Sample Questions - C&G 2382-10 17th Edition

1 o/c1 Electrical installation design shall take into account

a electromagnetic disturbances
b direct lightning strikes
c current world copper prices
d local authority planning approval.

2 The Regulations are designed to protect:

a. Persons, property and livestock
b. Persons and livestock only
c. Persons and property only
d. Persons only

3 Oc1 **BS 7671 provides requirements for safety against the risk of**

a electric shock on an aircraft
b shock currents on board ships
c fire on offshore installations
d shock currents in electrical installations.Answer d

4 **Which one of the following types of electrical installation is <u>not</u> covered by BS 7671?**

a High protective conductor current installations
b Lightning protection of buildings
c Conducting locations with restricted movement
d Highway power supplies

5 o/c2 **The symbol used to show that a BS 88 device has a motor circuit application is**

a *gG*
b *gM*
c I_z
d I_2.

6 o/c 2 - *gM* is a category of BS 88 fuses used in:

a motor circuit applications.
b general circuit applications.
c heating circuit applications.
d mixed circuit applications.

7 **o/c2 The symbol for rated current of a protective device is**

a Ib
b I_n
c I_t

d I_a.

8 o/c3 - The requirements for overload current protection are met when:
a Ib = 15A, In = 20A, Iz = 18A.
b Ib = 20A, In = 15A, Iz = 20A.
c Ib = 8A, In = 15A, Iz = 16A.
d Ib = 2.5A, In = 10A, Iz = 9A.

9 o/c 3 With reference to the nature of the supply, which one of the following can be determined by calculation, enquiry or measurement?
a The maximum demand of the installation
b The rating of the circuit protective device
c The prospective short-circuit current at the origin of the installation
d The csa of the tails

10 **o/c3 Diversity may be taken into account when considering**
a maximum demand of the installation
b a TN-C-S system
c the prospective short-circuit fault current
d the number of final circuits.

11 **oc3 Every installation must be divided into circuits as necessary in order to**
a reduce the cost of installation
b make installation easier
c install a cooker
d facilitate safe inspection, testing and maintenance.

12 **oc3 When making an assessment of the frequency and quality of maintenance, a factor to be considered is that**
a power factor is monitored
b protective measures for safety remain effective
c starting currents are at a minimum
d unbalanced loads need to be checked more frequently.

13 3 o/c4 **Which of the following need <u>not</u> be tested under fire conditions to ensure compliance with non-flame propagating requirements?**
a Cables
b Protective devices
c Conduit systems
d Trunking systems

14 7 o/c4 - Protection against overvoltages of atmospheric origin is set out in Section:
a 422.

b 443.
c 445.
d 514.

15 o/c 4 – table 41.1 What will be the operating time for a 60A BS 3036 protective device when the value of fault current is 205A:
a 0.2 seconds.
b 0.4 seconds.
c 0.8 seconds.
d 5.0 seconds.

16 o/c 4 - The current rating of a BS 3036 fuse should not exceed that of the lowest rated conductor in the circuit multiplied by:
a 2.0.
b 1.5.
c 1.45.
d 0.725.

17 o/c4 - Prevention of a shock by touching a metallic part not normally live but made live under fault conditions is called:
a fault protection.
b basic protection.
c indirect contact.
d direct contact.

18 o/c 4 In a 230V TN system, for final circuits exceeding 32A the disconnection time is limited to:
a 0.2s.
b 0.4s.
c 1.0s.
d 5.0s.

19 o/c 4- Correct co-ordination between circuit conductors and an overcurrent protection device is achieved when:
a In exceeds the lowest current carrying capacity Iz.
b In is less than the design current Ib.
c Ib is less than Iz.
d Iz is lower than or equal to Ib.

20 o/c4 - A 230V 13A socket radial circuit is protected by a Type B 20A mcb to BS EN 60898. The maximum value of earth fault loop impedance to ensure compliance with shock constraints is:
a 2.30 Ω.
b 2.87 Ω.

c 1.15 Ω.
d 2.40 Ω.

