G106 Final Tutorial Part 1

Question 1

Conductors are defined as materials that easily allow the flow of _____. Metals are _____ conductors while insulators are _____ .
The 2 common metals used for conductors in the electrical trade are:
_____ and _____.
Aluminium has become more prevalent for larger C.S.A. conductors as it is cheaper and lighter but more brittle than copper.

Current/ Copper/ Aluminium

Question 2

Temperature rating: this is the _____ temperature the cable can operate up to. V75, V90, V105 are examples of available insulation temperature ratings for PVC (Poly Vinyl Chloride) insulation.
The number after the prefix refers to the maximum cable operating temperature permissible.

Operation

Question 3

There are two broad categories of connection methods:
1. Fusion: soldering, welding and brazing.
2. Pressure: clamping, compression

Question 4

TPS cable should not have any more than _____mm of sheathing removed
25mm

Question 5

Name 2 advantages of stranded conductor over single core solid conductor?
_____
_____

Stranded wire is more flexible than solid wire of the same total cross-sectional area.**Stranded** wire tends to be a better **conductor** than solid wire because the individual wires collectively comprise a greater surface area. **Stranded** wire is used when higher resistance to metal fatigue is required.

Question 6

What is meant by the term *temperature rating*?
_____

When a bag is described as a "20-degree bag," it means that most users should remain comfortable if the air **temperature** drops no lower than 20°F. These **ratings** assume that the sleeper is wearing a layer of long underwear and using a sleeping pad under the bag.

Question 7

What is the purpose of *serving* on a cable?

_____
_____

Serving definition, the act of a person or thing that serves. ... that is applied to the core or the exterior of a lead-covered **cable** and acts as a protective covering. ... definite use: This cup will **serve** as a sugar bowl. to answer the **purpose**:

Question 8

Why, if possible do we double over the ends of a conductor before it is inserted into a tunnel type connector? _____

To grip the conductor

Question 9

Appliances not classified as double insulated **must be earthed** and are provided with a terminal specifically for this purpose. The earthing system, (that is conductors and connections), must have a _____ resistance to ensure the fuse or circuit breaker protecting the appliance circuit _____ quickly in the event of a fault.

Low/ trip

Question 10

What is the difference between a 10A 250V socket and 15A 250V socket?

_____

Size of pin hole is bigger in 15A 250V socket

Question 11

Would a 15A 250V plug fit into a 10A 250V socket? (explain your answer)

_____

No Size of pin hole is bigger in 15A 250V socket

Question 12

The international colour code for three core flexible cords for use with single-phase appliances is:
(a) Blue active; Black neutral; Green/yellow earth
(b) Brown active, Black neutral; Green earth
(c) Red active; Black neutral; Green earth
(d) Brown active; Blue neutral; Green/yellow earth

Question 13

The international protection rating (IP) of a plug or socket indicates the level of protection against:

(a) Fault currents
(b) Over voltage
(c) The ingress of moisture and foreign bodies
(d) Earth faults

Question 14

A 230V double insulated portable electric drill must:

(a) Have a minimum earth resistance of 1ohm
(b) Have a resistance between active and neutral terminals greater than 1 M ohms (1,000,000 ohms).
(c) Not be earthed
(d) have an insulation resistance not exceeding 1M ohms

Question 15

The continuity of a flexible cord is best tested using:

(a) An ohmmeter
(b) Test lamps
(c) A voltmeter
(d) A test pencil

Question 16

Before working on a cord-connected appliance it is important to first:
(a) Remove the appliance terminal cover
(b) Test the appliance with an insulation tester
(c) Test the supply at the appliance terminals
(d) Isolate the appliance by removing the plug from the socket

Question 17

The resistance between the active and neutral pin of the plug top used to connect an appliance, should be:

(a) Less than 2 ohms
(b) Greater than 2 ohms
(c) Greater than 1 M ohms
(d) Determined by the wattage rating of the appliance

Question 18

Figure eight" type flexible cords may be used for:

(a) Double insulated appliances
(b) Hand held appliances only

(c) Double and single insulated appliances
(d) Appliances fitted with robust metal jackets, to provide mechanical protection
Question 19

The CSA of the conductors in a flexible cord used to supply an appliance is determined by the:

(a) Mechanical stresses that the cord will be subjected to
(b) Load current required by the machine
(c) Amount of flexing that the cord will be subjected to
(d) Insulating ability of the cable covering material

Question 20

Why is the earth pin of a three-pin plug longer than the other two?

