

MAY 2009 RME PREBOARD EXAM TECHNICAL

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. When stripping insulation from an aluminum conductor _____.
I. remove insulation as you would sharpen a pencil
II. ring the conductor and slip the insulation off the conductor
III. peel the insulation back and then cut outwards
a.) I, II and III **c.) I and III only**
b.) I and II only d.) II and III only
2. A common fuse and circuit breaker works on the principal that _____.
a.) voltage develops heat **c.) current develops heat**
b.) voltage breaks down insulation d.) currents expands a wire
3. The advantage of cutting a metal rigid conduit with a hacksaw rather than a pipe cutter is _____.
a.) you do not need a vice **c.) less reaming is required**
b.) less energy required in cutting d.) threading oil is not required
4. A shunt generators has an armature current of 100 A and a shunt field current of 3.5 A. What is its output in kW if the terminal voltage is 230 volts?
a.) 23.8 kW c.) 23.0 kW
b.) 22.2 kW d.) 805 W
5. Laminations are used in transformers to prevent _____.
a.) copper loss c.) weight
b.) eddy current loss d.) counter EMF
6. You should close a knife switch firmly and rapidly as there will be less _____.
a.) likelihood of arcing c.) danger of shock
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7. What is the purpose of connecting cells in series?
a.) To increase the current rating of the combination
b.) To decrease the internal resistance of the combination
c.) To increase the voltage rating of the combination
d.) To increase the power rating of the combination
8. The number of wattmeter/s necessary to measure the power in the load of a unbalanced 3-phase, 4-wire system is
a.) 3 c.) 4
b.) 2 d.) 1
9. Which of the following would improve the resistance to earth
I. Use multiple ground rods II. Treat the soil III. Lengthen the ground rod
a.) I only c.) I and III only
b.) II and III only **d.) I, II and III**
10. What is the metric size equivalent of 500 MCM?
a.) 250 mm² c.) 500 mm²
b.) 750 mm² d.) 1,000 mm²
11. A fellow electrician is not breathing after receiving an electrical shock, but is no longer in contact with the electricity, the most important thing for you to do is _____.
a.) start artificial respiration immediately c.) move the person to a window
b.) cover the person and keep warm d.) remove the person shoes
12. A wrench you would not use to connect rigid metal conduit is a _____ wrench.
a.) box end c.) strap
b.) chain d.) stillson
13. Continuous duty is _____.
a.) a load where the maximum current is expected to continue for three hours or more
b.) a load where the maximum current is expected to continue for one hour or more
c.) intermittent operation in which the load conditions are regularly recurrent.
d.) operation at substantially constant load for an indefinitely long time
14. The specific resistance of a wire depends on _____.
I. its length II. its material iii. its cross-sectional area
a.) I and II only c.) I and III only
b.) I, II, and III d.) II and III only
15. A capacitor performs which of the following functions:
a.) It opposes changes in voltage c.) It creates changes in amperage
b.) It generates voltage d.) None of the above
16. Which of the following should be tested to check for voltage to ground:
a.) From the breaker to the grounding neutral c.) From a breaker to the cabinet
b.) From hot to neutral **d.) All of the above**