21 o/c4 - To meet the requirements of BS 7671, all overcurrent protective devices, without back-up protection on the supply side, must be capable of:
a operating at their rated current.
b operating at a current lower that their rated current.
c withstanding the prospective short-circuit current at that point in the installation.
d not operating during a short-circuit fault.

22 o/c 4 Which is a method of fault protection
1 out of reach
2 Reinforced insulation
3 Obstacles
4 Insulation of live parts

23 o/c4 **The maximum disconnection time for a circuit supplied by a reduced low voltage system using a 110 V midpoint earthed transformer is**
a 0.2 second
b 0.4 second
c 1 second
d 5 seconds.

24 Oc4 **An undervoltage device has operated and restoring the supply may cause danger. The reclosure of this device should be**
a automatic when under the supervision of a competent person
b manually operated
c possible only with the use of a key or tool
d automatic with time delay.

25 o/c4 **A 32 A type B circuit-breaker is used to give a disconnection time of 5 seconds in a reduced low voltage system with *a* nominal voltage to Earth (U_o) of 55 V. What is the maximum value of earth fault loop impedance (Z_s)?**
a 0.44 Ω
b 0.34 Ω
c 0.17 Ω
d 0.09 Ω

26 o/c4 **Where arcs, sparks or particles at high temperature may be emitted by fixed equipment in normal service, the equipment shall be**
a totally enclosed in arc-resistant material
b protected by a 30 mA RCD
c enclosed to at least IP55

d accessible only by use of a key or tool.

27 o/c 5 - Circuits feeding fixed equipment used in highway power supplies shall have a maximum disconnection time of:
a 0.2 seconds.
b 0.4 seconds.
c 2.0 seconds.
d 5.0 seconds.

28 o/c 5- When cables are placed directly in the ground they should be buried at a depth:
a sufficient to avoid damage.
b of not less than 0.6 m.
c of not less than 2.0 m.
d sufficient to allow access.

29 o/c 5 - A means of isolation may be installed remote from the equipment if:
a it is fitted with non-interchangeable keys.
b the isolator can be secured in the open position.
c it is in full view of people working on the equipment.
d it is hand operated and a visual display is activated near the equipment.

30 o/c 5 - What is the value for 'k' when calculating the csa of a protective conductor incorporated in a sheathed cable:
a 143.
b 133.
c 115.
d 103.

31 o/c5 **Circuits supplied by a generator set which is not permanently fixed Notes shall have additional protection by a**
a BS 88 device only
b 3OmA RCD
c lOOmA RCD
d 5OOmA RCD.

32 o/c5 **A wiring system is to be installed between a safety source and a main distribution board. The risks required to be reduced to a minimum do <u>not</u> include**
a short-circuit
b earth fault
c ageing
d fire.

33 o/c 5 Which of the following methods of protection against indirect contact is allowed in highway power supplies and equipment:
a non-conducting locations.
b earth-free equipotential bonding.
c EEBADs.
d placing out of reach.

34 o/c 5 - Which one of the following devices may be used for functional switching:
a a 13A socket outlet and plug.
b a 60A d.c. isolator.
c a 13 A fuse.
d a plug and socket outlet > 32A.

35 o/c 5 - Cable surrounded by thermal insulation for a length of 100mm shall have a derating factor of:
a 0.88.
b 0.78.
c 0.63.
d 0.51.

36 **o/c5 If the construction of equipment is unsuited to the external influences of its location, it should be**
a given a plastic coating
b given a zinc finish
c provided with additional protection during erection
d supplied by SELV only.

37 o/c5 **A plug and socket-outlet may be used for switching off for mechanical maintenance as long as it does not have aurating exceeding**
a 13A
b 16A
c 32A
d 45A.
537.3.2.6

38 o/c5 **A static type uninterruptible power supply source shall comply with**
a BS3036
b BS1361
C BS EN 60898
d BS EN 62040.