_____

Earthing is applied before electrical current flows into the equipment to protect the leakage of electrical current into the body

G106 Final Tutorial Part 2

Question 1

Why is the earth pin of a three-pin plug sometimes wider than the other two?

_____

To reduce earth resistance

Question 2

The main reasons for use of TPS wiring systems include:

- It is quickly and easily _____ for surface work
- It is even more _____ for concealed systems
- If used with all _____ accessories it forms a complete double insulated system. (*1.4.60c*)
- Available with or without an _____ conductor (earth conductor will simplify some installations)

Wired/ flexible /Electrical/earthing

Question 3

The disadvantages to using TPS wiring include:

- It is prone to _____ damage during installation and in use.
- It can be damaged by rodents.
- The presence of excessive _____ can damage or degrade it.

- The PVC sheath is chemically inert in most environments, but there is a likelihood of solvents affecting cable insulation *(Organic solvents (acetone and ketone) and oxidising acids (nitric and sulphuric acids))*

Question 4

Applications
- Commercial and domestic _____ and _____ circuits
- Underground wiring, if suitably _____ – Clause 3.11 & Table 3.6
- Certain external situations (preferably UV protected)

Applications/ wiring

Protected

Question 5

TPS *cables* are categorised as either _____ or _____.

Flat/ Circular

Question 6

2. Determine the minimum conductor size required for the lighting circuit, wired in TPS cable and enclosed in PVC duct _____**AS/NZS3000**

1 sqmm/ 3.9.8.4.c

Question 7

_____ and _____ systems are often used with TPS cables, flat and circular in_____ and _____installations.
Electrical/ Telecommunication

Question 8

Electrical connections between conductors and equipment shall provide _____ continuity, appropriate _____ and _____ strength.

AS/NZS3000_____

Rating/ Mechanical

4.3.3

Question 9

Connection to accessories should be done using the correct conduit adaptors.
_____ adaptors are available to join to threaded parts

coupling

); **Conduit Adapter** (8); Conduit Bend (34); Conduit Bush (10); Conduit Coupling (11); Conduit End Cap (8); Conduit .

Question 10

HFT conduit _____ be bent therefore bends, elbows and tees should be used to change direction.

Must not be

Question 11

Flexible PVC conduit is manufactured in a range of sizes from 16 mm *inside diameter* to 63 mm *inside diameter*. Flexible conduit is measured across the _____ diameter and rigid PVC conduit is measured across the _____ diameter.

Inside/ Outside

Question 12

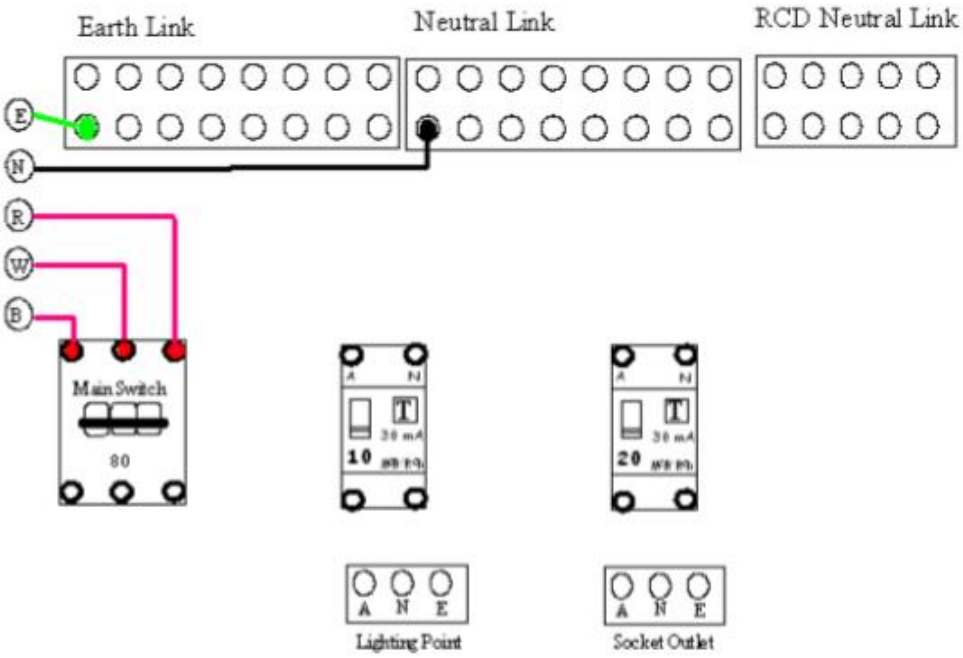
Trunking comes in _____ or _____ sections with removable covers. Trunking also comes in a variety of materials, however in this section we will only cover the regulations that apply to non-metallic systems.

