

1. Which of the ff. parameters can be neglected for a short line?
 - a. Resistance
 - b. Inductance
 - c. Reactance
 - d. Capacitance
2. What does PEMC in EPIRA stands for?
 - a. Philippine Energy Market Corporation
 - b. Private Energy Marketing Company
 - c. Philippine Electricity Market Corporation
 - d. Philippine Electrical Marketing Corporation
3. What is the equivalent IEEE device number for an under-voltage relay?
 - a. 67
 - b. 52
 - c. 27
 - d. 51
4. In the transformers
 - a. High tension winding is used near the core
 - b. High tension winding is used away from the core
 - c. Low tension winding is used near the core
 - d. Low tension winding is used away from the core
5. The study of illumination involves
 - a. Design of lighting system
 - b. Study of lighting and wiring system
 - c. Calculation of wiring sizes for various lighting fixtures
 - d. Study of photometry and its application
6. In television system, channels 2 and 13 are classified as
 - a. VHF
 - b. UHF
 - c. SHF
 - d. EHF
7. In a transmission line of negligible resistance, the surge impedance will be _____.
 - a. Square root of LC
 - b. Square root of L/C
 - c. Square root of 1/LC
 - d. Square root of C/L
8. What is the IEEE device function number 50?
 - a. AC time overcurrent relay
 - b. Instantaneous overcurrent relay
 - c. AC circuit breaker
 - d. Differential protective relay
9. What determines the direction of force in a conductor?
 - a. Lenz law
 - b. Faraday's law
 - c. Left hand rule
 - d. Right hand rule
10. A two terminal pair of network of a transmission line can be represented by
 - a. Π - network
 - b. T - network
 - c. Either A or B
 - d. Tree network
11. PDC in EPIRA means
 - a. Philippine Distribution Commission
 - b. Philippine Distribution Code
 - c. Philippine Distribution Corporation
 - d. Philippine Distribution Company
12. It is difficult to magnetize steel because of its
 - a. High density
 - b. High retentivity
 - c. Low permeability
 - d. High permeability
13. A distributor is designed from the point of view of
 - a. Voltage drop
 - b. Current carrying capacity

- c. Voltage drop and current carrying capacity
 - d. Load capacity
14. Based on the Philippine Distribution Code, all users of the distribution system must maintain a certain power factor at the connection point in order to maintain power quality in the system. What power factor should be maintained at the connection point?
- a. Not less than 65%
 - b. Not less than 70%
 - c. Not less than 85%
 - d. Not less than 75%
15. For constant transmission Efficiency, voltage is increased n times, the size of the conductor would be _____.
- a. Reduced to $(1/n)$ times of the original
 - b. Reduced to $(1/n^2)$ times of the original
 - c. Increased to n^2 times of the original
 - d. Increased to n times of the original
16. If the torque angle continuously increases, system will become
- a. Stable
 - b. Unstable
 - c. Oscillatory stable
 - d. Asymptotic stable
17. Which of the following is NOT considered in the selection of surge arrester?
- a. Voltage rating
 - b. Current rating
 - c. Class of arrester
 - d. Insulation level
18. What governs the minimum safety requirement in the Philippines for distribution and grid?
- a. Philippine Electrical Safety Code
 - b. Philippine Electrical Code
 - c. Philippine Electrical Grid Code
 - d. Philippine Electrical Distribution Code
19. Copper loss of a transformer are determined by means of a/an ___ test
- a. Open-circuit
 - b. Polarity
 - c. Short-circuit
 - d. Inductive-circuit
20. The effective resistance of conductor is increased by
- a. Skin effect
 - b. Proximity effect
 - c. Corona effect
 - d. Both a and b
21. What is the purpose of the reactor in short circuit
- a. To open the line in short circuit
 - b. To decrease the circuit resistance
 - c. To lessen the current in short circuit
 - d. To increase the current in short circuit
22. What is the maximum plug and cord rating of a 30 A branch circuit
- a. 24 A
 - b. 30A
 - c. 26 A
 - d. 28 A
23. To adjust the power of the alternator, adjust the _____
- a. Power factor
 - b. Governor
 - c. Field current
 - d. Frequency
24. The power transmission capacity of the transmission is _____
- a. Inversely proportional to the voltage
 - b. Directly proportional to the voltage
 - c. Proportional to the square of the voltage