39 **oc 5 Unless otherwise confirmed as suitable, switchgear, protective devices and accessories shall not be connected to conductors intended to operate at a temperature in excess of**

a 30 °C
b 50 °C
c 70 °C
d 90 °C.

40 **oc5 When conductors are identified by numbers, the neutral shall be identified by the number**
a 0
b 4
c 5
d 14.

41 **o/c6 A simple method to allow for measured values of loop impedance to be effectively compared with tabulated maximum values is to correct these maximum values by multiplying them by**
a 0.75
b 0.8
c 1.2
d 1.8.

42 o/c 6 - Methods of inspection and testing are described in Guidance Note:
a 1.
b 2.
c 3.
d 4.

43 o/c6 - Put the following the following four tests in the order in which they should be carried out: 1- insulation resistance 2 - prospective fault current 3 - polarity 4 - continuity of protective conductors:
a 4,1,3,2.
b 2,1,4,3.
c 3,4,2,1.
d 2,1,3,4.

44 **o/c6 Prospective fault current is recorded using the highest value determined from the prospective**
a short circuits and earth leakage currents
b short circuit and earth fault currents
c earth leakage and breaking capacity currents
d breaking capacity and earth fault currents.

45 **oc 6 When carrying out a visual inspection of an electrical installation,which one of the following does <u>not</u> have to be verified?**
a The methods of protection against electric shock

b The electricity supplier
c The connection of conductors
d The presence of undervoltage protective devices

46 **oc6 An insulation resistance test is to be carried out on a 3-phase 400 V circuit. The test voltage and minimum acceptable reading would be**
a 250Va.candO.5MQ
b 500Vd.c.and0.5MQ
c 500Vd.c.and1 MQ
d 800Vd.candO.5Q.

47 o/c7 - Which one of the following protective measures is not applicable to equipment in Zone 2 of a swimming pool:
a individual protection by electrical separation.
b protection by obstacles.
c SELV.
d protection by an RCD in accordance with Regulation 415.1.1.

48 o/c7 **Within a conducting location with restricted movement, supplies to 110 V mobile equipment must provide protection against electric shock by the use of**
a electrical separation
b Class II protection
c obstacles
d PELV.

49 o/c7 The minimum cross sectional area for a cable carrying up to 25A in a caravan shall be:
a 2.5mm2.
b 4mm2.
c 6mm2.
d 10mm2.

50 o/c 7 - In marinas, equipment installed above a jetty and where it might be subject to water splashes shall have a degree of ingress protection to at least:
a IPX4.
b IPX5.
c IPX6.
d IPX7.

51 o/c 7 - If cleaning by use of water jets in a room containing a sauna heater electrical equipment shall have a degree of protection against ingress of at least:
a IP5X.
b IP X5.
c IP4X.

d IPX4.

52 o/c 7 - In agricultural premises an RCD may be used for protection against fire. The current rating should not exceed:
a 30 mA.
b 100 mA.
c 300 mA.
d 500 mA.

53 o/c 7 Overhead conductors in marinas where there is no vehicle movement must be at a height no less than:
a 2.0m.
b 2.5m.
c 3.0m.
d 3.5m.

54 **o/c 7 Any cable intended to supply temporary exhibition structures shall have, at its origin, an RCD having a maximum rated residual operating current of**
a 30mA
b 100mA
c 300mA
d 500mA.

55 **oc7 The requirements of Section 704 of BS 7671 apply to**
a cloakrooms
b offices
c construction and demolition site installations
d toilets.
704.1.1

56 **oc 7 For an electric floor heating system in a bathroom, a fine mesh metallic grid is <u>not</u> required to be connected to the protective conductor of the supply circuit if the protective measure used is**
a SELV
b electrical separation -
c a non-conducting location
d an earth-free equipotential zone.

