

Engineer Distribution Question Bank

Theory Questions:

1. In India, what is the rated frequency of generated electric power?
 - a) 60 Hz
 - b) 50 Hz
 - c) 55 Hz
 - d) 53 Hz
2. Ohm's Law states that
 - a) $I=VR$
 - b) $V=IR$
 - c) $R=VI$
 - d) All of the above
3. The SI unit of Current is
 - a) Ampere
 - b) Volts
 - c) Ohm
 - d) Farad
4. Electric Power is generated at the generating stations by _____ that are usually driven either by steam or hydro turbine
 - a) Induction generator
 - b) Synchronous generator
 - c) Synchronous motor
 - d) DC motor
5. Voltage level to the end consumer is
 - a) 260/460 V
 - b) 110/240 V
 - c) 310/350 V
 - d) 240/415 V
6. Power generation is the process of generating electric power from fuel, coal, gas, diesel are called _____
 - a) Primary energy sources
 - b) Secondary energy sources
 - c) Non-conventional energy sources
 - d) None of the above
7. Voltage level of primary transmission are
 - a) 220 kV, 400 kV, 765 kV
 - b) 132 kV, 66 kV
 - c) 11 kV, 33kV

- d) 415 V, 220V
8. By which of the following systems electric power may be transmitted?
- a) Overhead System
 - b) Underground System
 - c) Both (a) and (b)
 - d) None of the above
9. In secondary distribution system, medium voltage is
- a) 220 kV – 765 kV
 - b) 11 kV – 33 kV
 - c) 415 V – 11 kV
 - d) 110kV – 220 kV
10. Apparent power is measured in terms of
- a) VA
 - b) V
 - c) A
 - d) Watt
11. What is the purpose of The Electricity Act 2003?
- a) Handling complaints about meter
 - b) Create liberal framework for power development
 - c) Regulate the tariff of generating companies
 - d) Specify and enforce the standards with respect to quality, continuity, reliability of services by the licensees
12. Every distribution company must carry out periodical review of
- a) Line Losses
 - b) Overloaded transformers, overloaded High Tension (HT) lines, overloaded substations
 - c) Maintaining quality and reliable power supply to the distribution utility
 - d) All of the above
13. A lightning arrester is usually located nearer to
- a) Transformer
 - b) Isolator
 - c) Bus-bar
 - d) Circuit breaker
14. High voltage for transmitting power is economically available from
- a) DC currents
 - b) AC currents
 - c) Carrier currents
 - d) None of the above
15. The per capita consumption of electricity on all India basis works out to _____ kWH for the year 2014-2015
- a) 2020 kWH
 - b) 1010 kWH
 - c) 4040 kWH

- d) 3030 kWh
- 16. As per Faraday's law of electromagnetic induction, an emf is induced in a conductor whenever it
 - a) Lies perpendicular to the magnetic flux
 - b) Moves parallel to the direction of the magnetic field
 - c) Lies in a magnetic field
 - d) Cuts magnetic flux
- 17. Material generally used for busbar is
 - a) Copper
 - b) Aluminium
 - c) Steel
 - d) Tungsten
- 18. Accident at workplace can be caused by working on unsafe or dangerous equipment such as
 - a) Cleaning/greasing or adjusting any of running machine
 - b) Working on machine under off condition
 - c) Using insulated tools
 - d) None of the above
- 19. Basic fundamental of safety are
 - a) Cooperation of all co-workers is essential to avoid accident
 - b) Accident is the result of unsafe working condition and unsafe work
 - c) Use of incomplete or little knowledge is dangerous and may invite accident
 - d) All of the above
- 20. Hazards occur due to
 - a) Inadequate wiring
 - b) Exposed electrical ports
 - c) Wires with bad insulation
 - d) All of the above
- 21. Tool used on electrical apparatus or equipment should be properly
 - a) Insulated
 - b) Not insulated
 - c) Both (a) and (b)
 - d) None of the above
- 22. Authorized person to issue permit in a substation is
 - a) Shift engineer or operation in-charge
 - b) All employees working in substation
 - c) Both (a) and (b)
 - d) None of the above
- 23. Safety requirement applicable at work include.
 - a) Wear personal protective equipment
 - b) Use tools in proper manner
 - c) Both (a) and (b)
 - d) None
- 24. CO₂ fire extinguisher are designed for

