

**QUESTION BANK**  
**POWER SYSTEM TECHNICIAN**  
**(PSS/Q0105)**

**EASY**

- Q1. While detecting cable fault in UG cable using Impulse detection method, if a sharp volume falling sound is noticed then location of fault is:
- A. Exact location where sound detected
  - B. Whole along the Cable, as it deteriorate over wide area
  - C. Ten to twenty feet back from where sound noticed
  - D. Few inched or few feet back from reduction of volume
- Q2. The ultimate failures of the conductor strands is termed as
- A. Fatigue Break
  - B. Tensile Break
  - C. Fretting
  - D. Abrasions
- Q3. Permissible min. limit for Breakdown voltage of transformer oil of 145 kV and above transformer is
- A. 50 kv
  - B. 40 kV
  - C. 30 kV
  - D 60 kV
- Q4. During a major fire broke on transformer the high pressure water to cool fire can be spread using
- A. Automatic Mulsifyre system
  - B. Main hydrant
  - C. Foam system
  - D. Sprinkle hydrant system
- Q5. IR value of dry insulator to be replaced against a damaged one should be check to
- A. Above 1000Mega Ohms
  - B. 250 Meha ohms
  - C. 500 Mega ohms
  - D. 800 Mega ohms
- Q6. Anticorrosive measure to prevent rust on tower are:
- A. Apply two coats of Bitumen paint
  - B. Remove soil from Stub
  - C. Cut down heavy growth of grass
  - D. All Above

Q7. Trees coming within \_\_\_\_\_ metre of 132 kV line are required to be trimmed

- A. 27
- B. 15
- C. 32
- D. 52

Q8. Megger used by technician for line inspection and maintenance is of ----- rating

- A. 2kV
- B. 5kV
- C. 25kV
- D. 10 kv

Q9. Within an isolated zone, where Permit to Test(PTT) has been issued, PTW can be also issued

- A. Yes
- B. No

Q10. Shift Incharge of a state controlled sub-station carries out switching operation as per instruction from-----

- A. SLDC
- B. RLDC
- C. NLDC
- D. Any ob above

Q11. The End clamp of additional earth which is to be connected with the conductor or jumper is called

- A. Earth end clamp
- B. Line end clamp
- C. Earth lead
- D. Socket

Q12. Adverse effect of vibration can be noticed on

- A. Tower Stub
- B. Insulator
- C. Jumpers
- D. Both B and C

Q13. Insulator on tower broken needs to be

- A. Replaced
- B. Repaired
- C. No Action
- D. None of above

Q14. If the foundation is intact and the stubs are damaged above the ground level, then

- A. Damaged portion of stub is to be cut and extension piece is to be provided
- B. Re-casting of tubs needs to be done by constructing new foundation
- C. Both A and B
- D. None of the above

Q15. During shutdown of transformer, the circuit breaker of the Incomer is

- a) Closed first before opening the circuit breaker of transformer
- b) Opened first after opening the circuit breaker of transformer
- c) Closed first before closing the circuit breaker of transformer
- d) Opened first before opening the circuit breaker of transformer

Q16 During charging of transformer, the circuit breaker of transformer is

- a) Closed first before closing the circuit breaker of incomer
- b) Opened first after opening the circuit breaker of incomer
- c) Closed first before opening the circuit breaker of incomer
- d) Opened first before opening the circuit breaker of incomer

Q17 The typical lightning arrester has a

- a) Low voltage terminal and a ground terminal
- b) High voltage terminal and a ground terminal
- c) High voltage terminal and a low voltage terminal
- d) All of the above

Q18 In transformer ratio test

- a) Single phase 230V supply is applied to HV winding and LV winding is kept open
- b) Three phase 415V supply is applied to HV winding and LV winding is kept open
- c) Single phase 230V supply is applied to HV winding and LV winding is kept shorted
- d) Three phase 415V supply is applied to HV winding and LV winding is kept shorted

Q 19 For insulation resistance test of transformer, megger leads are connected between

- a) LV and HV winding
- b) HV winding and earth
- c) LV winding and earth
- d) All of the above