58 o/c8 **The maximum value of voltage drop for lighting in a low voltage installation supplied from a public distribution system is**
a 3%
b 4%
c 5%
d 6%.

59 **oc8 The ambient air temperature rating factor for 90 °C thermosetting cables operating in an ambient air temperature of 60 °C is**
a 0.50
b 0.56
c 0.63
d 0.71.

60A final circuit is the wiring between
A. supply company's fuse and the energy meter
B. main switch and the distribution board
C. distribution board and current using equipment
D. supply company's fuse and the remotest outlet point

Answers below

Sample Questions - C&G 2382-10 17th Edition

1 o/c1 Electrical installation design shall take into account

a electromagnetic disturbances
b direct lightning strikes
c current world copper prices
d local authority planning approval.

Answer a See Part 1: Scope, Regulation 131.6.4.

2 The Regulations are designed to protect:

a. Persons, property and livestock
b. Persons and livestock only
c. Persons and property only
d. Persons only

3 Oc1 **BS 7671 provides requirements for safety against the risk of**

a electric shock on an aircraft
b shock currents on board ships
c fire on offshore installations
d shock currents in electrical installations.Answer d

Regulation 110.2, Exclusions from scope, advises that options a, b and c are outside the scope.
Regulation 131.1

4 **Which one of the following types of electrical installation is <u>not</u> covered by BS 7671?**

a High protective conductor current installations
b Lightning protection of buildings
c Conducting locations with restricted movement
d Highway power supplies

110.2

5 o/c2 **The symbol used to show that a BS 88 device has a motor circuit application is**

a *gG*
b *gM*
c I_z
d I_2.

Answer b See Part 2: Definitions, Symbols.

6 o/c 2 - gM is a category of BS 88 fuses used in:

a motor circuit applications.
b general circuit applications.
c heating circuit applications.

d mixed circuit applications.

7 **o/c2 The symbol for rated current of a protective device is**

a Ib

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c I_t

d I_a.

Answer b

See Part 2: Definitions, Symbols.

8 o/c3 - The requirements for overload current protection are met when:

a Ib = 15A, In = 20A, Iz = 18A.

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c Ib = 8A, In = 15A, Iz = 16A.

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9 o/c 3 With reference to the nature of the supply, which one of the following can be determined by calculation, enquiry or measurement?

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311.1

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b make installation easier

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314.1

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c starting currents are at a minimum

d unbalanced loads need to be checked more frequently.

13 3 o/c4 **Which of the following need <u>not</u> be tested under fire conditions to ensure compliance with non-flame propagating requirements?**

a Cables
b Protective devices
c Conduit systems
d Trunking systems

Answer b See Part 4: Protection for safety, Regulation 422.2.1.

14 7 o/c4 - Protection against overvoltages of atmospheric origin is set out in Section:

a 422.
b 443.
c 445.
d 514.

15 o/c 4 – table 41.1 What will be the operating time for a 60A BS 3036 protective device when the value of fault current is 205A:

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d 5.0 seconds.

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d direct contact.

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b operating at a current lower that their rated current.
c withstanding the prospective short-circuit current at that point in the installation.
d not operating during a short-circuit fault.

22 o/c 4 Which is a method of fault protection
1 out of reach
2 Reinforced insulation
3 Obstacles
4 Insulation of live parts

23 o/c4 **The maximum disconnection time for a circuit supplied by a reduced low voltage system using a 110 V midpoint earthed transformer is**
a 0.2 second
b 0.4 second
c 1 second
d 5 seconds.
Answer d See Part 4: Protection for safety, Regulation 411.8.3.

24 Oc4 **An undervoltage device has operated and restoring the supply may cause danger. The reclosure of this device should be**
a automatic when under the supervision of a competent person
b manually operated
c possible only with the use of a key or tool
d automatic with time delay.
Answer b See Part 4: Protection for safety, Regulation 445.1.5.