- d. Proportional to the cube of the voltage
25. When a power plant is not able to meet the demand of consumers it will resort to
- Load shedding
 - Efficiency plant operation
 - Power factor improvement at the generators
 - Penalizing high load consumers by increasing the charges of electricity
26. In a diode modulator, what supplied the negative halfwave?
- Inductor
 - Capacitor
 - Resistor
 - Tuned Circuit
27. Which of the following plants will take least time in starting from cold condition to full load operation?
- Gas turbine
 - Steam power plant
 - Nuclear power plant
 - Hydroelectric power plant
28. Alternators installed in a hydro power station, are of
- Low speed
 - High speed
 - Medium speed
 - Very high speed
29. What size of branch circuit is required for a window air conditioner with a nameplate rating of 8 A if the circuit also supplies other outlets?
- 17 A
 - 25 A
 - 20 A
 - 15 A
30. Present day capacitors which have high capacitance in small size use a dielectric of
- Paper
 - Rubber
 - Ceramic
 - Mylar
31. The under voltage relays are usually used for what protection of the electrical equipment?
- Feeder protection
 - Motor protection
 - Transformer protection
 - Bus-bar protection
32. Conservator of a transformer consists of
- An air-tight metal drum fixed at the top of the tank
 - Drum placed at the bottom of the tank
 - Overload protection
 - None of these
33. Which of the following is not included in the Technical Performance Standards for Distribution and Supply set by the Philippine Distribution Code?
- Power Quality
 - Reliability
 - Collection Efficiency
 - System Efficiency
34. What kind of device is a diode?
- Bilateral
 - Linear
 - Unipolar
 - Nonlinear
35. Which of the following insulators will be selected for high voltage application?
- Strain type
 - Disc type
 - Suspension type
 - Pin type
36. In a shunt generator, the voltage builds up till constrained by
- Speed limitation
 - Armature heating
 - Saturation of iron
 - Insulation restrictions
37. For proper parallel operation, ac polyphaser alternators must have the same

- a. Speed
 - b. kVA rating
 - c. voltage rating
 - d. excitation
38. What device is used to measure the temperature of a motor winding while the motor is in operation?
- a. Seismic probe
 - b. Resistance temperature detector
 - c. Thermocouples
 - d. Proximity probe
39. The type of ac distribution system commonly used to supply both light and power is the
- a. Open delta system
 - b. Three phase delta system
 - c. Three phase wye system with neutral wire
 - d. Three phase wye system without neutral wire
40. The current flowing in L and C at parallel resonance are
- a. Zero
 - b. Equal
 - c. Infinite
 - d. Difference
41. The series field of a short-shunt compound dc generator is excited by ___ current
- a. Shunt
 - b. Armature
 - c. Load
 - d. External
42. Which of the following type of fault used only the equivalent positive sequence impedance of the circuit in the short-circuit calculation?
- a. Line to line
 - b. Line to ground
 - c. Double line to ground
 - d. Three-phase fault
43. Which of the following methods of the generating electric power from the sea water is more advantageous
- a. Water power
 - b. Ocean power
 - c. Tidal power
 - d. None of these
44. Base load plants are designed to supply power at
- a. Low capital cost and low operating cost
 - b. High capital cost and low operating cost
 - c. Low capital cost and low operating cost
 - d. High capital cost and high operating cost
45. Peak load plants are designed to supply power at
- a. Low capital cost and low operating cost
 - b. High capital cost and low operating cost
 - c. Low capital cost and low operating cost
 - d. High capital cost and high operating cost
46. When installing two grounding electrodes, the minimum distance between them is
- a. 1800 mm
 - b. 2000 mm
 - c. 1500 mm
 - d. 2400 mm
47. Cellular phones operate in the frequency range of
- a. EHF
 - b. VHF
 - c. UHF
 - d. SHF
48. The reciprocal of permeability is
- a. Conductivity
 - b. Susceptibility
 - c. Reluctivity

