Topic: Switchboard Connections

1. Is it essential to mark a neutral link with the word 'Neutral' when it is installed on a switchboard? Give the AS/NZS 3000 Clause number.

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

2. A single domestic installation has a meter panel and consumer's switchboard located at the front of the house in a metal enclosure. No earth links are used. What is the minimum permissible size of the bonding conductor between the neutral link and the metal enclosure if the associated unprotected consumer's mains are 16 square mm cable?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

3. Does the local supply authority allow a main switchboard in a domestic installation to be inside the house, separate from the meter panel enclosure at the front of the building?

_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

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4. What is the minimum height for a main switchboard installed in a single domestic installation? Give the AS/NZS 3000 Clause number.

State the 'AS/NZS 3000:2007' - Clause No: _____

5. Is it permissible to terminate more than one circuit neutral in one of the terminals in a neutral link? Give the AS/NZS 3000 Clause number.

State the 'AS/NZS 3000:2007' - Clause No: _____

6. What is the only permissible colour of the conductor which connects the neutral link to the metal enclosure in a domestic installation where the meter panel and main switchboard are in the same enclosure?

State the 'AS/NZS 3000:2007' - Clause No: _____

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7. Under what conditions is it necessary to legibly mark the connection for the main earthing conductor and the main neutral conductor at a neutral link in an MEN installation?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

8. All outlet and lighting circuits in a new domestic installation must be protected by residual current devices. What is the exception according to the Wiring Rules?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

9. What is the minimum permissible current carrying capacity of the consumer's mains in a single phase single domestic installation?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

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10. What is the minimum permissible current carrying capacity of the consumer's mains in a three phase single domestic installation?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

11. What are the names of the three general types of earthing systems? Which type is the one recognised by AS/NZS 3000?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

12. Is it necessary to earth metallic boxes which form part of a wiring system if they are isolated from all other conductive material (other than metal which is earthed), and in no part accessible to personal contact?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

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13. Is it permissible to install bare MIMS cable without earthing the copper sheathing?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

14. Is it permissible to install a socket-outlet without connecting an earth wire to the earthing contact in the outlet?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

15. Is it permissible to install an all insulated luminaire (such as an insulated batten holder) indoors without providing an earthing conductor at the lighting point?

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____

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16. An aluminium luminaire is to be installed outdoors on a wooden pole, 3 metres from the nearest earthed metal. Does the Wiring Rules require the exposed metal casing of the luminaire to be earthed?

State the 'AS/NZS 3000:2007' - Clause No: _____

17. Is it necessary to earth accessible metal parts of low voltage equipment if the accessible metal is separated from live parts by double insulation?

State the 'AS/NZS 3000:2007' - Clause No: _____

18. What is the internationally recognised symbol which means 'Double insulated - Do not earth'?

State the 'AS/NZS 3000:2007' - Clause No: _____

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19. What precaution must be taken to prevent an internal conductor from coming into contact with accessible metal if it becomes detached from its terminal in a double insulated appliance?

State the 'AS/NZS 3000:2007' - Clause No: _____

20. Is it necessary to earth exposed metal in a 32 volt portable hand-lamp?

State the 'AS/NZS 3000:2007' - Clause No: _____

21. Is it permissible to loop a MAIN earthing conductor into a luminaire to avoid having to run another earthing conductor to the luminaire?

State the 'AS/NZS 3000:2007' - Clause No: _____

22. Is it permissible to connect a subsidiary earthing conductor to a main earthing conductor using a soldered tee joint?

State the 'AS/NZS 3000:2007' - Clause No: _____

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23. Is it permissible to earth equipment by connecting exposed metal to an earthing conductor which is being used to earth equipment supplied from another distribution board?

State the 'AS/NZS 3000:2007' - Clause No: _____

24. What is the minimum permissible size of a single insulated TPI copper main earthing conductor?

State the 'AS/NZS 3000:2007' - Clause No: _____

25. A steel wire armoured (SWA) cable is installed in such a way that the armouring is required to be earthed. At which point in the installation must the armouring be earthed?

State the 'AS/NZS 3000:2007' - Clause No: _____

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26. What limitation is placed on the use of metal conduit as the protective earthing conductor for cables which are contained in the conduit?