Q20. The breakdown voltage of cable depends on

- (a) presence of moisture
- (b) working temperature
- (c) time of application of voltage
- (d) all of the above

Q 21. Current Transformers maintenance include

- (a) Visual Inspection
- (b) Maintenance of Gaskets
- (c) Secondary Terminals Connections

(d) All the above

Q22. Capacitance Voltage Transformers/ Potential transformers/ Capacitor Coupling maintenance includes

- (a) Visual Inspection
- (b) Electro-Magnetic Unit
- (c) Secondary Voltage
- (d) All the above

Q23. Disconnectors/Isolators maintenance consists of

- (a) Visual Inspections
- (b) Hot Spot Checking
- (c) Checking Alignment
- (d) All the above

Q24. Lighting Arrester/Surge Arresters maintenance includes

- (a) Visual Inspection
- (b) Monitor LCM
- (c) Only a
- (d) Both a and b

Q25. Battery and Battery Chargers maintenance includes

- (a) Battery Chargers
- (b) Battery Capacity Testing
- (c) Only a
- (d) Both a and b

Q26. Fault detected in transmission line network is using

- (a) Optical fibre Ground Wire
- (b) Neural Network
- (c) Only a
- (d) Both a and b

Q27. Hotline maintenance works are generally carried to

- a) Change of broken insulators
- b) Repair of damaged Conductor
- c) Tighten of jumper connections

Q. 28 Thermo vision scanning is a part of

- a) Preventive maintenance
- b) Condition monitoring
- c) corrective maintenance

Q29. The 400 kv circuit breaker are generally

- a) Single break
- b) Double break
- c) 4 breaker
- d) non of these

Q30.Type of circuit breaker generally used for 400 kv voltages levels

- a) SF6 gas type
- b) Air blast type
- c) Minimum oil type
- d) bulk oil type
- e) both a & b

Q31. Normal leakage current through a surge arrestor is

- a) More than 50mA
- b) Less than 2 mA
- c) Less than 5 mA
- d) Between 1-2amp

Q32 Name which one is not the daily check of C & R panels

- a) Annunciation check
- b) Lamp test
- c) Synchronizing ckt. Check
- d) Healthiness of DR & EL

Q33 On load tap changer is provided on which side of the transformer

- a) HV side
- b) LV side
- c) IV side

Q34. Earth mat is provided in 400Kv switch yard

- a) To reduce Step potential
- b) To reduce touch potential
- c) Both a & b
- d) As the salt and coke get displaced due to rains.

Q35. Which sequence is followed first while closing a circuit breaker

- a) Close an isolator
- b) Close circuit breaker
- c) Open earth switch
- d) Any of these

Q 36.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

Q37. Primary Transmission of Power is

- a) 66/132 kV
- b) 11/22 kV
- c) 132/220/400/765 kV
- d) 11/0.415 V

Q.38 Function of Transmission Company is to transmit power from \_\_\_\_\_ to \_\_\_\_\_

Q.39 Step potential and touch potential is associated with

- a) High voltage distribution
- b) Earthing of the substation
- c) Voltage rise in the substation
- d) Communication system

Q40. 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

## **AVERAGE**

Q41. 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

Q42. The grid operations are monitored by

- a) State Load Dispatch Centre
- b) Regional Load Dispatch Centre
- c) National Load Dispatch Centre
- d) None of the above

Q43. Secondary Current of Current transformer (CT) is always of ratio 5 or 1 Amp

- a) True
- b) False

Q44. If reactive power (kVAR) drawn by a particular load is zero, it means the load is operating at

- a) lagging power factor
- b) leading power factor
- c) Unity power factor
- d) None of above

Q45. In a cable, the fault can be located by comparing

- a) The resistance of conductor
- b) The inductance of conductor
- c) The capacitance of insulated conductor
- d) All above parameters

Q46. Cables used for 132 kV lines are

- a) High tension
- b) Super tension
- c) Extra high tension
- d) Extra High Voltage

Q47. Tower footing Resistance of a transmission tower is \_\_\_\_\_ ohm.

