

# National Testing Agency

<b>Question Paper Name :</b>	Electricity and Safety Measures 28th August 2021 Shift 2
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## Electricity and Safety Measures

<b>Group Number :</b>	1
<b>Group Id :</b>	94091845
<b>Group Maximum Duration :</b>	0
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<b>Group Marks :</b>	100
<b>Is this Group for Examiner? :</b>	No

## Electricity and Safety Measures -1

<b>Section Id :</b>	94091873
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

<b>Number of Questions :</b>	50
<b>Number of Questions to be attempted :</b>	50
<b>Section Marks :</b>	100
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	940918116
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 9409182770 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 2 Wrong Marks : 0**

One commercial unit of energy equals

1. one watt-hour
2. one kilo watt-hour
3. 10 kilo watt-hour
4. 500 kilo watt-hour

**Options :**

94091810045. 1  
94091810046. 2  
94091810047. 3  
94091810048. 4

**Question Number : 2 Question Id : 9409182771 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 2 Wrong Marks : 0**

Two bulbs of 500W and 200W rated at 250V will have resistance ratio as

1. 4 : 25
2. 25 : 4
3. 2 : 5
4. 5 : 2

**Options :**

94091810049. 1

94091810050. 2

94091810051. 3

94091810052. 4

**Question Number : 3 Question Id : 9409182772 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Earthing Practice Rule 33 of \_\_\_\_\_ makes it compulsory for licensee to maintain a suitable earthed terminal.

1. Indian Electricity Rules 1960
2. Indian Electricity Rules 1956
3. Indian Electricity Rules 1950
4. Indian Electricity Rules 1966

**Options :**

94091810053. 1

94091810054. 2

94091810055. 3

94091810056. 4

**Question Number : 4 Question Id : 9409182773 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Measures that can be taken to address the challenges before the power distribution sector

1. Reduce AT & C Losses
2. Adopt better management
3. Use information technology and improve customer service
4. All of the above

**Options :**

94091810057. 1

94091810058. 2

94091810059. 3

94091810060. 4

**Question Number : 5 Question Id : 9409182774 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

----- is defined in the electricity act , 2003, as : "the high voltage backbone system of inter-connected transmission lines, substations and generating plants.

1. Electrical Network
2. Grid
3. Power System
4. None of these

**Options :**

94091810061. 1

94091810062. 2

94091810063. 3

94091810064. 4

**Question Number : 6 Question Id : 9409182775 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The system frequency would be -----, if generation is less than the load in a grid as a whole.

1. greater than 50 Hz
2. less than 50 Hz
3. Equal to 50 Hz
4. None of these

**Options :**

94091810065. 1

94091810066. 2

94091810067. 3

94091810068. 4

**Question Number : 7 Question Id : 9409182776 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Capacitors or reactors are installed at different points in the grid to maintain

1. current profile
2. frequency profile
3. voltage profile
4. None of these

**Options :**

94091810069. 1

94091810070. 2

94091810071. 3

94091810072. 4

**Question Number : 8 Question Id : 9409182777 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Technical specifications of ----- are covered in

IS : 398.

1. conductors
2. insulators
3. semiconductors
4. earthing

**Options :**

94091810073. 1

94091810074. 2

94091810075. 3

94091810076. 4

**Question Number : 9 Question Id : 9409182778 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A transformer core is laminated to

1. reduce hysteresis loss
2. reduce eddy current loss
3. reduce copper loss
4. reduce all these losses

**Options :**

94091810077. 1

94091810078. 2

94091810079. 3

94091810080. 4

**Question Number : 10 Question Id : 9409182779 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Function of a conservator in a transformer is to

1. provide fresh air for cooling the transformer
2. protect the transformer from damage when oil in tank expand due to heating
3. supply cooling oil to transformer in time of need
4. none of the above

**Options :**

94091810081. 1

94091810082. 2

94091810083. 3

94091810084. 4

**Question Number : 11 Question Id : 9409182780 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following is not the standard voltage for power supply in India?