25 o/c4 **A 32 A type B circuit-breaker is used to give a disconnection time of 5 seconds in a reduced low voltage system with *a* nominal voltage to Earth (U_o) of 55 V. What is the maximum value of earth fault loop impedance (Z_s)?**

a 0.44 Ω
b 0.34 Ω
c 0.17 Ω
d 0.09 Ω

reg411.8 table 41.6

26 o/c4 **Where arcs, sparks or particles at high temperature may be emitted by fixed equipment in normal service, the equipment shall be**

a totally enclosed in arc-resistant material
b protected by a 30 mA RCD
c enclosed to at least IP55
d accessible only by use of a key or tool.

421.3

27 o/c 5 - Circuits feeding fixed equipment used in highway power supplies shall have a maximum disconnection time of:

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b 0.4 seconds.
c 2.0 seconds.
d 5.0 seconds.

28 o/c 5- When cables are placed directly in the ground they should be buried at a depth:

a sufficient to avoid damage.
b of not less than 0.6 m.
c of not less than 2.0 m.
d sufficient to allow access.

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a it is fitted with non-interchangeable keys.
b the isolator can be secured in the open position.
c it is in full view of people working on the equipment.
d it is hand operated and a visual display is activated near the equipment.

30 o/c 5 - What is the value for 'k' when calculating the csa of a protective conductor incorporated in a sheathed cable:

a 143.
b 133.
c 115.
d 103.

31 o/c5 **Circuits supplied by a generator set which is not permanently fixed Notes shall have additional protection by a**

a BS 88 device only
b 3OmA RCD
c lOOmA RCD
d 5OOmA RCD.

Answer b See Part5: Selection and erection of equipment, Regulation 551.4.4.2.

32 o/c5 **A wiring system is to be installed between a safety source and a main distribution board. The risks required to be reduced to a minimum do <u>not</u> include**

a short-circuit
b earth fault
c ageing
d fire.

Answer c See Part5: Selection and erection of equipment, Regulation 560.8.3.

33 o/c 5 Which of the following methods of protection against indirect contact is allowed in highway power supplies and equipment:

a non-conducting locations.
b earth-free equipotential bonding.
c EEBADs.
d placing out of reach.

34 o/c 5 - Which one of the following devices may be used for functional switching:

a a 13A socket outlet and plug.
b a 60A d.c. isolator.
c a 13 A fuse.
d a plug and socket outlet > 32A.

35 o/c 5 - Cable surrounded by thermal insulation for a length of 100mm shall have a derating factor of:

a 0.88.
b 0.78.
c 0.63.
d 0.51.

36 **o/c5 If the construction of equipment is unsuited to the external influences of its location, it should be**

a given a plastic coating
b given a zinc finish
c provided with additional protection during erection
d supplied by SELV only.

512.

37 o/c5 **A plug and socket-outlet may be used for switching off for mechanical maintenance as long as it does not have aurating exceeding**

a 13A

b 16A

c 32A

d 45A.

537.3.2.6

38 o/c5 **A static type uninterruptible power supply source shall comply with**

a BS3036

b BS1361

C BS EN 60898

d BS EN 62040.

560.6.11

39 **oc 5 Unless otherwise confirmed as suitable, switchgear, protective devices and accessories shall not be connected to conductors intended to operate at a temperature in excess of**

a 30 °C

b 50 °C

c 70 °C

d 90 °C.

512.1.2

40 **oc5 When conductors are identified by numbers, the neutral shall be identified by the number**

a 0

b 4

c 5

d 14.

514.5.4

41 **o/c6 A simple method to allow for measured values of loop impedance to be effectively compared with tabulated maximum values is to correct these maximum values by multiplying them by**

a 0.75

b 0.8

c 1.2

d 1.8.

Answer b See Part 6: Inspection and testing, Regulation 612.9, and Appendix 14.

42 o/c 6 - Methods of inspection and testing are described in Guidance Note:

a 1.
b 2.
c 3.
d 4.

