## HABILIS EE TRAINING CENTER

# 0061 Isabel Ramiro St. (Bayug Road), Purok 6A, Tambo-Hinaplanon, Iligan City

## **PEC 2009**

Multiple Choice. Select the correct answer for each of the following questions. Mark only one answer for each item by shading the box corresponding to the letter of your choice on the answer sheet provided.

1. Period of operation and minimum capacity of emergency source of power for Passenger vessel over 20 meters
in length Ocean & coastwise 1600 g.t. & over, and, any passenger vessel, regardless of tonnage or service,
where electric power-operated water tight doors are required or installed.
a.) ½ hour to 36 hours c.) 1 hour to 24 hours
b.) ½ hour to 12 hours 2. Where circuit breakers are used to protect the primary side of a transformer over 600V period, their continuous
2. Where circuit breakers are used to protect the primary side of a transformer over 600V nominal, their continuous current rating shall NOT exceed of the rated primary current.
a.) 250% c.) 175%
b.) 300% d.) 200%
3. For a wye-start, delta-run connected motor-compressor, the selection of branch-circuit conductors between the
controller and the motor-compressor shall be permitted to be based on percent of either the motor-
compressor rated load current or the branch-circuit selection current, whichever is greater.
a.) 25 c.) 67 <mark>b.)</mark> 58 d.) 125
4. A recessed fixture that is not identified for contact with insulation shall have all recessed parts spaced at least
from combustible materials.
a.) 10 mm c.) 15 mm
<mark>b.)</mark> 12 mm d.) 20 mm
5. Grounding electrodes shall be installed such that at least of length is in contact with the soil.
a.) 2,000 mm c.) 2,500 mm
<ul> <li>b.) 1,500 mm</li> <li>6. A generator set used for standby power systems shall have a time delay feature permitting a minute</li> </ul>
setting to avoid retransfer in case of short time reestablishment of the normal source.
a.) 10 c.) 12
b.) 8 d <mark>.)</mark> 15
7. The chasis grounding terminal of the battery shall be bonded to the vehicle chassis with a copper conductor of
size or its equivalent.
a.) 5.5 mm <sup>2</sup> c.) 8.0 mm <sup>2</sup> b.) 3.5 mm <sup>2</sup> d.) 2.0 mm <sup>2</sup>
8. In an ambulatory health care centers, the alternate source of power shall be separate and independent of the
normal source and shall have a capacity to sustain its connected loads for a minimum of after loss of
normal source.
a.) 2 hours c.) 1 ½ hours
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a.) 2 hoursc.) 1 ½ hoursb.) 2 ½ hoursd.) 1 hour9. Clearance in any direction to the water level, edge of water surface, base of diving platform, or permanently anchored raft for insulated supply or service droop cables 0 up to 750 volts to ground a.) 3,700 mmc.) 4,300 mm
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a.) 125 percent, 25 percent	b.) 100 percent, 20 percent
c.) 80 percent, 25 percent 17 Direct burial cables or conductors with nominal vo	d.) 100 percent, 125 percent ltage of 600 V or less and passes under streets, hi-ways,
roads, alleys, driveways and parking lots shall have a	
a.) 500 mm	c.) 460 mm
b.) 600 mm	d.) 550 mm
<ol> <li>Boxes intended to enclose flush devices shall have</li> <li>24 mm</li> </ol>	c.) 16 mm
b.) 20 mm	d.) 28 mm
19. Where shore power is supplied, those accommodate	ations for boats longer than or less in length shall be
equipped with shore-power receptacles of a locking a	
a.) 6000 mm, 30 A <mark>b.)</mark> 6000 mm, 20 A	c.) 7000 mm, 20 A d.) 7000 mm, 30 A
	ted at least from metal raceways, piping or other
conducting materials.	
a.) 50 mm	c.) 70 mm
b.) 60 mm 21. Hazardous locations where combustible dust is	d.) 40 mm not normally in the air in quantities sufficient to provide
	ions are normally insufficient with the normal operation of
electrical equipment.	
a.) Class II, Division 1	c.) Class III, Division 1
b.) Class II, Division 2 22 If the setting of the overcurrent device in a circuit	d.) Class III, Division 2 t ahead of the equipment is 60A, the minimum equipment
grounding conductor using copper shall be	
a.) 5.5 mm <sup>2</sup>	c.) 2.0 mm <sup>2</sup>
b.) 3.5 mm <sup>2</sup>	d.) 8.0 mm <sup>2</sup>
<ul><li>23. Who will accomplish box 2 of Application for Electric</li><li>a.) Professional Electrical Engineer who signed and s</li></ul>	
b.) Electrical Contractor	
c.) Person In-Charge of Installation	
d.) Owner/Authorized Representative	recented a comprised of four more recented as shall be
computed at not less than per receptacle.	e receptacles comprised of four more receptacles shall be
a.) 180 VA	<mark>c.)</mark> 90 VA
b.) 45 VA	d.) 360 VA
25. Type UF cable shall be used for which of the followi	•
a.) Concrete encased	c.) Service entrance cable
a.) Concrete encased <mark>b.)</mark> Direct buried	c.) Service entrance cable d.) None of the above
<ul> <li>a.) Concrete encased</li> <li>b.) Direct buried</li> <li>26. The residual voltage of a capacitor must be reduced after the capacitor is disconnected from the power solution.</li> </ul>	c.) Service entrance cable d.) None of the above I to which of the following voltage levels within one minute urce:
<ul> <li>a.) Concrete encased</li> <li>b.) Direct buried</li> <li>26. The residual voltage of a capacitor must be reduced after the capacitor is disconnected from the power solida.) 50 volts or less</li> </ul>	<ul> <li>c.) Service entrance cable</li> <li>d.) None of the above</li> <li>l to which of the following voltage levels within one minute</li> <li>urce:</li> <li>c.) 120 volts or less</li> </ul>
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voltage of which of the following: a.) 5 percent

