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1. Which of the following material is not used for overhead line insulators?

- a) Porcelain
- b) Glass
- c) PVC
- d) Steatite

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Answer: c

Explanation: In addition to high insulation resistance and high relative permittivity, overhead line insulators must have high mechanical strength to bear the weight of line insulators, wind stress and ice loading if any. PVC have good insulation resistance but it does not have such mechanical strength so it is not suitable for overhead line insulators.

2. Pin type insulator are mostly subjected to which type of mechanical stress?

- a) Compressive stress
- b) Tensile stress
- c) Both tensile and compressive stress
- d) Twisting stress

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Answer: d

Explanation: The conductor is placed in the governor at the top of the insulator and is tied down. So the weight of wire acts on the top of the insulator in downward direction causing compressive stress on insulator. No tensile stress is acted on the pin type insulator.

3. Which of the following is the main field of application of pin type insulator?

- a) Distribution system
- b) Transmission system
- c) Transmission and distribution system
- d) EHV transmission system

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Answer: a

Explanation: Pin type insulator become very bulky and cumbersome when designed for higher voltage. Pin insulators beyond 50,000 Volts becomes uneconomical. the modern practice is not to use pin type insulator SBI on 33kv so use of pin insulator is limited to distribution level voltage.

4. Suspension type insulator are subjected to \_\_\_\_\_

- a) tensile stress
- b) compressive stress
- c) tensile and compressive stress
- d) depends on its use

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Answer: a

Explanation: Suspension type insulator hangs from the cross arms of the suspending

supporting structure. The line conductor is attached to its lower end hence the load of the conductor causes tensile stress on the suspension insulator.

5. A transmission line consists of 9 discs of suspension insulator in each string. What is the operating voltage of the transmission line?

- a) 11 KV
- b) 33 KV
- c) 66 KV
- d) 132 KV

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Answer: d

Explanation: For different voltage it does not need to use different suspension insulator. Strength of insulator can easily be increased just by adding extra disc of suspension insulators. For 130 KV transmission lines 9 or 10 disks are used.

6. Suspension insulator are made up of \_\_\_\_\_

- a) glass
- b) porcelain
- c) steatite
- d) epoxy resin

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Answer: b

Explanation: Suspension insulators consist of a number of porcelain disks flexibly connected in series by metal links in the form of Strings. Glass is used for making pin type insulators.

7. Which of the following insulator is similar to pin type insulator?

- a) Suspension insulator
- b) Post insulator
- c) Strain insulator
- d) Shackle insulator

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Answer: b

Explanation: Post insulators are very similar to pin type insulator, but has a metal base with a metal cap so that more than one unit can be mounted in series. Suspensions train and shackle insulators are completely different from pin type insulator on the basis of construction.

8. Which type of insulator is used where there is dead end of the line or there is a corner or a sharp curve, for high voltage line?

- a) Pin type insulator
- b) Shackle insulator
- c) Strain insulator
- d) Stay insulator

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Answer: c

Explanation: Pin type insulators cannot be used in such situations because they cannot take conductor mechanical load intention which often occurs in such situations for low voltage

line. Shackle insulator can be used but for higher voltages transmission lines strain insulator consisting of assembly of suspension type insulator are used.

9. What is the most common cause of failure of overhead line insulators?

- a) Flashover
- b) Mechanical stress
- c) Porosity of materials
- d) Improper vitrification

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Answer: a

Explanation: Failure of overhead line insulators due to mechanical stress is rare because defective pieces are separated during routine factory test. Failure due to porosity and improper vitrification is also very low. The most common cause of failure of overhead line insulator is flashover.

10. If a string of suspension insulator has three units, each can withstand a maximum 11 KV and total string can withstand 25.76 KV. What is the string efficiency?

- a) 234.1%
- b) 46.3%
- c) 68.75%
- d) 78%

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Answer: d

Explanation: String Efficiency =  $[(\text{flashover voltage of the string}) / (n \times \text{flashover voltage of 1 unit})] \times 100$

Where 'n' is number of units in one string

Hence, String Efficiency =  $[25.76 / (3 \times 11)] \times 100$   
= 78%.