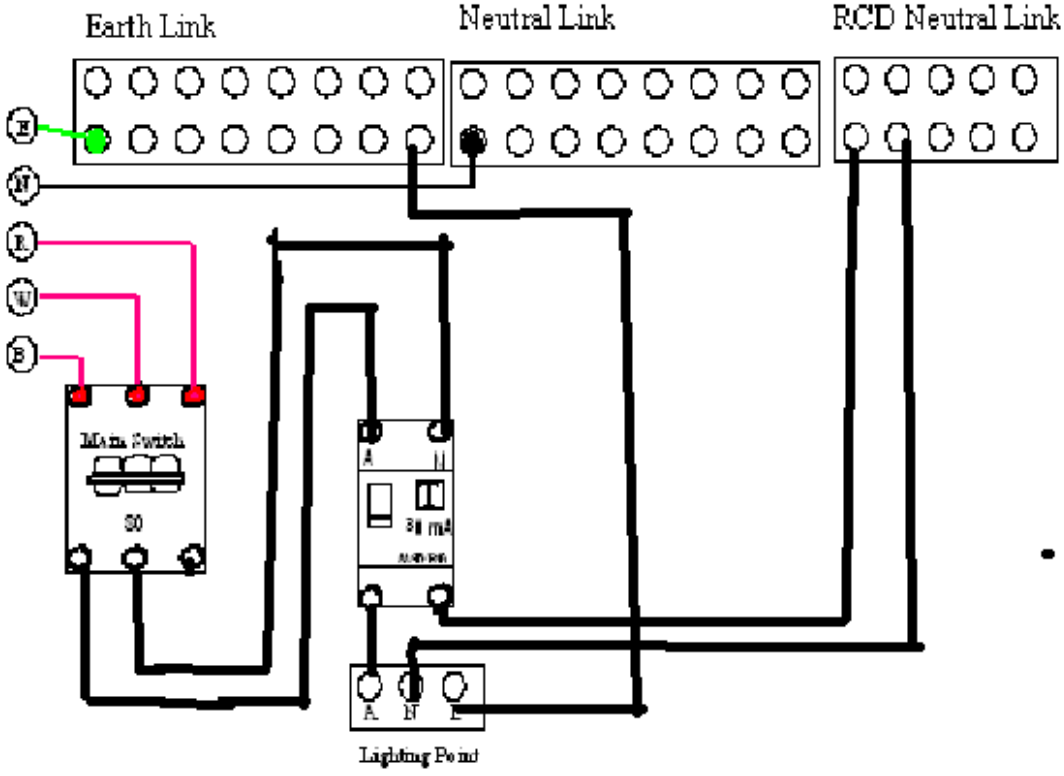
PVC trunking is available in sizes from 10 mm x 6 mm to l00 mm x 100 mm

Square or round

Question 13

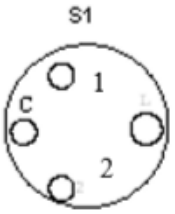
1. Complete the wiring diagram for the switchboard with RCD protection.