c.) 50 percent

b.) 45 percent d.) 100 percent 34. In PEC 2000, Article 4.0 is a.) Definitions c.) Wiring Methods b.) Wiring Protection d.) Flexible Cords and Cables 35. The allowable current ampacity of 14 mm<sup>2</sup> THW copper wire is c.) 70 A a.) 55 A <mark>b.)</mark> 65 A d.) 80 36. For track lighting in other than dwelling units or guest rooms of hotels or motels, an additional load of \_\_\_\_\_ shall be included for every 610 mm of lighting track or fraction thereof. a.) 180 VA c.) 1200 VA <mark>b.)</mark> 250 VA d.) 1500 VA 37. If there are no overcurrent protective device rated 30 A or less with neutral connection, this panel board is classified as a a.) lighting panelboard c.) power panelboard b.) appliance panelboard d.) back-up panelboard 38. The walls and roofs of transformer vaults shall be constructed of materials that have adequate structural strength for the condition with a minimum fire resistance of hours. c.) 2.5 a.) 1.5 <mark>d.)</mark> 3.0 b.) 2.0 39. For fixed electric space heating equipment consisting of resistance elements with a motor, the branch circuit conductor ampacity and the overcurrent rating of the protective device that supplies the equipment shall not be less than which of the following: a.) 100% of the total heating equipment load c.) 125% of the total load of the motor and the heaters d.) The combined ampacity of all of the equipment b.) 125% of the total motor load 40. Each resistive welder and control equipment shall be provided with which of the following: c.) A switch or circuit breaker power disconnection means a.) A temporary equipment connection b.) A grounding conductor d.) All of the above 41. A high school graduate can take the registered master electrician's examination if he has subsequent specific record of at least years of apprenticeship in electrical wiring, installations of electrical equipment. a.) 6 c.) 4 b.) 3 d.) 5 42. Type THHN copper conductors have a maximum operating temperature of \_\_\_\_\_ a.) 60 °C c.) 75 °C d.) 30 °C <mark>b.)</mark> 90 °C 43. Receptacle outlets in floors shall not be counted as part of the required number of receptacle outlets unless located within of the wall. <mark>a.)</mark> 450 mm c.) 600 mm b.) 500 mm d.) 700 mm 44. For service-entrance phase conductors larger than 500 mm<sup>2</sup> copper or 850 mm<sup>2</sup> aluminum, the grounded conductor shall not be smaller than \_\_\_\_\_ of the area of the largest service -entrance phase conductor. a.) 10 percent c.) 15 percent b.) 12 ½ percent d.) 17  $\frac{1}{2}$  percent 45. For optional calculation for additional loads in existing dwelling units, the first 8 kVA shall be computed at 100% while the remainder of load is at \_ a.) 35% c.) 50% b.) 60% d.) 40% 46. For show window lighting, a load of not less than volt-amperes shall be included for each linear metre of show window, measured horizontally along its base. c.) 600 a.) 180 b.) 250 d.) 1200 47. In PEC 2000, site standard symbol for a.) Power panelboard c.) fuse cut-out b.) Lighting panelboard d.) Motor controller, 3 Pole across the line \_ and larger, comprising each phase, neutral 48. Aluminum, copper-clad aluminum or copper conductors of size or grounded circuit conductor, shall be permitted to be connected in parallel (electrically joined at both ends to form a single conductor). <mark>a.)</mark> 50 mm<sup>ž</sup> c.) 8.0 mm<sup>2</sup> b.) 38 mm<sup>2</sup> d.) 14 mm<sup>2</sup> 49. In an electrical lay-out, floor plan shall show I. Plan for power II. Plan for Lighting and Receptacle outlets III. Plan for Fire Detection and Alarm Circuits c.) I and III only a.) I only b.) I and II only d.) I, II and III 50. At least of free conductor shall be left at each outlet, junction and switch point for splices or the connection of fixtures or devices. a.) 200 mm <mark>c.)</mark> 150 mm b.) 100 mm d.) 300 mm