- a) Class B only
 - b) Class B and C
 - c) Class C only
 - d) None of the above
25. Class A type of fire extinguisher are used to extinguish fire on
- a) Solid that is not metal
 - b) Flammable liquid
 - c) Flammable gas
 - d) Metals
26. First-aid box contains
- a) Clean and sterilized cotton pads
 - b) Three angle bandage
 - c) Bottle of Dettol or Savlon liquid
 - d) All of the above
27. Mouth to mouth procedure of artificial respiration should be repeated about
- a) 10 to 12 times in a min
 - b) 30 to 32 times in a min
 - c) 50 to 52 times in a min
 - d) 1 to 2 times in a min
28. The undertakings shall provide suitable hoisting apparatus for hauling and carriage of loads above
- a) 500kg
 - b) 50 kg
 - c) 5 kg
 - d) 10 kg
29. The workmen shall be trained in safe methods of handling. They shall avoid
- a) Lifting too quickly and with a jerk
 - b) Lifting while in an awkward position or with a poor footing
 - c) Handling loads which are unwieldy or too heavy or loads which obstruct vision
 - d) All the above
30. Under no circumstances should the released _____ be disposed off by dumping or pouring in sewers or conductor pipes leading into sewers.
- a) Water
 - b) Carbon dioxide gas
 - c) Transformer oil
 - d) None of the above
31. The representative of employee is nominated under regulation
- a) Regulation 4(5)
 - b) Regulation 5(4)
 - c) Regulation 3(4)
 - d) Regulation 4(3)
32. Things needed to succeed in a team player
- a) Recognize your role

- b) Take ownership of the team goal
 - c) Earn trust
 - d) All the above
33. Characteristics of disciplined behavior
- a) Punctual
 - b) Maintain work standard
 - c) Both a & b
 - d) None of the above
34. Leadership skills includes
- a) Problem-solving
 - b) Decision-making
 - c) Personal stress management
 - d) All of the above
35. Conflict can be resolved by
- a) Being anguish
 - b) Being calm and listening views
 - c) Negative body language
 - d) All of the above
36. Methods to develop positive attitude include
- a) Make failure a teacher
 - b) Keep Complaining
 - c) Not to forgive others
 - d) None of the above
37. What are the ways to build self- confidence?
- a) Identify the problem
 - b) Don't fear mistake
 - c) Look on the bright side
 - d) All the above
38. What are the tips to deal with change?
- a) Stay prepared
 - b) Understand and accept change
 - c) View change as an opportunity
 - d) All the above
39. Power factor is said to be lagging power factor if
- a) ϕ is positive
 - b) ϕ is negative
 - c) ϕ is zero
 - d) None of the above
40. In GIS substation the insulating medium is
- a) Air
 - b) CO₂
 - c) Methane

- d) SF₆
- 41. The fact that a conductor carries more current on the surface as compared to core is known as
 - a) Skin effect
 - b) Corona
 - c) Permeability
 - d) Unsymmetrical fault
- 42. One commercial unit of energy equals
 - a) 500 watt-sec
 - b) One watt-hour
 - c) One kilowatt-hour
 - d) Ten kilowatt-hour
- 43. ACSR conductor implies
 - a) All Conductor Surface treated and Realigned
 - b) Aluminium Conductor Steel Reinforced
 - c) Anode Current Sinusoidal Run
 - d) Anodized Core Smooth Run
- 44. Earthing is necessary to give protection against
 - a) Danger of electric shock
 - b) Voltage fluctuation
 - c) Overloading
 - d) High temperature of the conductors
- 45. Which of the following does not change in a transformer
 - a) Current
 - b) Voltage
 - c) Frequency
 - d) All of the above
- 46. The bundling of conductors is done primarily to
 - a) Reduce reactance
 - b) Increase reactance
 - c) Increase radio interference
 - d) Reduce radio interference
- 47. The function of steel wire in an ACSR conductor is
 - a) To take care of surges
 - b) To prevent corona
 - c) To reduce inductance and hence improve power factor
 - d) To provide additional mechanical strength
- 48. Color of Silica gel in breather in dry state is
 - a) White
 - b) Pink
 - c) Yellow
 - d) Blue
- 49. In a circuit breaker the basic problem is to