- d. Permittivity
49. For which of the following sinusoids, the rms value and mean value is the same?
- Sine wave
 - Triangular wave
 - Square wave**
 - Half wave rectified
50. If the effect of the earth is taken into account, then the capacitance of line to ground
- Decreases
 - Increases**
 - Remains unchanged
 - Becomes infinite
51. The maximum efficiency of a half-wave rectifier is
- 40.6%**
 - 80.6%
 - 50%
 - 20.3%
52. 10^{13} ergs/sec is equal to how many kW?
- 1000**
 - 250
 - 100
 - 10
53. Ideal transformer assumption do not include
- No leakage flux
 - No saturation of force
 - Zero resistance of the winding
 - Zero reactance of the winding**
54. One KWHR is equal to ____ BTU
- 360
 - 3413**
 - 3600
 - 1000
55. Varmeter when paired with other devices measures ____ factor?
- Diversity
 - Power**
 - Load
 - Demand
56. Heating effect of current has an undesirable side effect in
- Electric oven
 - Immersion heater
 - Electric iron
 - Vacuum cleaner**
57. When the sole purpose of an alternating current is to produce heat, the selection of conductor is based on ____ value of the current.
- Average
 - Instantaneous
 - Root mean square**
 - Peak
58. What is the primary advantage of FM over AM?
- FM has a greater bandwidth than AM
 - Noise immunity**
 - More complex
 - Greater capture effect
59. Which of the following is not included in the evaluation of Technical Performance of a Distribution System according to Philippine Distribution Code (PDC)?
- Power Quality
 - Reliability
 - Collecting Efficiency**
 - System Efficiency
60. The phase angle for a series RC circuit may be computed as the angle between the ____ and ____ phasors.
- Resistance, impedance**
 - Resistance, reactance
 - Resistance, capacitance
 - Impedance, reactance
61. Which is not a characteristic of an ideal transformer?
- Finite permeability**
 - Infinite permeability
 - No losses
 - No leakage flux
62. In a synchronous motor, the magnitude of stator back emf depends on

- a. Load on the motor
 - b. Dc excitation only**
 - c. Both the speed and rotor flux
 - d. None of these
63. It is defined as the total number of sustained Customer power interruption within a given period divided by the total number of Customers served within the same period.
- a. System average interruption frequency index**
 - b. System average interruption Duration index
 - c. Customer average interruption frequency index
 - d. Costumer average interruption Duration index
64. The specific resistance is defined as
- a. Resistance of a conductor which has a length of 1 m and cross-section of 1 m^2 at 20° C**
 - b. Resistance of any conductor at 25° C
 - c. Resistance of any conductor at 20° C
 - d. Resistance of a conductor which has a length of 1 m and cross-section of 1 cm^2 at 20° C
65. If an electrical network having one or more than one voltage source is transformed into equivalent electrical network with a single current source (which is the short circuit current of previous circuit) with parallel internal resistance of the network with all current source replaced by their internal resistance; the above illustration is called
- a. Thevenin's theorem
 - b. Norton's theorem**
 - c. Reciprocity theorem
 - d. Superposition theorem
66. The impedance triangle is similar to the _____ triangle with the resistance phasor in place of the
- a. Current, resistor current
 - b. Current, resistor voltage
 - c. Voltage, impedance
 - d. Voltage, resistor voltage**
67. A type of electronics communication in which only one party transmits at a time.
- a. Full duplex
 - b. Half duplex**
 - c. Bicom
 - d. Simplex
68. Which is the most reliable power plant?
- a. Steam**
 - b. Hydro
 - c. Wind
 - d. Tidal
69. Which of the following type of fault used only the equivalent positive and negative sequence impedance of the circuit in the short-circuit calculation?
- a. Double line to ground
 - b. Line to line**
 - c. Three-phase
 - d. Lin to ground
70. Which is not a source of power?
- a. Thermocouple**
 - b. Fuel coil
 - c. Photovoltaic cell
 - d. Solar cell
71. When the frequency of a synchronous motor increases, what happens to its speed?
- a. Decreases
 - b. Increases**
 - c. Remains the same
 - d. None of these
72. What instrument measures the insulation of a powerline?
- a. Growler
 - b. Ohmmeter
 - c. Galvanometer