## MAY 2009 RME PREBOARD EXAM PEC

Multiple Choice. Select the correct answer for each of the following questions. Mark only one answer for each item by shading the box corresponding to the letter of your choice on the answer sheet provided.

1. Period of operation and minimum capacity of emer	rgency source of power for Passenger vessel over 20 meters
in length Ocean & coastwise 1600 g.t. & over, an	nd, any passenger vessel, regardless of tonnage or service,
where electric power-operated water tight doors are	required or installed.
a.) ½ hour to 36 hours	c.) 1 hour to 24 hours
b.) $\frac{1}{2}$ hour to 12 hours	d.) 1 hour to 12 hours
	ary side of a transformer over 600V nominal, their continuous
current rating shall NOT exceed of the rated	
a.) 250%	c.) 175%
b.) 300%	d.) 200%
<ol><li>For a wye-start, delta-run connected motor-compression</li></ol>	essor, the selection of branch-circuit conductors between the
controller and the motor-compressor shall be pe	rmitted to be based on percent of either the motor-
	ranch-circuit selection current, whichever is greater.
a.) 25	c.) 67
b.) 58	d.) 125
	with insulation shall have all recessed parts spaced at least
	with insulation shall have all recessed parts spaced at least
from combustible materials.	\ <b>45</b>
a.) 10 mm	c.) 15 mm
b.) 12 mm	d.) 20 mm
5. Grounding electrodes shall be installed such that at	t least of length is in contact with the soil.
a.) 2,000 mm	c.) 2,500 mm
b.) 1,500 mm	d.) 2,400 mm
6. A generator set used for standby power systems	shall have a time delay feature permitting a minute
setting to avoid retransfer in case of short time reest	
a.) 10	c.) 12
b.) 8	d.) 15
	be bonded to the vehicle chassis with a copper conductor of
	be bonded to the vehicle chassis with a copper conductor of
size or its equivalent.	$\sim 100$ $\sim 10^{2}$
a.) $5.5 \text{ mm}^2$	c.) 8.0 mm <sup>2</sup>
b.) 3.5 mm <sup>2</sup>	d.) 2.0 mm <sup>2</sup>
	e source of power shall be separate and independent of the
normal source and shall have a capacity to susta	ain its connected loads for a minimum of after loss of
normal source.	
a.) 2 hours	c.) 1 ½ hours
b.) 2 ½ hours	
	d.) 1 nour
	d.) 1 hour be of water surface, base of diving platform, or permanently
9. Clearance in any direction to the water level, edg	ge of water surface, base of diving platform, or permanently
<ol> <li>Ólearance in any direction to the water level, edg anchored raft for insulated supply or service droop of</li> </ol>	ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground
<ol> <li>Ólearance in any direction to the water level, edg anchored raft for insulated supply or service droop or a.) 3,700 mm</li> </ol>	ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground c.) 4,300 mm
<ol> <li>Ólearance in any direction to the water level, edg anchored raft for insulated supply or service droop or a.) 3,700 mm</li> <li>b.) 5,500 mm</li> </ol>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits</li> </ul>	ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground c.) 4,300 mm
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> </ul>	ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground c.) 4,300 mm d.) 6,700 mm for a one family dwelling unit, the minimum service entrance
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> </ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> </ul>	ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground c.) 4,300 mm d.) 6,700 mm for a one family dwelling unit, the minimum service entrance
