns B) Air gap of magnetic path C) Adjustable back stop D) None of these	A
64	A transmission line is protected by A) Inrush protection B) Distance protection C) Time graded and current graded over current protection D) Both (b) and (c)	D
65	Large internal faults are protected by A) Merz price percentage differential protection B) Mho and ohm relays C) Horn gaps and temperature relays D) Earth fault and positive sequence relays	A
66	When a transmission line is energized, the wave that propagates on it is A) Current wave only B) Voltage wave only C) Both (a) and (b) D) Power factor wave only	C
67	For which of the following protection from negative sequence currents is provided? A) Generators B) Motors C) Transmission line D) Transformers	A

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68	Relay is preferred for phase fault on short transmission line. A) Induction type B) Reactance C) Impedance D) None of the above	B
69	For which of the following ratings of the transformer differential protection is recommended? A) Above 30 kVA. B) Equal to and above 5 MVA C) Equal to and above 25 MVA D) None of the above	B
70	The Undervoltage relay can be used for A) Generators B) Busbars C) Transformers D) Motors E) All of the above	E
71	We do not require any protection against prime mover failure in case of A) Turbo generator sets B) Hydro generator sets C) Diesel engine driven alternators D) Back pressure turbo generators	A
72	The most commonly used method for the protection of three phase feeder is A) Time graded protection B) Differential protection C) Reverse power protection D) None of the above	B
73	Which is the pilotless protection method for feeder line ? A) Differential protection B) Carrier current protection C) Time credit protection D) None of the above	B
74	Time graded protection of a radial feeder can be achieved by using	

	A) Definite time relay B) Inverse time relay C) Both definite and inverse time relays D) None of the above	C
75	Pilot-wire protection scheme is the most economical and provides high speed relaying for A) Short length of lines upto 15 km B) Medium length of lives up to 60 km C) Long length of lines up to 200 km D) All of the above	A
76	Distance protection scheme is preferred over graded lime-lag over-current protection in HV and EHV lines because A) It is faster in operation B) It is simple C) It is cheaper in cost D) All of the above	A
77	For which of the following ratings of the transformer differential protection is recommended? A) Above 30 KVA B) Equal to and above 5MVA C) Equal two and above 25 MVA D) None of the above	B
78	Overfluxing protection is recommended for A) Distribution transformer B) Generator transformer of the power plant C) Auto transformer of the power plant D) Station transformer of the power plant	B
79	The power loss is an important factor for the design of A) Transmission line B) Motor C) Generator D) Feeder	B
80	In carrier current protection the purpose of the wave trap is for A) Trapping power frequency waves	

	B) Trapping high frequency waves entering into generators/ transformer unit C) Both a and b D) None of the above	B
81	As soon as a fault develops in a generator stator, it is essential to suppress field excitation, otherwise A) Terminal voltage will drop B) It may lead to loss of synchronism C) It will continue to supply power to the stator winding fault D) All of the above	C
82	The types of faults that occur in electric motors are A) Stator B) Rotor C) Overload D) All of the above	D
83	The main function of under voltage protective device generally employed with a motor starter is to A) Open the supply circuit on failure of power supply B) Control the motor voltage C) Prevent the opening of supply circuit D) None of the above	A
84	The bias factor S in unit protection synchronous generators A) Lies between .05 and .1 Pu B) Is less than .05 Pu C) Lies between .1 to .25 Pu D) Is greater than .025 Pu	A
85	The frequency of carrier in the carrier current pilot scheme is in the range of A) 1 kHz to 10 kHz B) 10 kHz to 25 kHz C) 25 kHz to 50 kHz D) 50 kHz to 500 kHz	D
	The frequency of carrier transmitted by microwave	

86	pilot is in the range of A) 1000 kHz to 1500 kHz B) 2000 kHz to 5000 kHz C) 900 kHz to 6000 kHz D) 10000 kHz to 15000 kHz	C
87	Problems associated with differential protection is/are A) Magnetising inrush current B) Mismatching characteristics of CTs C) Charge of ratio as a result of tapping D) All of the above	D
88	For the protection of transformers, harmonic restraint is used to guard against A) Magnetising inrush current B) Unbalanced operation C) Lightning D) Switching over-voltage	A
89	If a transformer is provided with differentially connected relay. To prevent the mal operation of the relay, the relay restraining coil is biased with _____ A) 3rd harmonic B) 2nd harmonic C) 7th harmonic D) 5th harmonic	B
90	Ferroresonanace can be added in _____ A) Faults due to system B) Faults in the transformer C) Manual faults D) Other faults	A
91	Transformers are subjected to transients because _____ A) Open-circuit currents B) Short-circuit currents C) Inrush currents D) Both OC and SC currents	D
92	Any transformer needs to be protected from _____	