- d. Megger
73. When electronics build up pressure at one point, it is called ____
- Ganging
 - Current flow
 - Impedance
 - Pressure filing
74. The curve representing ohm's law is
- A parabola
 - Linear
 - A sine function
 - A hyperbola
75. Which of the following principle will the operation of fiber-optic cable is based?
- Dispersion
 - Refraction
 - Reflection
 - Absorption
76. The overcurrent protective device is caused to operate by ____
- Voltage surge
 - Current flow
 - Voltage drop
 - Impedance
77. What is the maximum number of bends permitted in rigid conduits between outlets?
- 4 quarter bends
 - 6 quarter bends
 - 2 quarter bends
 - 3 quarter bends
78. Which of these is not a factor in the selection of fuse rating for protection of branch circuit?
- Branch full-load current
 - System impedance
 - Branch fault-current
 - System voltage
79. The condition in Ohm's Law is that
- Ratio V/I should be constant
 - Current should be proportional to voltage
 - The temperature should remain constant
 - The temperature should vary
80. Which of the following shall be included in the calculation of reliability standard indices of the distributor asset by the Philippine Distribution Code?
- Outages that occur on the secondary lines of the distribution system
 - Planned outages where the customers have been notified at least three (3) days prior to the loss of power
 - Outages that occur on the primary lines of the distribution system
 - Outages that occur in the transmission line
81. For two alternators operating in parallel, if the load shared by one of them is to be increased, as field excitation is
- To be strengthened keeping input torque the same
 - To be weakened keeping input torque should be increased
 - To be kept constant but input torque should be increased
 - To be kept constant but input torque should be decreased
82. Which of the following that the voltage regulation is one of the important factors consider in the electrical power design?
- Generator
 - Transmission line
 - Feeder
 - Transformer
83. Open circuit test on transformer is conducted to determine
- Hysteresis loss
 - Copper loss
 - Core loss
 - Eddy current loss

84. Which of the following power plant is a conventional source of energy?
- Solar energy
 - Geothermal energy
 - Coal energy
 - Wind energy
85. Which of the following is a primary disadvantage of FM over AM?
- Lower efficiency
 - Noise susceptibility
 - Higher cost and complexity
 - Excessive use of spectrum space
86. RA 7832 concerns on ____
- Pilferage of electricity, theft of transmission materials and capping of system loss
 - Pilferage of electricity, theft of transmission materials and rationalizing of system loss
 - Pilferage of electricity energy
 - Pilferage of electricity and electrical materials
87. If the current in the armature of a dc series motor is reduced by 50% the torque of the motor will be reduced by ____% of the previous value.
- 25
 - 50
 - 33
 - 75
88. A coil that opposes any change in current flow is called a(n) ____
- Transducer
 - Capacitor
 - Oscillator
 - Inductor
89. A substance that changes its electrical resistance when illumination by light is called?
- Photovoltaic
 - Photoconductive
 - Photoelectric
 - None of these
90. Which of the following define the meaning of the load factor?
- The ratio of average load to installed capacity
 - The ratio of maximum load to average load
 - The ratio of average load to maximum load
 - The ratio connected load to maximum load
91. The transient current in a loss free LC circuit when excited from an ac source is a/an ____ sine wave.
- Over-damped
 - Under-damped
 - Critically damped
 - Undamped
92. The calculation of the reliability indices of the grid owners as set by Philippines grid code shall include outages that occur
- Due to generation deficit
 - On the secondary line system
 - On the transmission line
 - On the primary lines of the distribution line
93. The size of conductor on EHV lines is obtained based on
- Current density
 - Corona
 - Voltage drop
 - Voltage density
94. When peace and order problem exist, National Grid Corporation of the Philippines (NGCP) issues
- Security alert
 - Imminent danger alert
 - Decrease in length
 - None of this
95. Conduction electrons move to the right in a certain wire. This indicated that:
- The current density and electric field both point right