Q48. Power Transmission capacity of a Transmission line depends on

- a) Stability angle
- b) Thermal Stability
- c) Voltage Rating
- d) All of the above

Q49. Colour of Silica gel in healthy condition is

- a) Blue
- b) Pink
- c) Yellow
- d) Green

Q50 The first equipment of substation to which 400kV lines are terminated

- a) CVT
- b) LA
- c) Wave Trap
- d) Isolator

Q. 51. Condition monitoring required shutdown on the equipment

- a) Yes
- b) No

Q52. Vibration dampers are provided in

- a) on both conductors and earth wire
- b) on conductor only
- c) on earth wire only

Q53. Buchholz relay protects A T/F or Reactor from

- a) External faults
- b) Through faults
- c) Internal faults
- d) ground faults

Q54. Reactance relay is used as

- a) Over current relay
- b) Earth fault relay
- c) Phase fault relay
- d) None of the above

Q55. The advantage of cables over overhead transmission lines is

- a) easy maintenance
- b) low cost
- c) can be used in congested areas
- d) can be used in high voltage circuits

Q56. Impedance relay is used in

- a) Distance protection
- b) Over voltage
- c) Over current
- d) None

Q. 57 OLTC is provided in power transformers on

- a) HV side
- b) LV side
- c) Both sides
- d) All of the above

Q58. Maintenance of transmission line in live condition is

- a) Cold Line maintenance
- b) Hot Line Maintenance
- c) Isolation Maintenance
- d) All the above

Q59. Authorised 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

Q60. General instructions for maintenance of switch yard equipment are

- a) External Cleaning
- b) Rust Protection



- c) Lubrication
- d) All the above

Q61. Unit of Real Power is

- a. VA
- b. VAR
- c. Watt
- d. All of the above

Q62. \_\_\_\_\_ is used as part of work positioning, personnel riding, personnel fall arrest, material handling, or rescue and excavation system.

- a. Pipet
- b. Tripod
- c. Thyristor
- d. None of the above

Q63. \_\_\_\_\_ is used for cable lifting and pulling equipment.

- a. Engine Winch
- b. Pulley
- c. Tirfor
- d. All of the above

Q64. Which one of the following is the part of Lead acid battery?

- a. Lead peroxide ( $PbO_2$ )
- b. Sponge lead (Pb)
- c. Dilute sulphuric acid ( $H_2SO_4$ )
- d. All of the above

Q65. The alkaline battery is based on the reaction between \_\_\_\_\_ and \_\_\_\_\_.

- a. Zinc (Zn) and manganese dioxide ( $MnO_2$ )
- b. Lead peroxide ( $PbO_2$ ) and Dilute sulphuric acid ( $H_2SO_4$ )
- c. Zinc (Zn) and Dilute sulphuric acid ( $H_2SO_4$ )
- d. Lead peroxide ( $PbO_2$ ) and manganese dioxide ( $MnO_2$ )

Q66. Capacitance is the ability of a body to store an electrical \_\_\_\_\_.

- a. Current
- b. Charge
- c. Power
- d. None of these

Q67. When a circuit is driven with \_\_\_\_\_, there is no distinction between impedance and resistance.

- a. AC
- b. DC
- c. Sinusoidal wave

- d. Triangular wave

Q68. A DC circuit will not exhibit any form of \_\_\_\_\_.

- a. Resistance
- b. Reactance
- c. Impedance
- d. Both b & c

Q69. If  $\Phi$  is positive then,  $\cos(\Phi)$ , i.e., power factor is said to be \_\_\_\_\_.

- a. Leading
- b. Lagging
- c. Unity
- d. Cannot be determined

Q70. When the current in the phase exceeds a preset level, the fault is indicated by \_\_\_\_\_.

- a. Mechanical flag Indicator
- b. Electrical flag indicator
- c. Electronics flag indicator
- d. None of these

Q71. \_\_\_\_\_ shall be anchored either by utilizing an anchor log or by means of angle bar embedded on the earth.