1. 11kV
2. 33kV
3. 44kV
4. 66kV

**Options :**

94091810085. 1

94091810086. 2

94091810087. 3

94091810088. 4

**Question Number : 12 Question Id : 9409182781 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Relays can be designed to respond to changes in

1. resistance , inductance or impedance
2. current and voltage
3. light intensity and temperature
4. all of these

**Options :**

94091810089. 1

94091810090. 2

94091810091. 3

94091810092. 4

**Question Number : 13 Question Id : 9409182782 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A fuse is never inserted in

1. neutral wire
2. negative of D.C. circuit
3. positive of D.C. circuit
4. phase line

**Options :**

94091810093. 1

94091810094. 2

94091810095. 3

94091810096. 4

**Question Number : 14 Question Id : 9409182783 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The advantages of neutral earthing is

1. freedom from persistent arcing grounds
2. over voltage due to lightning can be discharged to earth
3. simplified designed earth fault protection
4. all of these

**Options :**

94091810097. 1

94091810098. 2

94091810099. 3

94091810100. 4

**Question Number : 15 Question Id : 9409182784 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



Which of the following distribution system is the simplest and lowest in first cost?

1. Ring system
2. Interconnected system
3. Radial system
4. None of these

**Options :**

94091810101. 1

94091810102. 2

94091810103. 3

94091810104. 4

**Question Number : 16 Question Id : 9409182785 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

By which of the following a bus-bar is rated?

1. current only
2. current and voltage
3. current , voltage and frequency
4. current , voltage and frequency and short time current

**Options :**

94091810105. 1

94091810106. 2

94091810107. 3

94091810108. 4

**Question Number : 17 Question Id : 9409182786 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A gay wire

1. provides emergency earth route
2. protects conductor against short circuiting
3. provides protection against surges
4. support the poles

**Options :**

94091810109. 1

94091810110. 2

94091810111. 3

94091810112. 4

**Question Number : 18 Question Id : 9409182787 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A lightening arrester is usually located nearer to

1. transformer
2. isolator
3. circuit breaker
4. bus bar

**Options :**

94091810113. 1

94091810114. 2

94091810115. 3

94091810116. 4

**Question Number : 19 Question Id : 9409182788 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

As per IE Rule, minimum clearance of high voltage lines above the Ground, of the lowest Overhead Conductor across a Street is

1. 3 m
2. 4.1 m
3. 6.1 m
4. 8.1 m

**Options :**

94091810117. 1

94091810118. 2

94091810119. 3

94091810120. 4

**Question Number : 20 Question Id : 9409182789 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Special devices for testing that the mains and electrical apparatus are dead are

1. Neon Tester , Contact indicator and Phasing Rods
2. Electric Tester and Indicator Rods
3. Phasing Wire and Tube Indicator
4. None of these

**Options :**

94091810121. 1

94091810122. 2

94091810123. 3

94091810124. 4

**Question Number : 21 Question Id : 9409182790 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The secondary coils of potential or voltage transformers should never be ----- ,while working on instrument transformer.

1. opened
2. shorted
3. both of these
4. None of these

**Options :**

94091810125. 1

94091810126. 2

94091810127. 3

94091810128. 4

**Question Number : 22 Question Id : 9409182791 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Accident records are essential aids for prevention of accidents. All accidents should be reported. Intimation of an accident pertains to the

1. Rule 44A of the Indian Electricity Rules, 1956
2. Rule 20 of the Indian Electricity Rules, 1956
3. Rule 4 of the Indian Electricity Rule,1956
4. None of these

**Options :**

94091810129. 1

94091810130. 2

94091810131. 3

94091810132. 4

**Question Number : 23 Question Id : 9409182792 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Care and treatment for heat stroke and exhaustion is

1. Wrap the patient up completely in cold water soaked bed sheet
2. Fan vigorously
3. Send for doctor
4. All of these

**Options :**

94091810133. 1

94091810134. 2

94091810135. 3

94091810136. 4

**Question Number : 24 Question Id : 9409182793 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

CO<sub>2</sub> Fire Extinguisher used on

1. 'A' type of Fire
2. 'A' , and 'B' types of Fire
3. 'B' and 'C' types of Fire.
4. All types of Fire

**Options :**

94091810137. 1

94091810138. 2

94091810139. 3

94091810140. 4

**Question Number : 25 Question Id : 9409182794 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Disasters in power sector can occur due to natural calamities include