State the 'AS/NZS 3000:2007' - Clause No: _____

27. A metal conduit is installed in such a way that it is required to be earthed. At which point in the installation must it be earthed?

State the 'AS/NZS 3000:2007' - Clause No: _____

28. How must a hinged door of a metallic electrical cubicle be earthed?

State the 'AS/NZS 3000:2007' - Clause No: _____

29. The exposed metal of electrical equipment on a wheeled overhead gantry crane is required to be earthed. Can metal-to-metal contact between the wheels and the rail be regarded as an effective connection for the purposes of earthing?

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State the 'AS/NZS 3000:2007' - Clause No: _____

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30. A particular electric motor is to be fixed in position using four bolts with nuts. Is it permissible to use one of the fixing bolts as the earthing terminal?

State the 'AS/NZS 3000:2007' - Clause No: _____

31. What is the maximum permissible resistance of a main earthing conductor in a 415 volt three phase installation?

State the 'AS/NZS 3000:2007' - Clause No: _____

32. What is the minimum permissible size of copper MAIN earthing conductor if the active conductor in the associated consumer's mains is 16 square mm?

State the 'AS/NZS 3000:2007' - Clause No: _____

33. What is the minimum permissible size of single core TPI cable (building wire) which can be used an earthing conductor?

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State the ‘AS/NZS 3000:2007’ - Clause No: _____

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34. In general, how must a clamped joint be made in copper earthing conductors up to 4 square mm?

State the 'AS/NZS 3000:2007' - Clause No: _____

35. What is the minimum permissible diameter of a copper-coated mild steel driven earthing electrode?

State the 'AS/NZS 3000:2007' - Clause No: _____

36. Is it permissible to use rigid metallic conduit as a driven earth electrode?

State the 'AS/NZS 3000:2007' - Clause No: _____

37. In general, where must a driven earth electrode be located?

State the 'AS/NZS 3000:2007' - Clause No: _____

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38. To what minimum depth must a driven earth electrode be driven?

State the 'AS/NZS 3000:2007' - Clause No: _____

39. What is the general meaning of the term 'equipotential bonding'?

State the 'AS/NZS 3000:2007' - Clause No: _____

40. What action must be taken if exposed metal of wiring enclosures is in unavoidable contact with metallic piping of other systems such as fire sprinklers, gas or hot water?

State the 'AS/NZS 3000:2007' - Clause No: _____

41. What is the minimum permissible size of copper equipotential bonding conductor?

State the 'AS/NZS 3000:2007' - Clause No: _____

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42. Any situation which is external to a building and within .....?..... of exposed earthed metal is deemed to be an earthed situation. (Give the Wiring Rules Clause or Table Number)

State the 'AS/NZS 3000:2007' - Clause No: _____

43. What is the purpose of an equipotential bond in an installation?
To minimise the risk associated with voltage differences between accessible metal parts.

State the 'AS/NZS 3000:2007' - Clause No: _____

44. What are two requirements f or an effective earth joint?

State the 'AS/NZS 3000:2007' - Clause No: _____

45. Is it necessary to earth the metal frame of a domestic installation?

State the 'AS/NZS 3000:2007' - Clause No: _____

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46. What are two general types of earthing conductor which need not be insulated?

State the 'AS/NZS 3000:2007' - Clause No: _____

47. What is the main reason why single insulated 240 volt equipment must be earthed?

State the 'AS/NZS 3000:2007' - Clause No: _____

48. What is the only permissible colour for an insulated earthing conductor? (Give the Wiring Rules Clause or Table Number)

State the 'AS/NZS 3000:2007' - Clause No: _____

49. What is the MAXIMUM permissible resistance of a main earthing conductor?

State the 'AS/NZS 3000:2007' - Clause No: _____

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50. A 2.5 mm final sub-circuit in a 240 volt domestic installation supplies a load consisting of 10 A 2x socket outlets and is protected by a 16 A Type C circuit breaker. The internal fault-loop impedance, measured at the furthermost socket outlet is 1.99 ohms. Does this value of internal fault-loop impedance satisfy the requirements of AS/NZS 3000

_____
_____
_____
_____
_____
_____
_____

State the 'AS/NZS 3000:2007' - Clause No: _____