- a) Maintain the arc
 - b) Extinguish the arc
 - c) Transmit large power
 - d) Emit the ionizing electrons
50. Break down voltage (BDV) value is tested for
- a) Transformer winding
 - b) Transformer oil
 - c) Transformer core
 - d) Transformer bushing
51. Which distribution system is more reliable?
- a) Ring main system
 - b) Tree system
 - c) Radial system
 - d) All are equally reliable
52. When silica gel comes in contact with moisture its color changes to
- a) Blue
 - b) Black
 - c) Violet
 - d) Pink
53. Isolators are used to disconnect a circuit when
- a) Line is on full load
 - b) Line is energized
 - c) Circuit breaker is not open
 - d) There is no current in the line
54. Unit of Reactive Power, Active Power and Apparent Power respectively are
- a) W, VAR and VA
 - b) VA, VAR and W
 - c) W, VA and VAR
 - d) VAR, W and VA
55. Tap changing transformers are used for
- a) Stepping up the voltage
 - b) Stepping down the voltage
 - c) Both stepping up and stepping down the voltage
 - d) Supplying low voltage current for instruments
56. The corona is considerably affected by which of the following?
- a) Size of the conductor
 - b) Shape of the conductor
 - c) Surface condition of the conductor
 - d) All of the above
57. Which device automatically interrupts the supply in the event of surges
- a) Earthing switch
 - b) Series reactor

- c) Isolator
 - d) Circuit breaker
58. In insulation resistance test of transformer, absorption coefficient is equal to
- a) 1 min value/ 15 sec value
 - b) 10 min value/ 1 min value
 - c) 10 min value/ 15 sec value
 - d) 1 min value/ 10 min value
59. Current rating is not necessary in case of
- a) Isolators
 - b) Circuit breakers
 - c) Load break switch
 - d) Circuit breakers and load break switches
60. Which of the following correctly represents the sequence of operations of isolator, circuit breaker and earthing switch while operation
- a) Close earthing switch – open circuit breaker – open isolator
 - b) Open isolator – close circuit breaker – open earthing switch
 - c) Open circuit breaker – open isolator – close earthing switch
 - d) Close circuit breaker – close isolator – open earthing switch
61. Stability of a system is not affected by
- a) Reactance of line
 - b) Losses
 - c) Reactance of generator
 - d) Output torque
62. Which of the following is reduced due to the use of bundled conductor
- a) Capacitance of the circuit
 - b) Inductance of the circuit
 - c) Power loss due to corona
 - d) All of the above
63. Guy wire is used to
- a) Support the pole
 - b) Provide protection against surges
 - c) Provide emergency earth route
 - d) Protect conductors against short circuiting
64. Transformer oil drums should be stored so that the air release hole is on the upper side and at an angle of
- a) 30°
 - b) 90°
 - c) 45°
 - d) 60°
65. Sulphur hexafluoride gas has the property of
- a) Superior arc quenching property
 - b) Low cooling property