- b. The current density point right and electric field point left
 - c. The current density point left and electric field point right
 - d. The current density and electric field both point left
96. What does PEMC in EPIRA stands for
- a. Philippine energy market corporation
 - b. Philippine electricity market corporation
 - c. Private energy market company
 - d. Philippine electrical marketing corporation
97. The growth rate of energy consumption in our country is 6.9%. In how many years will the energy be quadrupled?
- a. 30
 - b. 20
 - c. 15
 - d. 25
98. For power transformers the conservator tank is intended to minimize
- a. Breathing
 - b. Oil sludging
 - c. Heating
 - d. Internal pressure
99. A pure semiconductor without doping is called
- a. Contaminated
 - b. Extrinsic
 - c. Doped
 - d. Intrinsic
100. In case of delta connected circuit when one resistor is open power will be
- a. Unaltered
 - b. Reduced by 1/3
 - c. Reduced by 1/9
 - d. Reduced by 1/16
101. If the resistance in a series R circuit is increased, the magnitude of the phase angle
- a. Increases
 - b. Remains the same
 - c. Decreases
 - d. Changes in an indeterminate manner
102. To protect the delta-delta power transformer against fault, the CT will have
- a. Delta-delta connection
 - b. Delta-wye connection
 - c. Wye-delta connection
 - d. Wye-wye connection
103. When the length of the wire doubled and all other factors remained the same, what would the wire resistance become?
- a. Remained the same
 - b. Decreased
 - c. Doubled
 - d. Cannot be determined
104. Residual magnetism is necessary in a
- a. Separately excited generator
 - b. Self-excited generator
 - c. Both of these
 - d. None of these
105. A device or equipment which is suspended from overhead neither by means of a flexible cord carrying the current or otherwise
- a. Rosette
 - b. Fixture
 - c. Air terminal
 - d. Pendant
106. In resistance welding, the SCR is closed during ___time.
- a. Squeeze
 - b. Hold
 - c. Weld
 - d. Squeeze, weld and hold
107. The power delivered to a loud speaker of an amplifier is 30 db above 10 mW. It is equivalent to ___ watt.
- a. 0.3
 - b. 10

- c. 10000
d. 300
108. The efficiency of the thermal plant is approximately ____
a. 10%
b. 60%
c. 80%
d. 30%
109. AC system has the following disadvantages over DC system.
a. Skin effect exist
b. Line regulation is more
c. Charging current exist
d. Proximity effect exist
110. Which of the following is not a factor in calculating the feeder conductor size?
a. Ambient temperature
b. Branch-circuit protection
c. Voltage drop
d. Demand factors
111. This is the rating of the power circuit breakers used to be basis in replacing its contacts
a. Duty contacts
b. Duty time
c. Duty cycle
d. Duty rating
112. A transformer has negative voltage regulation when its power factor is
a. Zero
b. Lagging
c. Unity
d. Leading
113. The overcurrent protective device is caused to operate by ____
a. Current flow
b. Voltage surge
c. Voltage drop
d. Impedance
114. When the relative permeability of a materials is slightly more than 1, it is called ____ material.
a. Diamagnetic
b. Ferromagnetic
c. Non-magnetic
d. Paramagnetic
115. 21 is the device function number for this relay.
a. Undervoltage relay
b. Overvoltage relay
c. Distance relay
d. Directional power relay
116. Which is not a standard distribution voltage in the Philippines?
a. 13.2 kV
b. 13.8 kV
c. 34.5kV
d. 69kV
117. Nuclear reactors generally employ
a. Fusion
b. Fission
c. Both fusion and fission
d. None of these
118. The conduction of the electricity across the surface of a dielectric is called
a. Skin effect
b. Surface effect
c. Crosstalk
d. Creepage
119. In a transformer the resistance between the primary and secondary must be
a. Zero
b. 1 kilo ohm
c. 100 kilo ohm
d. Infinite
120. For a detection of the occurrence of the severe synchronizing power surges
a. Impedance relays are best suited
b. Reactance relays are best suited
c. MHO relays are best suited

- d. Split-phase relays are best suited
121. The amount of magnetizing force to counter balance the residual magnetism of a magnetic material is referred to as
- Coercivity
 - Relativity
 - Susceptivity
 - Retentivity
122. What is the maximum number of conductors in a raceway that does not need to be derated
- 2
 - 3
 - 4
 - 5
123. Which of the following is NOT a property of magnetic field lines?
- The field is stronger where the lines are closer together
 - The lines intersects surface of equal intensity at right angles
 - Magnetic field lines have no beginning and no ends
 - The lines cross themselves only at right angles
124. Which of the following effects are generally less for an alternating current than for a direct current?
- Heating effects
 - Chemical effects
 - Magnetic effects
 - Impedance
125. Which of the following cannot have a single unit of 100 MW?
- Hydro power plant
 - Steam power plant
 - Diesel power plant
 - Nuclear power plant
126. In the left hand rule, thumb always represents direction of the ____
- Voltage
 - Force on conductor
 - Current
 - Magnetic field
127. While describing the sheath of a cable the abbreviation XLPE means ____ polyethylene.
- Cross-layer
 - Cross-linked
 - External-layer
 - Extra-long
128. Copper loss of a transformer are determined by means of a/an ____ test
- Open-circuit
 - Polarity
 - Short-circuit
 - Inductive-circuit
129. In which type of electronic communication does the information travel in two directions?
- Half duplex
 - Full duplex
 - Multiplex
 - Bicomm
130. An electric current can neither be ____ nor ____.
- Felt, seen
 - Seen, touched
 - Seen, produced any effect
 - Produce, felt
131. The dc armature winding in which the coil sides are placed a pole pitch apart is called ____ winding
- Multiplex
 - Full-pitch
 - Fractional pitch
 - Pole-pitch
132. The effect of series capacitor on a transmission line is to improve
- Steady state stability
 - Transient stability
 - A and B both
 - None of these