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> </ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> <li>d.) 120 A</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> <li>11. Dry-type transformers installed outdoors rated</li> </ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> <li>d.) 120 A</li> <li> shall have a separation of at least 300 mm from</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> <li>11. Dry-type transformers installed outdoors rated combustible material unless separated from the composition of the second se</li></ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> <li>d.) 120 A</li> <li> shall have a separation of at least 300 mm from nbustible material by a fire-resistant, heat-insulated barrier.</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> <li>11. Dry-type transformers installed outdoors rated combustible material unless separated from the corr a.) 125 kVA</li> </ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> <li>d.) 120 A</li> <li> shall have a separation of at least 300 mm from nbustible material by a fire-resistant, heat-insulated barrier.</li> <li>c.) 115 kVA</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> <li>11. Dry-type transformers installed outdoors rated combustible material unless separated from the com</li> <li>a.) 125 kVA</li> <li>b.) 100 kVA</li> </ul>	ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground c.) 4,300 mm d.) 6,700 mm for a one family dwelling unit, the minimum service entrance c.) 90 A d.) 120 A shall have a separation of at least 300 mm from nbustible material by a fire-resistant, heat-insulated barrier. c.) 115 kVA d.) 112 ½ kVA
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> <li>11. Dry-type transformers installed outdoors rated combustible material unless separated from the com a.) 125 kVA</li> <li>b.) 100 kVA</li> <li>12. Each resistance welder shall have an overcurrer</li> </ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> <li>d.) 120 A</li> <li> shall have a separation of at least 300 mm from nbustible material by a fire-resistant, heat-insulated barrier.</li> <li>c.) 115 kVA</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> <li>11. Dry-type transformers installed outdoors rated combustible material unless separated from the com a.) 125 kVA</li> <li>b.) 100 kVA</li> <li>12. Each resistance welder shall have an overcurrer conductor rating.</li> </ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> <li>d.) 120 A</li> <li> shall have a separation of at least 300 mm from nbustible material by a fire-resistant, heat-insulated barrier.</li> <li>c.) 115 kVA</li> <li>d.) 112 ½ kVA</li> <li>nt device rated or set at not more than percent of the</li> </ul>
<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li> <li>a.) 60 A</li> <li>b.) 100 A</li> <li>11. Dry-type transformers installed outdoors rated combustible material unless separated from the com a.) 125 kVA</li> <li>b.) 100 kVA</li> <li>12. Each resistance welder shall have an overcurrer conductor rating.</li> <li>a.) 300</li> </ul>	<ul> <li>ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground</li> <li>c.) 4,300 mm</li> <li>d.) 6,700 mm</li> <li>for a one family dwelling unit, the minimum service entrance</li> <li>c.) 90 A</li> <li>d.) 120 A</li> <li> shall have a separation of at least 300 mm from nbustible material by a fire-resistant, heat-insulated barrier.</li> <li>c.) 115 kVA</li> <li>d.) 112 ½ kVA</li> <li>nt device rated or set at not more than percent of the</li> <li>c.) 175</li> </ul>
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<ul> <li>9. Clearance in any direction to the water level, edg anchored raft for insulated supply or service droop of a.) 3,700 mm</li> <li>b.) 5,500 mm</li> <li>10. If there will be six or more 2-wire branch circuits capacity shall be</li></ul>	ge of water surface, base of diving platform, or permanently cables 0 up to 750 volts to ground c.) 4,300 mm d.) 6,700 mm for a one family dwelling unit, the minimum service entrance c.) 90 A d.) 120 A shall have a separation of at least 300 mm from nbustible material by a fire-resistant, heat-insulated barrier. c.) 115 kVA d.) 112 ½ kVA nt device rated or set at not more than percent of the c.) 175 d.) 150 "moisture resistant thermoplastic"? c.) THWN d.) THHN n required shall be c.) 250,000 ohms d.) 75,000 ohms ed at least from conductors of any electric light, power, wer network powered broadband communication circuits. c.) 150 mm d.) 200 mm t devices of a feeder for two or more branch circuits supplying nentary demand rating of the two largest X-ray apparatus plus baratus.