43 o/c6 - Put the following the following four tests in the order in which they should be carried out: 1- insulation resistance 2 - prospective fault current 3 - polarity 4 - continuity of protective conductors:
a 4,1,3,2.
b 2,1,4,3.
c 3,4,2,1.
d 2,1,3,4.

44 **o/c6 Prospective fault current is recorded using the highest value determined from the prospective**
a short circuits and earth leakage currents
b short circuit and earth fault currents
c earth leakage and breaking capacity currents
d breaking capacity and earth fault currents.
Answer b
See Part 6: Inspection and testing, Regulation 612.11.

45 **oc 6 When carrying out a visual inspection of an electrical installation,which one of the following does not have to be verified?**
a The methods of protection against electric shock
b The electricity supplier
c The connection of conductors
d The presence of undervoltage protective devices

46 **oc6 An insulation resistance test is to be carried out on a 3-phase 400 V circuit. The test voltage and minimum acceptable reading would be**
a 250Va.candO.5MQ
b 500Vd.c.and0.5MQ
c 500Vd.c.and1 MQ
d 800Vd.candO.5Q.
612.3.2 table 61

47 o/c7 - Which one of the following protective measures is not applicable to equipment in Zone 2 of a swimming pool:
a individual protection by electrical separation.
b protection by obstacles.
c SELV.
d protection by an RCD in accordance with Regulation 415.1.1.

48 o/c7 **Within a conducting location with restricted movement, supplies to 110 V mobile equipment must provide protection against electric shock by the use of**

a electrical separation
b Class II protection
c obstacles
d PELV.

Answer a See Part 7: Special installations or locations, Regulation 706.410.3.10.

49 o/c7 The minimum cross sectional area for a cable carrying up to 25A in a caravan shall be:

a 2.5mm2.
b 4mm2.
c 6mm2.
d 10mm2.

50 o/c 7 - In marinas, equipment installed above a jetty and where it might be subject to water splashes shall have a degree of ingress protection to at least:

a IPX4.
b IPX5.
c IPX6.
d IPX7.

51 o/c 7 - If cleaning by use of water jets in a room containing a sauna heater electrical equipment shall have a degree of protection against ingress of at least:

a IP5X.
b IP X5.
c IP4X.
d IPX4.

52 o/c 7 - In agricultural premises an RCD may be used for protection against fire. The current rating should not exceed:

a 30 mA.
b 100 mA.
c 300 mA.
d 500 mA.

53 o/c 7 Overhead conductors in marinas where there is no vehicle movement must be at a height no less than:

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b 2.5m.
c 3.0m.
d 3.5m.

54 **o/c 7 Any cable intended to supply temporary exhibition structures shall have, at its origin, an RCD having a maximum rated residual operating current of**

a 30mA
b 100mA
c 300mA
d 500mA.

Answer c
See Part 7: Special installations or locations, Regulation 711.410.3.4.

55 **oc7 The requirements of Section 704 of BS 7671 apply to**

a cloakrooms
b offices
c construction and demolition site installations
d toilets.

704.1.1

56 **oc 7 For an electric floor heating system in a bathroom, a fine mesh metallic grid is not required to be connected to the protective conductor of the supply circuit if the protective measure used is**

a SELV
b electrical separation -
c a non-conducting location
d an earth-free equipotential zone.

701.753

58 o/c8 **The maximum value of voltage drop for lighting in a low voltage installation supplied from a public distribution system is**

a 3%
b 4%
c 5%
d 6%.

Answer a See Appendices: Appendix 12, Table 12A.

59 **oc8 The ambient air temperature rating factor for 90 °C thermosetting cables operating in an ambient air temperature of 60 °C is**

a 0.50
b 0.56
c 0.63
d 0.71.

Table 4B1 app4

60A final circuit is the wiring between

E. supply company's fuse and the energy meter
F. main switch and the distribution board

G. distribution board and current using equipment

H. supply company's fuse and the remotest outlet point

App15