133. In two-wattmeter method, the reading of one of the wattmeters will be zero when
- Load in one of the phases is zero
 - Power factor is unity
 - Power factor is 0.5
 - Neutral is earthed
134. The electric motor generally used in household food mixer
- Shaded pole
 - Universal
 - Split phase
 - Capacitor start
135. What type of transformer bank is used to convert 2-phase to 3 phase power?
- Wye-delta
 - Scott-T
 - Wye-delta
 - Delta-delta
136. Which part of the human body offers the most resistance to electricity
- Fingers
 - Toes
 - Wet
 - Thick and/or dry skin
137. By increasing the transmission voltage double of its original value, the same power can be dispatched keeping the line loss
- Equal to its original value
 - Half of the original value
 - Double the original value
 - One-fourth of the original value
138. The highest speed attained by a dc shunt motor is
- Equal to infinity at rated flux
 - Higher than no load speed at rated flux
 - Equal to no load speed at rated flux
 - Lower than no load speed at rated flux
139. Chemicals with lower flash points presents a greater ____
- Personal hazard
 - Flammability hazard
 - Explosion hazard
 - Skin hazard
140. The product of rms values of current and voltage is called
- Real power
 - Apparent power
 - Reactive power
 - Polar curves
141. Ohm's law is not applicable to
- Vacuum tubes
 - Carbon resistors
 - High voltage circuits
 - Circuits with low current densities
142. Which medium has the highest value of dielectric strength?
- Glass
 - Porcelain
 - Mica
 - Quartz
143. Which of the following buses constitute the maximum number in a power system?
- Slack bus
 - P Q bus
 - P V bus
 - All of these
144. In order to transfer the load from one alternator to another alternator, when they are operating in parallel
- Field current is increased
 - Field current is decreased
 - Speed is decreased
 - Prime mover power input is increased
145. KCL works on the principle of which of the following
- Law of conservation of charge
 - Law of conservation of energy

- c. Both
d. None of these
146. The law that induces emf and current always opposes the cause producing them was discovered by
a. Faraday
b. Maxwell
c. Lenz
d. Ohm
147. Series capacitor are used to
a. Improve the line voltage
b. Compensate for line inductive reactance
c. Compensate for line capacitive reactance
d. None of these
148. Which of the following distribution system gives the greater reliability?
a. Radial system
b. Ring system
c. DC three wire system
d. Open loop system
149. The transformer oil used in transformers provide
a. Cooling and lubrication
b. Insulation and lubrication
c. Insulation and cooling
d. Insulation, cooling and lubrication
150. If the capacitance of the transmission line is increased, the transmitted power will
a. Remain same
b. Increase
c. Decrease
d. Tend to zero at the receiving end
151. Which increases the resistance of a conductor
a. Increase in size
b. Increase in length
c. Decrease in length
d. None of these
152. A type of electronics communication in which only one party transmits at a time
a. Full duplex
b. Half duplex
c. Bicom
d. Simplex
153. What device is used to measure the temperature of a motor winding while the motor is in operation?
a. Seismic probe
b. Resistance temperature detector
c. Thermocouples
d. Proximity probe
154. The amount of frequency deviation from the carrier center of frequency in an FM transmitter is proportional to the _____
a. Shape
b. Amplitude
c. Frequency
d. Phase
155. In the differential current protection system the current transformer secondaries of wye-delta power transformers will be in
a. Delta-delta
b. Delta-wye
c. Wye-wye
d. Wye-delta
156. When a current carrying conductor is brought into a magnetic field, the force that moves the conductor depends upon the
a. The direction of the conductor
b. The value of the current
c. The weight of the conductor
d. None of these
157. Which of the following types of heating process is used for surface hardening of steel?
a. Induction
b. Resistance