17. Direct burial cables or conductors with nominal voltage of 600 V or less and passes under streets, hi-ways, roads, alleys, driveways and parking lots shall have a minimum cover distance of \_\_\_\_\_.

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a.) 500 mm c.) 460 mm b.) 600 mm d.) 550 mm 18. Boxes intended to enclose flush devices shall have an internal depth of NOT less than \_\_\_\_\_\_. c.) 16 mm a.) 24 mm b.) 20 mm d.) 28 mm 19. Where shore power is supplied, those accommodations for boats longer than \_ \_ or less in length shall be equipped with shore-power receptacles of a locking and grounding type rated at not less than \_ a.) 6000 mm, 30 A c.) 7000 mm, 20 A b.) 6000 mm, 20 A d.) 7000 mm, 30 A 20. Open conductors on insulators shall be separated at least \_\_\_\_ \_ from metal raceways, piping or other conducting materials. c.) 70 mm a.) 50 mm b.) 60 mm d.) 40 mm 21. Hazardous locations where combustible dust is not normally in the air in quantities sufficient to provide explosive or ignitable mixtures, and dust accumulations are normally insufficient with the normal operation of electrical equipment. a.) Class II, Division 1 c.) Class III, Division 1 b.) Class II, Division 2 d.) Class III, Division 2 22. If the setting of the overcurrent device in a circuit ahead of the equipment is 60A, the minimum equipment grounding conductor using copper shall be \_\_\_\_ a.) 5.5 mm<sup>2</sup> c.) 2.0 mm<sup>2</sup> b.) 3.5 mm<sup>2</sup> d.) 8.0 mm<sup>2</sup> 23. Who will accomplish box 2 of Application for Electrical Permit form? a.) Professional Electrical Engineer who signed and sealed specification b.) Electrical Contractor c.) Person In-Charge of Installation d.) Owner/Authorized Representative 24. A single piece of equipment consisting of multiple receptacles comprised of four more receptacles shall be computed at not less than \_\_\_\_\_ per receptacle. a.) 180 VA c.) 90 VA b.) 45 VA d.) 360 VA 25. Type UF cable shall be used for which of the following applications: a.) Concrete encased c.) Service entrance cable b.) Direct buried d.) None of the above 26. The residual voltage of a capacitor must be reduced to which of the following voltage levels within one minute after the capacitor is disconnected from the power source: a.) 50 volts or less c.) 120 volts or less d.) Zero volts b.) 60 volts or less 27. The required distance between outlets along the floor line of any wall space in the living room of a dwelling unit is which of the following: a.) No more than 1800 mm measured horizontally from one outlet to another b.) Every 3000 mm c.) Only one outlet is required per wall d.) None of the above 28. The sum of cross-sectional areas of all contained conductors at any cross section of the nonmetallic wireway shall not exceed \_\_\_\_\_\_ of the interior cross-sectional area of the nonmetallic wireway. a.) 10 percent c.) 20 percent b.) 15 percent d.) 25 percent 29. Aluminum enclosures and fittings are allowed to be used with which of the following: a.) PVC conduit c.) Ferrous conduits d.) Steel electrical metal tubing b.) Electrical nonmetallic tubing 30. In a health care facilities, the system shall be arranged so that, in the event of failure of the normal power source, the alternate source of power shall be automatically connected to the load within \_\_\_\_ a.) 2 minutes c.) 30 seconds b.) 1 minute d.) 10 seconds 31. If an existing two-wire, nongrounding receptacle is replaced in a location where the Code requires a GFCI receptacle, it must be replaced with which of the following? a.) GFCI receptacle c.) Three-wire, grounding-type receptacle b.) Two-wire, nongrounding-type receptacle d.) All of the above 32. A disconnecting means for a controller is also permitted to be the disconnecting means for the motor and driven machine, even where out of sight of the motor and driven machine: a.) in an industrial building with qualified service personnel, if capable of being locked in the open position b.) if capable of being locked in the open position c.) in commercial and industrial buildings with qualified service personnel d.) if provided with an alarm to indicate when the disconnect is closed 33. AC - DC general use snap switches may be used to control inductive loads that do not exceed the rating at the voltage of which of the following: a.) 5 percent c.) 50 percent b.) 45 percent d.) 100 percent 34. In PEC 2000, Article 4.0 is a.) Definitions c.) Wiring Methods