1. floods
2. storms
3. droughts
4. All of these

**Options :**

94091810141. 1

94091810142. 2

94091810143. 3

94091810144. 4

**Question Number : 26 Question Id : 9409182795 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which temporary arrangements for restoration of power supply should be provided and made use of for the restoration of transmission lines

1. Emergency System(ES)
2. Emergency Restoration System (ERS)
3. Restore System (RS)
4. None of these

**Options :**

94091810145. 1

94091810146. 2

94091810147. 3

94091810148. 4

**Question Number : 27 Question Id : 9409182796 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Minimum safe distance around overhead power lines upto 50kV is

1. 3 m (10 feet)
2. 5 m ( 15 feet)
3. 7 m (20 feet)
4. 8 m(25 feet)

**Options :**

94091810149. 1

94091810150. 2

94091810151. 3

94091810152. 4

**Question Number : 28 Question Id : 9409182797 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which one of the three factors should be eliminated that cause fire

1. Heat
2. Oxygen
3. Fuel
4. Any one of these

**Options :**

94091810153. 1

94091810154. 2

94091810155. 3

94091810156. 4

**Question Number : 29 Question Id : 9409182798 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Rating of the fuse wire is expressed in

1. Ampere-hours
2. Ampere-Volts
3. kWh
4. Ampere

**Options :**

94091810157. 1

94091810158. 2

94091810159. 3

94091810160. 4

**Question Number : 30 Question Id : 9409182799 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

A structure should be placed for management of disasters with intervention and response depending on the severity of the disaster/calamity is known as

1. 4-tier structure at national, regional, state and local levels
2. 3-tier structure at national ,state and local levels
3. 2-tier structure at national and state levels
4. None of these

**Options :**

94091810161. 1

94091810162. 2

94091810163. 3

94091810164. 4

**Question Number : 31 Question Id : 9409182800 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



The ratio of breakdown voltage to insulator thickness is called

1. dielectric strength
2. tensile strength
3. electric strength
4. None of these

**Options :**

94091810165. 1

94091810166. 2

94091810167. 3

94091810168. 4

**Question Number : 32 Question Id : 9409182801 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Factors which should be considered for the proper selection of conductor size are

1. Current carrying capacity
2. Tensile strength of the conductor
3. Current carrying capacity and Tensile strength of the conductor
4. None of these

**Options :**

94091810169. 1

94091810170. 2

94091810171. 3

94091810172. 4

**Question Number : 33 Question Id : 9409182802 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Power utilities are installing meters at the HT transformer itself to ascertain

1. technical losses on that particular transformer
2. commercial losses on that particular transformer
3. core losses on that particular transformer
4. None of these

**Options :**

94091810173. 1

94091810174. 2

94091810175. 3

94091810176. 4

**Question Number : 34 Question Id : 9409182803 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The rated voltage of arrestors for 33 kV should be ----- for use on 33 kV systems and with nominal discharge current rating of 10 kA.

1. 20kV
2. 30 kV
3. 40kV
4. 50kV

**Options :**

94091810177. 1

94091810178. 2

94091810179. 3

94091810180. 4

**Question Number : 35 Question Id : 9409182804 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which transformers are used to convert high-level voltages to a smaller more reasonable level for use as inputs to protection relays and metering equipment?

1. Voltage Transformer
2. Current transformers
3. Distribution Transformer
4. Power Transformer

**Options :**

94091810181. 1

94091810182. 2

94091810183. 3

94091810184. 4

**Question Number : 36 Question Id : 9409182805 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Reactive compensation has to be provided to ensure a satisfactory

1. Voltage profile
2. Current profile
3. Power profile
4. Current and power profile

**Options :**

94091810185. 1

94091810186. 2

94091810187. 3

94091810188. 4

**Question Number : 37 Question Id : 9409182806 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Switchgear is switching and protecting device which includes

1. Electrical disconnect switches
2. Relays, circuit breakers
3. Fuses
4. All of these

**Options :**

94091810189. 1

94091810190. 2

94091810191. 3

94091810192. 4

**Question Number : 38 Question Id : 9409182807 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Earthing associated with non-current carrying parts (but conducting) of electrical equipment is called