17. A residential house has a lighting load of 200 W and a small appliance load of 1000 W. If they are used at the same time, what will be the monthly bill at an energy cost of P7.00 per kilowatt-hour?
- a.) P 201.60 **c.) P 6,048.00**
b.) P 252.00 d.) P 11.67.00
18. The wheatstone bridge method is used for accurate measurements of _____.
- a.) voltage **c.) resistance**
b.) amperage d.) wattage
19. The usual service conditions under which transformer should be able to carry its rated load are _____.
I. at rated secondary voltage or not in excess of 105% of the rated value
II. at rated frequency
III. temperature of the surrounding cooling air at no time exceeding 40° (140°F) and average temperature of the surrounding cooling air any 24-hour period not exceeding 30°C (86°F)
- a.) I only **c.) III only**
b.) II only **d.) I, II and III**
20. To adjust a voltage generated by a constant speed DC generator, you would change the _____.
a.) stator **c.) brushes**
b.) slip rings **d.) field current**
21. As the power factor of a circuit is increased _____.
- a.) reactive power is decreased** c.) reactive power is increases
b.) active power is decreased d.) both active and reactive power are increased
22. In general, motors are designed to operate in a maximum ambient temperature of _____ unless specifically designed for a higher temperature.
- a.) 60° C **c.) 45°C**
b.) 50° C **d.) 40°C**
23. A circuit breaker that has purposely introduced into it a delay in the tripping action and which delay decreases as the magnitude of the current increases is a _____ circuit breaker.
- a.) inverse time** c.) control vented
b.) adjustable d.) vented power
24. Red – Yellow - Gold – Gold indicates a resistance of:
- a.) 2.4 ohm** c.) 24 ohm
b.) 24 kilo-ohm d.) 0.24 ohm
25. Three-way switching does not use the following conductor :
- a.) ungrounded **c.) grounded**
b.) traveler d.) switch leg
26. In sockets, extension cord is protected by means of the _____ knot.
- a.) underwriter's** c.) sheepshank
b.) clove hitch d.) western union
27. The short circuit test on a transformer is a test for measuring its _____.
- a.) insulation resistance c.) iron losses
b.) copper losses d.) equivalent resistance of the transformer
28. A transformer has a primary voltage of 2400 V and a secondary voltage of 120 volts. If there are 40 turns on the primary, the secondary contains _____ turns.
- a.) 12000 **c.) 24000**
b.) 120 **d.) 60**
29. _____ is a self-acting, operating by its own mechanism when actuated by some impersonal influence, as for example, a change in current strength, pressure, temperature, or mechanical configuration.
- a.) remote control c.) semi-automatic
b.) automatic d.) controller
30. Solid wire is preferred instead of a stranded wire in panel wiring because _____.
- a.) costs less than stranded **c.) can be shaped better**
b.)solid will carry more current d.) no derating required for solid
31. Where the _____ is likely to be high, asbestos insulation on the conductor would be a good choice.
- a.) temperature** c.) voltage
b.) aluminum d.) amperage
32. If two equal resistance conductors are connected in parallel, the resistance of the two conductors is equal to_____.
- a.) the resistance of the conductors **c.) one-half the resistance of the conductor**
b.) twice the resistance of one conductor d.) the resistance of both conductor
33. During one complete rotation of 360 degrees, a three-phase 6-pole AC 34 kVA alternator on a Y-connected system will have how many of the following rotations:
- a.) 4 **c.) 18**
b.) 3 d.) 12
34. Which of the following is used to control speed in a DC motor:
- a.) Field winding** c.) Ground fault breaker
b.) A primary transformer d.) A bonding jumper
35. Inductance and capacitance are not considerations in a DC current for which of the following reasons:
- a.) DC supply has no frequency** c.) Both of the above
b.) DC supply carries power equal d.) None of the above
36. Two transmission wires create corona when which of the following exists:
- a.) The wires have a high potential difference** c.) The wires are spaced too far apart
b.) The wires are installed overlapping or too close together d.) None of the above

37. Three capacitors are in parallel. Their values are 0.0200 μF , 0.0500 μF and 0.10000 μF . The total capacitance is:
- a.) 0.0125 μF
 - b.) 0.170 μF**
 - c.) 0.1 μF
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38. With respect to the fluorescent lamps it is correct to state _____.
- a.) the filaments seldom burn out**
 - b.) the starters and tubes must be replaced at the same time
 - c.) they are easier to install than incandescent light bulbs
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39. A fusestat is different than the ordinary plug fuse because a fusestat _____.
- a.) doesn't have threads
 - b.) has left-hand threads
 - c.) has different size threads**
 - d.) has an aluminum screw shell
40. A magnetic field is created around a conductor _____.
- a.) whenever current flows in the wire, provided the wire is made of magnetic material
 - b.) only when the wire carries a large current
 - c.) whenever current flows in the conductor**
 - d.) Only if the conductor is formed into a loop
41. How long a piece of aluminum wire 1.6 mm in diameter is needed to give a resistance of 1.5 ohms? Assume resistivity of aluminum is 2.8×10^{-8} ohm-meter.
- a.) 108 meters**
 - b.) 120 meters
 - c.) 128 meters
 - d.) 112 meters
42. An electrical timer switch for lighting is normally connected in _____ with lighting circuit being controlled.
- a.) series**
 - b.) parallel
 - c.) sequence
 - d.) tandem
43. The voltage produced by electromagnetic induction is controlled by _____.
- a.) the number of lines of flux cut per second**
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 - c.) the size of the magnet
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44. The armature current drawn by any DC motor is proportional to the _____.
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45. Of the following _____ is a false statement.
- a.) The term kilowatt indicates the measure of power which is all available for work.
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 - c.) In an industrial plant, low power factor is usually due to under loaded induction motors
 - d.) The power factor of a motor is much greater at partial loads than at full load.**
46. When reduced to the most nominal component, the smallest element of matter is which of the following:
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47. A _____ is a braking system for an electric motor
- I. Friction braking II. Plugging III. Dynamic braking
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48. In a dc generator, the purpose of the commutator is to _____.
- a.) rectify armature current**
 - b.) convert magnetic lines of force to flux
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49. In an electrical conductor that consists of 16 strands, each with a diameter 0.0837 inches, the area of the conductor would be which of the following:
- a.) 83.7 circular mils
 - b.) 83700 circular mils
 - c.) 70057 circular mils
 - d.) 112091 circular mils**
50. In a coil, the higher the level of self-inductance:
- a.) The lower the level of resistance will be
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