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	A) Transformer faults B) Faults occurring on the transformer connected systems C) Faults within and on system D) Other faults	C
93	Stored oil should be checked continuously for _____ A) Impurities in the oil B) Oil levels C) Oil moisture content D) Oil reactions	C
94	The main function of a fuse is to A) Protect the line B) Open the circuit C) Protect the appliance D) Prevent excessive currents	D
95	The arcing contacts in a circuit breaker are made of A) Copper tungsten alloy B) Porcelain C) Electrolytic copper D) Aluminium alloy	A
96	Arc in a circuit behaves as A) A Capacitive reactance B) An Inductive reactance C) A Resistance increasing with voltage rise across the arc D) A Resistance decreasing with voltage rise across the arc	D
97	The voltage appearing across the contacts after opening of the circuit breaker is called_____voltage. A) Recovery B) Surge C) Operating D) Arc	A
98	Ionization in circuit breaker is facilitated by A) High temperature B) Increase of mean free path C) Increasing field strength D) All of the above	D
99	The arc voltage produced in A.C. circuit breaker is always A) In phase with the arc current B) Lagging the arc current by 90″	

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	C) Leading the arc current by 90° D) None of the above	A
100	H.R.C. fuses provide best protection against A) Overload B) Reverse current C) Open-circuits D) Short-circuits	D
101	Wave trap is used to trap waves of A) Power frequencies B) Higher frequencies entering generator or transformer units C) Either of the above D) None of the above	B
102	What is the main advantage of using a fuse? A) Cheapest type of protection. B) Inverse time current characteristics. C) Current limiting effect under short circuit conditions. D) All of above.	D
103	On what basis is the selection of fuse done? A) Steady load. B) Fluctuating load. C) Both (a) and (b) D) None of these.	C
104	Upto what voltage a cartridge type of fuse can be used? A) 400 V B) 11 kV C) 20 kV D) 33 kV	D
105	What is fusing factor? A) The ratio of current rating of the fuse to the minimum fusing current B) The ratio of minimum fusing current to the current rating of the fuse C) The ratio of maximum fusing current to the current rating of the fuse D) The ratio of minimum fusing current to the voltage rating of the fuse	B
106	The resistance of an electric arc can be increased by A) Increasing the concentration of ionised particles. B) Reducing the arc length. C) Splitting the arc.	C

	D) Increasing the arc cross section	
107	By using low resistance method for arc extension what is the value of arc resistance? A) Arc resistance is zero. B) Arc resistance is high C) Arc resistance is low D) Arc resistance is very high	C
108	What happens in the arc extinction using high resistance method? A) Arc resistance is decreased with time. B) Arc resistance is increased with time. C) No change it remains same. D) Arc resistance is keptzero.	B
109	The arc resistance depends on which among the following factors? A) Cross section of the arc. B) Length of the arc. C) Degree of ionization D) All of the above.	D
110	Recovery voltage is the value of rms voltage that reappears across the poles of a circuit breaker before_____ A) Restriking voltage B) Final arc extinction C) Rise of voltage D) All of the above	B
111	Why is it difficult to interrupt a capacitive circuit? A) The current has a leading power factor. B) The restriking voltage can be high. C) Current magnitude is very small.	

	D) Stored energy in the capacitor is very high.	B
112	Rate of rise of restriking voltage depend on_____? A) Type of circuit breaker. B) Capacitance of the system. C) Inductance of the system. D) Both (b) and (c) E) None of these	D
113	On what factor does the rate of rise of restriking voltage (RRRV) depend? A) System voltage. B) Circuit power factor only C) Switching conditions D) Both (b) and (c).	D
114	In a circuit breaker, the active recovery voltage depends upon which among these? A) Circuit conditions. B) Power factor. C) Both (a) and (b) D) None of the above	C
115	What is restriking voltage? A) The transient voltage that appears across the circuit breaker contacts at the instant of arc extinction. B) The transient voltage that appears across the circuit breaker contacts at theend of arc extinction. C) Both (a) and (b) D) None of the above	A
116	50 Hz 3 phase synchronous generator has inductance per phase of 15mH. The capacitance of generator and	

	the circuit breaker is 0.002μ F. What is the natural frequency of oscillation? A) 29 kHz B) 2.9 kHz C) 290 kHz D) 29 MHz	A
117	Rate of rise of restriking voltage depend on_____? A). Type of circuit breaker. B). Capacitance of the system. C). Inductance of the system. D). Both (b) and (c)	D
118	In a short circuit test on a circuit breaker, the following readings were obtained on single frequency transients Time to reach the peak restriking voltage - 50μ sec The peak re striking voltage, 100 kV What is its average RRRV? A) $2*10^6$kV/sec B) $3*10^5$kV/sec C) $2*10^5$kV/sec D) $3*10^6$kV/sec	A
119	In a short circuit test on a circuit breaker, the following readings were obtained on single frequency transients Time to reach the peak restriking voltage - 50μ sec The peak re striking voltage, 100 kV What will be the frequency of oscillations? A) 100 Hz B) 1,000 Hz C) 10,000 Hz D) 10 Hz	C