- a. Tirfor
- b. Hack saw
- c. Engine Winch
- d. None of these

Q72. The simplest theory of operation for a pulley system assumes that the pulleys and lines are weightless, and that there is no energy loss due to \_\_\_\_\_.

- a. Friction
- b. Potential
- c. Both a & b
- d. None of these

Q73. The most common type of single leg wire rope slings is an \_\_\_\_\_ sling.

- a. Eye
- b. Eye & eye
- c. Eye and hole
- d. hole

Q74. The electrical resistance of the joint, after installation, shall not exceed \_\_\_\_\_ percent of the measured resistance of the equivalent length of the conductor.

- a. 70
- b. 75
- c. 80
- d. 85

Q75. The compressed conductor with the repair sleeve shall not permit damage or failure of the conductor at a load of less than \_\_\_\_\_ percent of the ultimate Tensile strength of the conductor.

- a. 80
- b. 85
- c. 90
- d. 95

Q76. Properly designed tension clamps can offer \_\_\_\_\_ percent slip strength for 46 mm diameter ACSR and consistent mechanical strength up to 11500 kgs.

- a. 80 to 85
- b. 80 to 95
- c. 70 to 75
- d. 70 to 85

Q77. The messenger cable of the damper shall be made of high strength steel with a minimum strength of \_\_\_\_\_ Kg/Sq. mm.

- a. 110
- b. 120
- c. 130
- d. 140

Q78. The vibration damper mass shall not droop more than \_\_\_\_\_ degrees from the center of the damper.

- a. 3
- b. 4
- c. 5
- d. 6

Q79. Beyond operating voltage of 33 kV, the \_\_\_\_\_ type insulators become too bulky and hence uneconomical.

- a. Pin
- b. Suspension
- c. Tension
- d. None of the above

Q80. A technician should patrol most vulnerable section every \_\_\_\_\_.

- a. Weekly
- b. Fortnightly
- c. Monthly
- d. Quarterly

## **DIFFICULT**

Q81. Inspection of each location should be thoroughly done and all the defects noticed should be rectified before the \_\_\_\_\_ season starts.

- a. Summer
- b. Rainy
- c. Winter
- d. Spring

Q82. Aeolian vibration is characterized by \_\_\_\_\_ amplitude and \_\_\_\_\_ frequency.

- a. High, low
- b. High, high
- c. Low, low

- d. Low, high

Q83. Power cables have a tendency to loose/reduce IR values due to continuous \_\_\_\_\_

- a. Inrush of water/moisture inside earth.
- b. Chemical reaction of soil.
- c. Absorbing moisture to improper sealing at terminating points.
- d. All of the above

Q84. ACSR conductors are operated up to a maximum temperature of \_\_\_\_\_ deg. C.

- a. 75
- b. 80
- c. 85
- d. 90

Q85. The resistance path may be \_\_\_\_\_ for a shorted circuit.

- a. Near zero
- b. Near 5
- c. Near infinity
- d. So high that it cannot be determined

Q86. In order to improve the power factor, \_\_\_\_\_ device is employed in the substation.

- a. Synchronous condenser
- b. Synchronous reactor
- c. Series Capacitors
- d. None of the above

Q87. Stones are provided in the substation to \_\_\_\_\_

- a. To avoid fire accident by draining oil from transformer if leaks
- b. To avoid growing of weeds and plants
- c. To provide insulation
- d. All the above

Q88. What is the minimum phase to phase clearance required for 400kV conductors in substation?

- a. 3500 mm
- b. 4200 mm
- c. 4500 mm
- d. 5000 mm

Q89. In substation which of the device is a carrier communication device?

- a. CVT
- b. Earth conductor
- c. Wave trap
- d. Lightning arrestor

Q90. Which of the device is employed in substation to limit the short circuit current in the power system?

- a. Shunt condenser
- b. Reactor
- c. Series capacitor

- d. Shunt capacitor

Q91. Earthing conductivity is affected by \_\_\_\_\_

- a. Moisture content in the soil
- b. Chemical composition
- c. Concentration of salts in the soil
- d. All the above

Q92. Emulsifier protection is associated with \_\_\_\_\_

- a. Grounding protection
- b. Dielectric strength protection of cables and conductors
- c. Lightning protection
- d. Fire protection

Q93. What is Marshalling Kiosk in power transformer?