b.) Wiring Protection

- d.) Flexible Cords and Cables

35. The allowable current ampacity of 14 mm<sup>2</sup> THW copper wire is a.) 55 A c.) 70 A b.) 65 A d.) 80 36. For track lighting in other than dwelling units or guest rooms of hotels or motels, an additional load of shall be included for every 610 mm of lighting track or fraction thereof. a.) 180 VA c.) 1200 VA b.) 250 VA d.) 1500 VA 37. If there are no overcurrent protective device rated 30 A or less with neutral connection, this panel board is classified as a a.) lighting panelboard c.) power panelboard b.) appliance panelboard d.) back-up panelboard 38. The walls and roofs of transformer vaults shall be constructed of materials that have adequate structural strength for the condition with a minimum fire resistance of hours. c.) 2.5 a.) 1.5 b.) 2.0 d.) 3.0 39. For fixed electric space heating equipment consisting of resistance elements with a motor, the branch circuit conductor ampacity and the overcurrent rating of the protective device that supplies the equipment shall not be less than which of the following: c.) 125% of the total load of the motor and the heaters a.) 100% of the total heating equipment load b.) 125% of the total motor load d.) The combined ampacity of all of the equipment 40. Each resistive welder and control equipment shall be provided with which of the following: a.) A temporary equipment connection c.) A switch or circuit breaker power disconnection means b.) A grounding conductor d.) All of the above 41. A high school graduate can take the registered master electrician's examination if he has subsequent specific record of at least \_\_\_\_\_ years of apprenticeship in electrical wiring, installations of electrical equipment. a.) 6 c.) 4 b.) 3 d.) 5 Type THHN copper conductors have a maximum operating temperature of \_\_\_\_\_. a.) 60 °C c.) 75 °C b.) 90 °C d.) 30 °C 43. Receptacle outlets in floors shall not be counted as part of the required number of receptacle outlets unless located within \_\_\_\_ of the wall. a.) 450 mm c.) 600 mm b.) 500 mm d.) 700 mm 44. For service-entrance phase conductors larger than 500 mm<sup>2</sup> copper or 850 mm<sup>2</sup> aluminum, the grounded conductor shall not be smaller than of the area of the largest service -entrance phase conductor. a.) 10 percent c.) 15 percent b.) 12 1/2 percent d.) 17 <sup>1</sup>/<sub>2</sub> percent 45. For optional calculation for additional loads in existing dwelling units, the first 8 kVA shall be computed at 100% while the remainder of load is at \_ a.) 35% c.) 50% b.) 60% d.) 40% 46. For show window lighting, a load of not less than volt-amperes shall be included for each linear metre of show window, measured horizontally along its base. a.) 180 c.) 600 b.) 250 d.) 1200 47. In PEC 2000, sit the standard symbol for a.) Power panelboard c.) fuse cut-out b.) Lighting panelboard d.) Motor controller, 3 Pole across the line \_ and larger, comprising each phase, neutral 48. Aluminum, copper-clad aluminum or copper conductors of size \_ or grounded circuit conductor, shall be permitted to be connected in parallel (electrically joined at both ends to form a single conductor). a.) 50 mm<sup>2</sup> c.) 8.0 mm<sup>2</sup> b.) 38 mm<sup>2</sup> d.) 14 mm<sup>2</sup> 49. In an electrical lay-out, floor plan shall show I. Plan for power II. Plan for Lighting and Receptacle outlets III. Plan for Fire Detection and Alarm Circuits c.) I and III only a.) I only d.) I, II and III b.) I and II only 50. At least of free conductor shall be left at each outlet, junction and switch point for splices or the connection of fixtures or devices. a.) 200 mm c.) 150 mm b.) 100 mm d.) 300 mm