- c. Dielectric
d. Infrared
158. A test used to determine the equivalent resistance of an induction motor is
a. Blocked rotor test
b. No-load test
c. Short circuit test
d. Polarity test
159. Power lost due to alternating magnetization and demagnetization of the core materials
a. Copper loss
b. Hysteresis loss
c. Eddy current loss
d. Rheostat loss
160. An act penalizing pilferage of electricity, theft of transmission lines/materials and rationalizing system loss by phasing out pilferage losses
a. RA 7920
b. RA 7832
c. RA 9136
d. RA 8495
161. The protection from negative sequence currents is provided for
a. Transformers
b. Generators
c. Motors
d. Transmission lines
162. What is the IEEE standard device number for under voltage relay?
a. 27
b. 67
c. 52
d. 51
163. Identify the passive element among the following
a. Voltage source
b. Current source
c. Inductor
d. Transistor
164. The term which allows any person or entity in the purchasing the energy from transmission, distribution which ever have low charge rate
a. Open access
b. Electricity distribution charge
c. Transmission and distribution charge
d. Generation charge
165. The voltage regulation is an important factor in the design of
a. Transmission line
b. Generator
c. Motor
d. Feeder
166. What characteristics of plates of the battery where ampere hour is rated?
a. Strength
b. Area
c. Distance
d. Thickness
167. Calculation of reliability standards of grid owner set by Philippine Grid Code shall exclude outages that occur on the
a. Generation deficit
b. Secondary side distribution
c. Transmission lines
d. Primary side distribution
168. What is maximum output of cellular transmitter?
a. 3W
b. 6W
c. 30W
d. 60W
169. What is the device used by computers to communicate to other computer through telephone line?
a. Modem
b. DSL
c. Cable box
d. Telephone interface
170. Buchhol'z relay cannot be installed on
a. Air cooled transformer

- b. Oil cooled transformer
c. Power transformer
d. None of these
171. Which of the following given below is the eddy current loss not proportional to?
a. Square of the thickness
b. Square of the frequency
c. Square of the load current
d. Square of the flux density
172. What is the rule followed for Kirchhoff's voltage law?
a. Mesh rule
b. Current rule
c. Loop rule
d. Wheat stone rule
173. The circuit breaker rating relevant to transient stability is
a. Rated voltage
b. Rated operating time
c. Rated breaking current
d. Operating frequency
174. Define Kirchoff's voltage law
a. Algebraic sum of emf's - algebraic sum of voltage drop = 0
b. Algebraic sum of emf's + algebraic sum of voltage drop = 0
c. Zero
d. Algebraic sum of currents
175. Symmetrical component method of analysis is more useful when
a. System has unsymmetrical fault and the network is otherwise balanced
b. System has symmetrical fault and the network is otherwise unbalanced
c. System has unsymmetrical fault and the network is unbalanced
d. System has symmetrical fault and the network is balanced
176. The nodal method of the circuit analysis is based on
a. KVL + ohms law
b. KCL + ohms law
c. KVL + KCL
d. KVL + ohms law + KLC
177. Which of the following relays gives a fore-warning of a possible major fault
a. Buchholz relay
b. Static Relay
c. Thermal relay
d. Reverse power
178. Handling of the telephone receiver may become dangerous due to _____ from a power line
a. Electromagnetic induction
b. Electrostatic induction
c. Both electromagnetic and electrostatic induction
d. Cross talk effect
179. The two windings of a transformer is
a. Conductively linked
b. Inductively linked
c. Not linked at all
d. Electrically linked
180. The machine reactance's used for computation of short circuit current ratings of a circuit breaker are
a. Synchronous reactance
b. Transient reactance
c. Sub-transient reactance
d. Sub-synchronous reactance
181. What type of power plant which is non-renewable?
a. Wind
b. Nuclear
c. Geothermal
d. Solar
182. The percentage regulation of an overhead transmission line can be zero when the load power factor is
a. Lagging