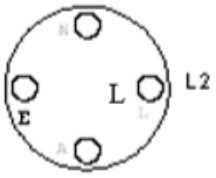


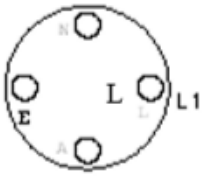


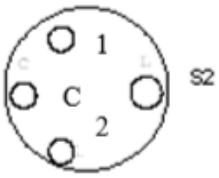
Question 14

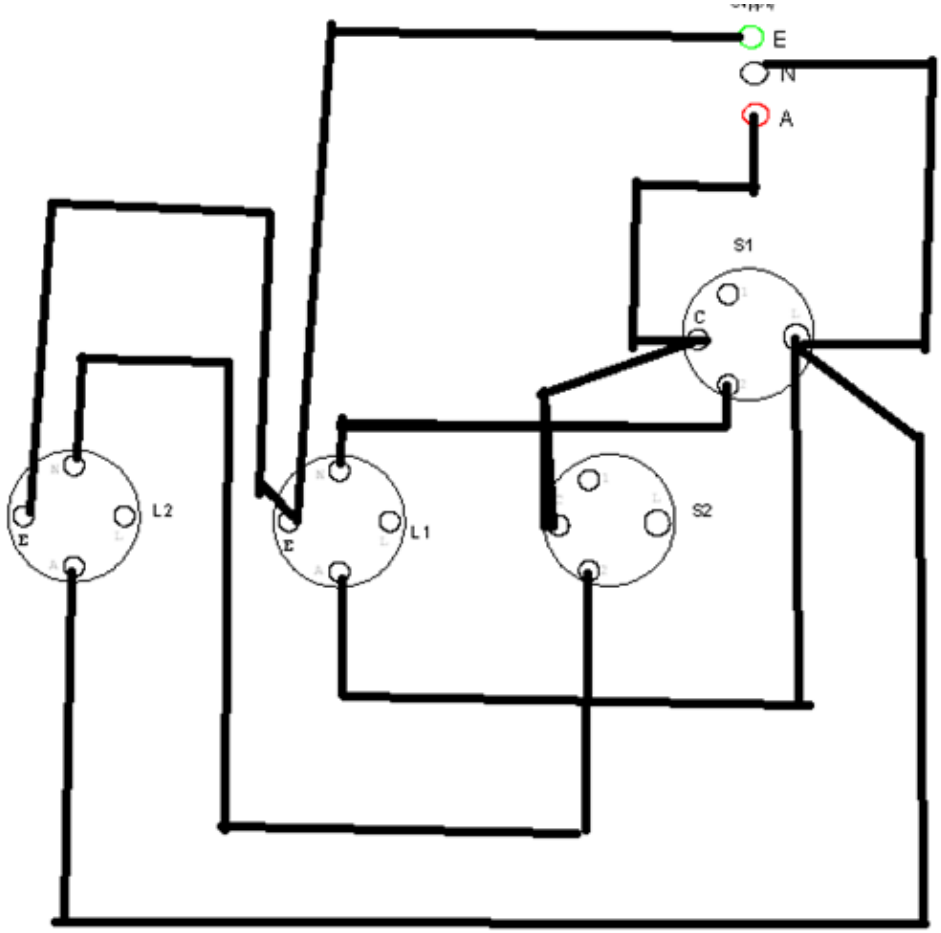
*Note: Using TPI in conduit, the neutral and earth conductors can be wired directly to the lights and don't need to go through the switches.