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120	The arc resistance depends on which among the following factors? A). Cross section of the arc. B). Length of the arc. C). Degree of ionization D). All of the above.	D
121	Solid state relays face high arching problems. A) True B) False	B
122	Solid state relays have only one moving part which helps in switching between “ON” and “OFF” position. A) True B) False	B
123	Which type of Solid state relay turns “ON” when a minimum operating control voltage is applied and the load voltage nearly reaches zero? A) Instant ON Relays B) Zero-Switching Relays C) Peak Switching Relays D) Analog Switching Relays	B
124	Who developed the first Solid state relay? A) Grueblerowen B) Walcraft engineers C) Crydom engineers D) Robert Conrad	C
125	Which is an example of relay? A) KSD9700 B) XMPA06B2131 C) SLB700A/06VA D) 792XDXM4L-24A	
126	A good electrical relay contact tip should have higher arc resistance. A) True B) False	A
127	On which of the following routine tests are conducted A) Oil circuit breakers B) Air blast circuit breakers C) Minimum oil circuit breakers D) All of the above	D
128	SF6 gas A) Is yellow in colour	

	B) Is lighter than air C) Is nontoxic D) Has pungent small	C
129	Circuit breakers usually operate under A) Transient state of short-circuit current B) Sub-transient state of short-circuit current C) Steady state of short-circuit current D) After D.C. component has ceased	A
130	Circuit breakers are essentially A) Current carrying contacts called electrodes B) Arc extinguishers circuits to break the system C) Transformers to isolate the two systems D) Any of the above	A
131	The current zero interruption, in oil and air blast circuit breakers, is achieved by A) Lengthening of the gap B) Cooling and blast effect C) Both (a) and (b) D) Deionizing the oil with forced air	C
132	Air blast circuit breaker is used for A) Over currents B) Short duty C) Intermittant duty D) Repeated duty	D
133	The time of closing the cycle, in modern circuit breakers is A) 0.003 sec B) 0.001 sec C) 0.01 sec D) 0.10 sec	A
134	Resistance of high voltage circuit breakers is more than A) 1 mega ohms B) 10 mega ohms C) 100 mega ohms D) 500 mega ohms	C
135	The contacts of high voltage switches used in power system are submerged in oil. The main purpose of the oil is to A) Lubricate the contacts B) Insulate the contacts from switch body	

	C) Extinguish the arc D) All of the above	C
136	Which of the following circuit breakers has high reliability and minimum maintenance ? A) Air blast circuit breakers B) Circuit breaker with SF6 gas C) Vacuum circuit breakers D) Oil circuit breakers	B
137	Keeping in view the cost and the overall effectiveness, which of the following circuit breaker is best suited for capacitor bank switching? A) Vacuum circuit breaker B) Air blast CB C) SF6 D) Oil CB	A
138	During arc extinction SF6 gas gets converted to which among these? A) Gets decomposed to SF4 and SF2 B) Gets decomposed to Sand F C) Gets reduced to SF6 D) Gets oxidized	A
139	Is the normal pressure at which the SF6 gas is maintained in the closed position of the breaker? A)2 kg / cm2 B) 2.5 kg /cm2 C) 2.8 kg / cm2 D) 3 kg / cm2	C
140	What is the major drawback of using SF6 circuit breakers A)Sealing problems of the gas. B) Ingress of moisture in the gas system – dangerous. C) Deterioration of SF6 gas with time. D) Both (a) and (b)	D
141	Why do the SF6 gases have an excellent heat transfer property A)Low gaseous viscosity.	

	B) High dielectric strength. C) Higher molecular weight. D) Both (a) and (c)	D
142	What is the breaking capacity of the air blast circuit breaker A) 5000 MVA B) 6000 MVA C) 7000 MVA D) 10000 MVA	C
143	Axial blast type of CB, expansion of air takes place from _____ A) High pressure to low pressure. B) Low pressure to high pressure. C) Always in high pressure. D) Always in low pressure.	A
144	The air blast circuit breakers for 400 kV systems are designed to operate in how much time? A) 0.1 s B) 0.5 s C) 50 ms D) 100μs	C
145	When using air blast circuit breaker, current chopping is a phenomenon observed when A) ALong overhead line is switched off. B) A Bank of capacitors is switched off. C) A Transformer on no load is switched off. D) A Heavy load is switched Off.	C
146	Which type of air is used in air blast circuit breaker?	

	A) Ionised air B) Air free from moisture C) Air should have least CO_2 D) Air must have oil mist	B
147	The interrupting time of a circuit breaker is the period between the instant of____. A) Initiation of short circuit and the arc extinction on an opening operation. B) Energizing the trip circuit and the arc extension on an opening operation. C) Initiation of short circuit and the parting of primary arc contacts. D) Energizing of the trip circuit and the parting of primary arc contacts	B
148	In a circuit breaker, ionisation is facilitated by_____. A) Increase in field strength. B) Increase in mean free length. C) High temperature of the surrounding medium. D) All of the above.	D
149	The heat produced at the contact point owing to flow of electric current is least affected by_____. A) Temperature of the surrounding medium. B) Contact resistance. C) Magnitude of electric current flowing. D) Duration of flow of current.	A
150	Which part of the circuit breaker is helpful in breaking the current? A) Trip coil B) Contacts C) Medium D) Handle	B