- c) Toxic property
 - d) Both (a) and (b)
66. The service mains connects
- a) Distributor and consumer terminals
 - b) Distributor and transformer
 - c) Distributor and relay system
 - d) Transformer and earth
67. Which of the following materials is not used for transmission and distribution of electrical power
- a) Copper
 - b) Aluminium
 - c) Steel
 - d) Tungsten
68. The square root of the ratio of line impedance and shunt admittance is called the
- a) Surge impedance of the line
 - b) Conductance of the line
 - c) Regulation of the line
 - d) None of the above
69. SF₆ gas is
- a) Yellow in color
 - b) Lighter than air
 - c) nontoxic
 - d) All of the above
70. Distribution lines in India generally use
- a) Wooden poles
 - b) RCC poles
 - c) Steel poles
 - d) None of the above
71. Air blast circuit breaker is used for
- a) Over currents
 - b) Short duty
 - c) Intermittent duty
 - d) Repeated duty
72. The power factor of industrial loads is generally
- a) Unity
 - b) Lagging
 - c) Leading
 - d) Zero
73. By which of the following methods string efficiency can be improved?
- a) Using a guard ring
 - b) Grading the insulators
 - c) Using long cross arm
 - d) Any of the above

74. Specified quantities of load bus are
- P and Q
 - V and δ
 - P and δ
 - Q and V
75. If current in a conductor increases then according to lenz's law self-induced voltage will
- Aid the increasing current
 - Tend to decrease the amount of current
 - Produces current opposite to the increasing current
 - Aid the applied voltage
76. In a tap changing transformer, the tapping is provided on
- Primary winding
 - Secondary winding
 - High voltage winding
 - Any of the above
77. Which of the following is not the consequence of fault?
- Abnormally large currents will flow in parts of system with associated overheating of components.
 - System voltages will be beyond their normal acceptable levels, resulting in possible equipment damage.
 - Parts of the system will be caused to operate as unbalanced three phase systems, which will mean improper operation of the equipment.
 - None of the above
78. The fault due to winding flashover caused by line surges is
- Phase to phase fault
 - Core fault
 - Earth fault
 - Inter-turn fault
79. Induction dice overcurrent relay operates according to the torque equation, where K is a constant ϕ_1 and ϕ_2 are the two fluxes and Θ is the phase angle between the fluxes, is given by
- $T=K \times \phi_1 \times \phi_2 \cos\Theta$
 - $T=K \times \phi_1 \times \phi_2 \sin\Theta$
 - $T=K \times \phi_1 \times \phi_2 \tan\Theta$
 - None of the above
80. The fault due to insulation breakdown that can permit sufficient eddy-current to flow to cause overheating, which may reach a magnitude sufficient to damage the winding is
- Core fault
 - Phase to phase fault
 - Earth fault
 - Inter-turn fault
81. Differential protection is the main scheme used for
- Transmission line protection
 - Transformer protection

- c) Current transformer protection
 - d) CVT protection
82. Buchholz protection provides an alarm for
- a) Inter-turn fault
 - b) Core bolt insulation failure
 - c) Winding fault
 - d) All of the above
83. The device that can transfer collected data to other devices and receive data and control commands from other device
- a) Remote Terminal Unit (RTU)
 - b) Digital fault recorder
 - c) Protective relay
 - d) Meter
84. When a live conductor of public electric supply breaks down and touches the earth which of the following will happen
- a) Current will flow to earth
 - b) Supply voltage will drop
 - c) No current will flow in the conductor
 - d) Supply voltage will increase
85. A capacitive voltage transformer is a transformer used in power system to
- a) Step down extra high voltage signals and provide high voltage signals either for measurement or to operate a protective relay
 - b) Step up extra high voltage signals and provide low voltage signals either for measurement or to operate a protective relay
 - c) Step down extra high voltage signals and provide low voltage signals either for measurement or to operate a protective relay
 - d) Step up extra high voltage signals and provide high voltage signals either for measurement or to operate a protective relay
86. The differential relay is a current operated relay that responds to
- a) the difference between two or more device currents above a set value
 - b) a combination of both voltage and current
 - c) a magnitude of current above a specified value
 - d) excessive current flow in a given direction
87. If the length of the cable is double, its capacitance C will be
- a) one fourth
 - b) half
 - c) double
 - d) unchanged
88. Which of the following quantities are to be calculated for generator bus
- a) P and V
 - b) P and Q
 - c) Q and δ