Question 15

5. To connect medium duty rigid PVC conduit to an accessory or appliance that has threaded conduit entries, you should:

a. cut a thread on the PVC conduit with a suitable stock and die

b. file away the thread until you can fit the conduit into the access hole and glue it in place

c. fit the conduit through the hole and seal the hole with silicon or similar sealing compound

d. attach a plain to screw adaptor to the conduit with a thread that is the same as the accessory

Question 16

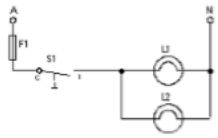
All fittings for conduit should be of the _____ type except in certain cases. The inspection cavity makes it easier to _____ in the cable. The fitting must maintain electrical _____ and hold the conduit without distorting

Coupling /Check / continuity

Question 17

3. LIGHTING CIRCUIT

1. Complete the wiring diagram for the light controlled by an individual switch



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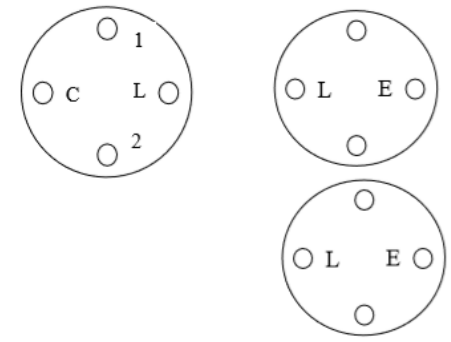
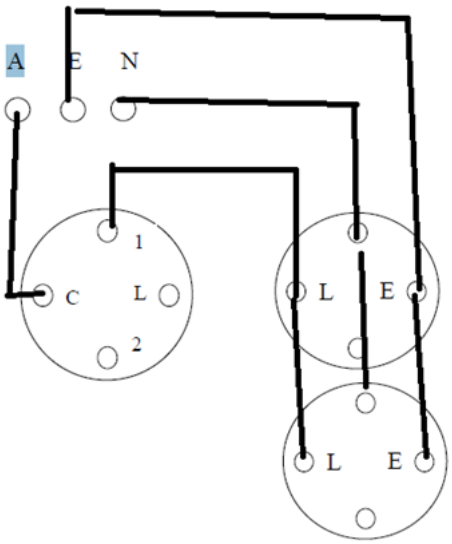
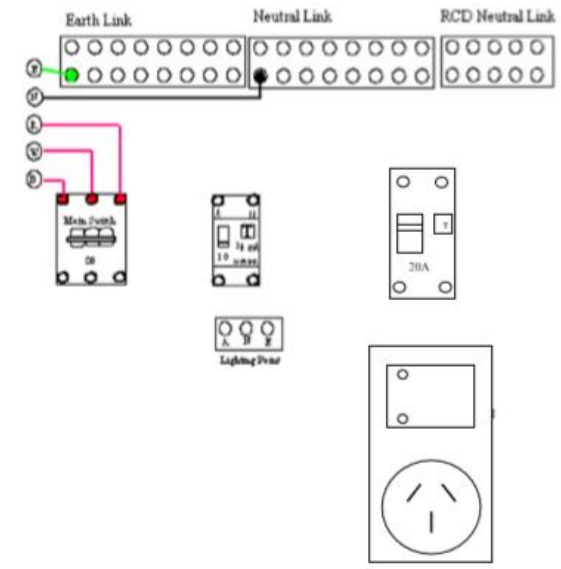
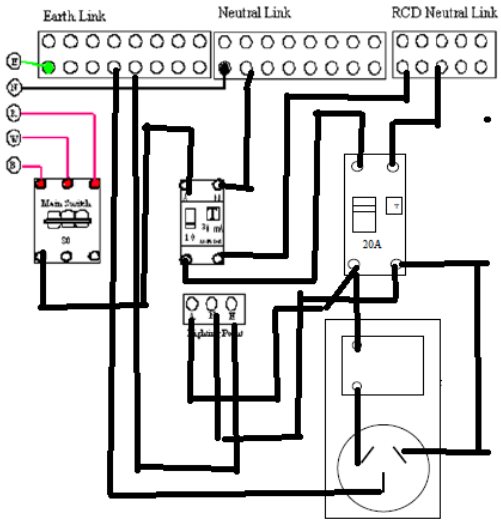




Question 18





Question 19

Spacings between fixings and supports for MIMS cables should be such to protect the cable from _____.

Sagging

Question 20

One feature of MIMS cables in operation is the relatively high surface temperature of the metallic sheath under some conditions. You should install the cable in such a way as to avoid _____to other sections of the electrical installation that may suffer damage at these higher temperatures.

touching