1. discharge earthing
2. equipment earthing
3. system earthing
4. none of these

**Options :**

94091810193. 1

94091810194. 2

94091810195. 3

94091810196. 4

**Question Number : 39 Question Id : 9409182808 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Currents not dangerous for human body are

1. below 5 mA
2. above 5 mA
3. 20mA -50 mA
4. 50 mA- 100mA

**Options :**

94091810197. 1

94091810198. 2

94091810199. 3

94091810200. 4

**Question Number : 40 Question Id : 9409182809 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

As per definition of different grades of voltages, medium voltage:

1. Not exceeding 250 V
2. Not exceeding 400 V
3. Not exceeding 650V
4. Not Exceeding 33kV

**Options :**

94091810201. 1

94091810202. 2

94091810203. 3

94091810204. 4

**Question Number : 41 Question Id : 9409182810 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

When working on switching operations on high voltage system ,make sure that

1. breaker should be opened first ,before opening the isolator
2. isolator should be opened first ,before opening the breaker
3. fuses are removed first, before opening the switch
4. None of these

**Options :**

94091810205. 1

94091810206. 2

94091810207. 3

94091810208. 4

**Question Number : 42 Question Id : 9409182811 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Fire due to flammable liquids such as gasoline, oil, grease, acetone, any non metal in liquid state then type of fire is categorized as

1. Class A
2. Class B
3. Class C
4. Class D

**Options :**

94091810209. 1

94091810210. 2

94091810211. 3

94091810212. 4

**Question Number : 43 Question Id : 9409182812 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Capacitors for power factor correction are rated in

1. k W
2. kVA
3. k V
4. kVAR

**Options :**

94091810213. 1

94091810214. 2

94091810215. 3

94091810216. 4

**Question Number : 44 Question Id : 9409182813 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The use of strain type insulators is made where the conductors are

1. Dead End
2. Road Crossing
3. Intermediate anchor towers
4. All of these

**Options :**

94091810217. 1

94091810218. 2

94091810219. 3

94091810220. 4

**Question Number : 45 Question Id : 9409182814 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

If  $I$ ,  $R$  and  $t$  are the current, resistance and time respectively, then according to Joule's law heat produced will be proportional to

1.  $I^2Rt$
2.  $I^2 Rt^2$
3.  $I^2R^2t$
4.  $I^2R^2t^2$

**Options :**

94091810221. 1

94091810222. 2

94091810223. 3

94091810224. 4

**Question Number : 46 Question Id : 9409182815 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

When the zero sequence (a measure of the unbalanced current in a three-phase system) reactance of generators or transformers is so low as to cause excessive fault current, usually \_\_\_\_\_ earthing is used.

1. reactance
2. resistance
3. solid
4. None of these

**Options :**

94091810225. 1

94091810226. 2

94091810227. 3

94091810228. 4

**Question Number : 47 Question Id : 9409182816 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



Which of the following transmission line have more initial cost?

1. Overhead Transmission
2. Underground transmission
3. Both have almost the same initial cost
4. None of these

**Options :**

94091810229. 1

94091810230. 2

94091810231. 3

94091810232. 4

**Question Number : 48 Question Id : 9409182817 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Name the cable or conductor, which connects the distributor to the consumer terminals.

1. Service Mains
2. Distributor
3. Feeders
4. None of these

**Options :**

94091810233. 1

94091810234. 2

94091810235. 3

94091810236. 4

**Question Number : 49 Question Id : 9409182818 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Overhead lines generally use

1. A.C.S.R. conductors
2. Copper conductors
3. Aluminum conductors
4. Any of these

**Options :**

94091810237. 1

94091810238. 2

94091810239. 3

94091810240. 4

**Question Number : 50 Question Id : 9409182819 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What care to be taken for a severely bleeding open wound?

1. Allow the wound to bleed in order to minimize infection.
2. Apply direct pressure and elevate the injured area. (If no broken bones)
3. Use a tourniquet to stop all blood flow.
4. Both 1 and 3

**Options :**

94091810241. 1

94091810242. 2

94091810243. 3

94091810244. 4