- a. It provides alarms, trips, controls and indications from main transformer
- b. It is the base on which transformer rail is provided to pull and push transformer
- c. It is the pressure device ruptures when temperature inside transformer increases
- d. None of the above

Q94. Which is the first equipment seen in the substation while coming from transmission system?

- a. Circuit breaker
- b. Lightning arrester
- c. Current transformer
- d. Transformer

Q95. Step potential and Touch potential is associated with:

- a. High voltage transmission
- b. Earthing of the substation
- c. Voltage rise in the substation
- d. Communication systems

Q96. Relay contacts are normally made up of \_\_\_\_\_

- a. Silver contacts
- b. Copper contacts
- c. Aluminium contacts
- d. Lead contacts

Q97. Impedance relays can be used for \_\_\_\_\_

- a. Phase faults only
- b. Earth faults only
- c. Both earth and phase faults
- d. None of the above

Q98. Sparking between the contacts can be reduced by inserting \_\_\_\_\_

- a. A capacitor in parallel with the contacts
- b. A capacitor in series with the contacts
- c. A resistor in the line
- d. A reactor in the line

Q99. Which sequence is followed first while closing a circuit breaker?

- a. Close the isolator
- b. Open earthing switch
- c. Close circuit breaker
- d. Any of these

Q100. At what pressure is the SF<sub>6</sub> gas filled in the whole installation of GIS substations?

- a. 3 kg / cm<sup>2</sup>
- b. 5 kg / cm<sup>2</sup>
- c. 3 kg / m<sup>2</sup>
- d. 5 kg / m<sup>2</sup>

Q101. Plug setting of an 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

Q102. Which circuit breaker is preferred to be installed in extra high voltage AC system?

- a. Bulk oil type circuit breaker
- b. Air blast circuit breaker
- c. SF<sub>6</sub> circuit breaker
- d. Vacuum circuit breaker

## VIVA QUESTIONS

1. State the points to be checked while patrolling a transmission line for tower, insulator & Hardware condition monitoring.
2. State the points to be checked while patrolling a transmission line for conductor condition monitoring.
3. State the causes for Conductor Damage.
4. State the procedure for curing for rusting of tower.
5. State probable causes for damage of earth wire.
6. State procedure for replacement of insulator string.
7. State procedure for replacement of conductor for a tension tower with listing tools and particulars required.
8. State procedure for termination of EHV cable.
9. State procedure for locating faults by any one method.
10. State procedure for jointing of UG EHV cable.
11. State cable splicing steps.
12. State the steps to be followed after tripping of line.

13. How to ensure safety before giving clearance for line energization after maintenance?
14. Explain safety precaution at worksite for repair of transmission line
15. Define the oil testing procedure and why it is conducted
16. Describe switching procedure for shutdown of transmission line and substation
17. What is the main reason for providing metallic sheath in underground cables?

### **ON JOB TRAINING QUESTIONS**

1. Conduct a maintenance activity on circuit breakers, switch gears and isolators
2. Monitor & Analyse critical parameters of the transformer.
3. Perform BDV test of Transformer oil.
4. Apply to avail PTW for emergency shutdown during breakdown or any maintenance activity.
5. Maintain a log sheet, Recording all the line parameters.
6. Conduct procedure for planned shutdown to perform maintenance activity on transformer
7. Make connection for IR test and winding resistance test on a transformer.
8. Check for hotspots in electrical equipment using thermovision camera.
9. Demonstrate use of PPE with practical applications
10. How to fix lightning arrestor, wherein network and why?
11. How to ensure that a line is safe to work before starting the maintenance?
12. List the activities to be performed for substation maintenance.
13. How to measure earth resistance and what should be the acceptable value?
14. How to lay a underground cable and what precautions to be followed?
15. Select from the list of tools/machinery used for repair of cable .