- b. Unity
c. Leading
d. Zero
183. Fermi energy is the amount of energy which
- A hole can have at room temperature
 - A valence electron can have at room temperature
 - Must be given to an electron to move it to conduction band
 - Must be given to hole to move it in valence band
184. What is the main advantage of FM over AM?
- Greater efficiency
 - Lower complexity and cost
 - Capture effect
 - Wider bandwidth
185. Bundled conductors are used in EHV lines primarily for
- Reducing cost of the line
 - Reducing corona loss and radio interference
 - Increasing stability limit
 - Reduce internal inductance
186. AC system has the following disadvantages over DC system
- Skin effect exists
 - Charging current exists
 - Line regulation is more
 - Proximity effect exists
187. Resistance of the conductor increases when
- Its length increases
 - Its area decreases
 - Both are and length increases
 - Specific resistance is kept constant
188. The surge impedance of a telephone line is
- 50 ohms
 - 75 ohms
 - 200 ohms
 - 400 ohms
189. Two or three sheds or petticoats are provided in pin-type insulators in order to increase
- Creepage resistance
 - Spark-over voltage (S.O.V)
 - Puncture voltage
 - Increase sag
190. The internal voltages of a 3-phase synchronous generator correspond to
- Positive sequence
 - Negative sequence
 - Zero sequence
 - Ground sequence impedance
191. Series compensation is primarily resorted to
- Improve voltage profile
 - Improve instability
 - Reduce fault currents
 - Improve stability
192. Expanded ACSR conductors are used
- To increase the tensile strength of the line
 - To reduce corona loss
 - To reduce R loss
 - To minimize galloping
193. An ideal current source has
- Infinite source resistance
 - Zero internal resistance
 - Zero voltage on no load
 - Zero ripple
194. PRC Modernization Act of 2000 is also known as
- RA 7920
 - RA 7832
 - RA 9136
 - RA 8981
195. Voltage regulation of a short transmission line is
- Always positive
 - Always negative
 - Either positive, negative, or zero

- d. Always lagging
196. Most commonly used supports for high tension lines is
- Wooden poles
 - Steel poles
 - Cross bars
 - Latticed steel poles
197. PEC defines as Recognizable as suitable for the specific purpose function, use, environment, application and so forth
- Listed
 - Labeled
 - Identified
 - Isolated
198. A motor which can conveniently be operated at lagging as well as leading power factors is the
- Squirrel cage induction motor
 - Wound rotor induction motor
 - Synchronous motor
 - DC shunt motor
199. A terminal where more than two branches met is called
- Node
 - Terminus
 - Loop
 - None of the above
200. Out of the following methods of heating the one which is independent of supply frequency is
- Electric arc heating
 - Induction heating
 - Electric resistance heating
 - Dielectric heating
201. Transmission voltages in the range 230 kV - 765 kV are known as
- High voltage
 - Extra high voltage
 - Ultra high voltage
 - Very high voltage
202. The emf induced in the primary of a transformer
- Is in phase with the flux
 - Lags behind the flux by 90 degree
 - Leads the flux by 90 degree
 - Is in phase opposition to that of flux
203. Shunt compensation for long EHV lines is primarily resorted to
- Improve voltage profile
 - Improve stability
 - Reduce fault currents
 - Eliminate fault
204. Disconnecting means should be located insight belongs to what rule?
- Construction rule
 - Design rule
 - Installation rule
 - Manufacturer's rule
205. A hysteresis motor
- Is not a self-starting motor
 - Is a constant speed motor
 - Needs dc excitation
 - Cannot be run in reverse speed.
206. Which of the following distribution give the greater reliability?
- Radial system
 - Ring system
 - DC 3-wire system
 - Open loop system
207. Which method is used for fast load flow calculation?
- Newtons-rhapson
 - Gauss seidel
 - Decoupled
 - Gauss
208. If a transformer primary is energized from a square wave voltage source, its output voltage will be
- A square wave
 - A sine wave
 - A triangular wave
 - A pule wave
209. The temperature of resistance furnaces can be controlled by changing the:

- a. Applied voltage
 - b. Number of heating elements
 - c. Circuit configuration
 - d. All of the above
210. In a suspension insulator, the mechanical stresses on the conductor are
- a. Increased
 - b. Reduced
 - c. The same
 - d. Zero
211. The amount of frequency deviation from the carrier center of frequency for FM transmitter is proportional to what characteristic of the modulating signal?
- a. Phase
 - b. Amplitude
 - c. Frequency
 - d. Shape
212. Reduction in the capacitance of a capacitor start motor, results in reduced
- a. Noise
 - b. Speed
 - c. Starting torque
 - d. Armature reaction