- d) δ and V
89. During shutdown of transformer, the circuit breaker of the Incomer is
- Closed first before opening the circuit breaker of transformer
 - Opened first after opening the circuit breaker of transformer
 - Closed first before closing the circuit breaker of transformer
 - Opened first before opening the circuit breaker of transformer
90. During charging of transformer, the circuit breaker of transformer is
- Closed first before closing the circuit breaker of incomer
 - Opened first after opening the circuit breaker of incomer
 - Closed first before opening the circuit breaker of incomer
 - Opened first before opening the circuit breaker of incomer
91. Which of the following method is/are used for reactive or voltage compensation
- Shunt capacitor
 - Series capacitor
 - Generating excitation control
 - All of the above
92. The equipment whose insulation is to be tested, _____ is applied across the equipment
- A very low frequency test voltage
 - A very high frequency test voltage
 - A very low frequency test current
 - A very high frequency test current
93. The typical lightning arrester has a
- Low voltage terminal and a ground terminal
 - High voltage terminal and a ground terminal
 - High voltage terminal and a low voltage terminal
 - All of the above
94. In transformer ratio test
- Single phase 230V supply is applied to HV winding and LV winding is kept open
 - Three phase 415V supply is applied to HV winding and LV winding is kept open
 - Single phase 230V supply is applied to HV winding and LV winding is kept shorted
 - Three phase 415V supply is applied to HV winding and LV winding is kept shorted
95. For insulation resistance test of transformer, megger leads are connected between
- LV and HV winding
 - HV winding and earth
 - LV winding and earth
 - All of the above
96. In insulation resistance test of transformer, polarization index is equal to
- 1 min value/ 15 sec value
 - 10 min value/ 1 min value
 - 10 min value/ 15 sec value
 - 1 min value/ 10 min value
97. Which of the following method is used for changing power factor from leading to lagging

- a) Shunt capacitor
 - b) Series capacitor
 - c) Shunt reactor
 - d) Any of the above
98. A light bulb draws 300mA when the voltage across it is 240V. The resistance of the light bulb is
- a) 400Ω
 - b) 600Ω
 - c) 800Ω
 - d) 1000Ω
99. Specified quantities of slack bus are
- a) P and Q
 - b) V and δ
 - c) P and δ
 - d) P and V
100. Large internal faults are protected by
- a) Merz price protection
 - b) Mho and ohm relays
 - c) Horn gaps and temperature relays
 - d) Earth fault and positive sequence relays
101. Per unit of any quantity is defined as
- a) Actual value of quantity/base value of quantity in same units
 - b) Actual value of quantity/base value of quantity in different units
 - c) Base value of quantity/actual value of quantity in same units
 - d) Base value of quantity/actual value of quantity in different units
102. Earth fault relay uses which of the following sequence currents?
- a) Positive sequence
 - b) Negative sequence
 - c) Zero sequence
 - d) Any of the above

Viva Questions:

1. What are the different substation components?
2. What are the different types of busbar arrangement scheme in Substations?
3. For distribution network which type of switching scheme is employed?
4. What is meant by Sag?
5. How can we reduce the effect of Corona?

6. Explain different losses in transformer.
7. What are the applications of Substation Automation System (SAS)?
8. Explain the arc quenching mechanism in oil circuit breaker?
9. Explain the term real power, apparent power and reactive power for AC circuits and also their units.
10. What are the various types of consumers?
11. A transformer works on the principle of?
12. Name some accessories of transformer.
13. What is the function of lightning arrester?
14. What are the routine tests on transformer?
15. Name the instrument used for measurement of insulation resistance.

On Job Training Questions:

1. Conduct detailed survey and field investigation to design, construct, operate and run the distribution line.
2. Monitor critical parameters of the transformer.
3. Perform pre-commissioning tests on various components in Distribution System.
4. Perform DGA analysis on transformer oil.
5. Make connections for primary injection test on CT and measure secondary currents at all core of CT circuits.
6. Show the connection of megger on equipment. Record the readings.
7. Perform routine tests on circuit breaker
8. Make connection for IR test and winding resistance test on a transformer.
9. Perform maintenance activity on various components in distribution substation.
10. Demonstrate the use of PPE with practical applications.