

2382

17th Edition Wiring Regulations

BS7671:2008

Sample Paper #2

(with answers)

1. BS7671 applies to

- a) Systems for distribution of electricity to the public
- b) Railway traction equipment
- c) Equipment on board ships
- d) Construction sites

2. The scope of BS7671 does not apply to

- a) Residential premises
- b) Fixed offshore installations
- c) Commercial premises
- d) Photovoltaic systems

3. For installations in places of public entertainment and on caravan parks, special requirements should be ascertained from the

- a) Department for trade and Industry
- b) Health and safety Executive
- c) Local licensing authority
- d) Energy Institute

4. It should be verified that any addition to an existing installation has

- a) A supply separate from that of the existing installation
- b) A similar wiring system to that used in the existing installation
- c) Been treated as being entirely separate from the existing installation
- d) Not impaired the safety of the existing installation

5. An extraneous-conductive-part may be defined as

- a) Conductive part of equipment which may be touched and which is not normally live, but which can become live when basic insulation fails
- b) Conductive part liable to introduce a potential and not forming part of the electrical installation
- c) Equipment designed to be fastened to a support or otherwise secured in a specific location
- d) A room or location in which air is heated, in service, to high temperatures

6. Protection against electric shock under single fault conditions is

- a) Basic protection
- b) Fault protection
- c) Additional protection
- d) Supplementary protection

7. The symbol used to denote design current is

- a) I_b
- b) I_n
- c) I_t
- d) I_2

8. A nominal voltage of 120V ac would be categorised as

- a) Band I
- b) Low voltage
- c) Extra-low voltage
- d) High voltage

9. In order to mitigate the effects of electromagnetic interferences (EMI) an installation should

- a) Be wired in pvc cable in conduit or trunking
- b) Have all magnetically controlled circuits connected to the same protective device
- c) Be divided into circuits
- d) Have a notice stating 'EMI' present

10. An electrical installation has the following single-phase circuits installed, using multi-core thermoplastic non-armoured cables.

2 x 6A lighting

2 x 32A ring final

1 x 16A water heater

1 x 32A cooker

If the circuits are contained within pvc trunking prior to entering the consumer control unit (CCU), how many live conductors would be present in the trunking?

- a) 6
- b) 8
- c) 16
- d) 24

11. How many types of earthing system are recognised by BS7671?

- a) 3
- b) 4
- c) 5
- d) 6

12. Protective device discrimination must be considered with regard to

- a) External influences
- b) Continuity of service
- c) Maintainability
- d) Compatibility

13. The top of an enclosure should have a minimum degree of protection of

- a) IPXXD or IP4X
- b) IPXXB or IP2X
- c) IP1X
- d) IP3X

14. A 6A BSEN60898 circuit breaker is used to protect a circuit with a maximum earth fault loop impedance (Z_s) of $3.83\bar{U}$ would be type

- a) A
- b) B
- c) C
- d) D

15. Which of the following will provide overload protection?

- a) Linked switch
- b) Residual current device
- c) Disconnecter
- d) Circuit breaker

16. Where there is a danger of fire due to the nature of the stored material, a 100W spotlight shall be installed at a minimum distance from combustible materials of

- a) 0.5m
- b) 0.8m
- c) 1m
- d) 2m

17. Suitable precautions should be taken where either a reduction in voltage or a loss and subsequent restoration of voltage

- a) Is a routine event
- b) Could cause danger
- c) Occurs infrequently
- d) Will not cause danger

18. In the event of failure of the provision for basic protection, additional protection may be provided by

- a) Supplementary bonding
- b) The use of a time delayed 100mA RCD
- c) Use of a RCD not exceeding $I_{\Delta n}$ of 30mA
- d) Electrical separation

19. The maximum permitted value of earth electrode and earthing conductor (R_A) for a circuit protected by a 300mA RCD and forming part of a 230V ac TT system is

- a) 500 ohm
- b) 100 ohm
- c) 167 ohm
- d) 1667 ohm

20. Which one of the following would be used to determine the size of an overcurrent device?

- a) Cable size
- b) Grouping factor
- c) Design current
- d) Overload current

21. Fault protection may be provided by

- a) Barriers and enclosures to IPXXB or IP2X
- b) Insulation of live parts
- c) Protective earthing and protective equipotential bonding
- d) Placing out of reach

22. Where an RCD is used in an installation, the product of $I_{\Delta n}$ and the earth fault loop impedance in a TT installation should not be greater than

- a) 2V
- b) 10V
- c) 40V
- d) 50V

23. Where arcs, sparks or particles at high temperature may be emitted by fixed equipment in normal service, the equipment shall meet which one of the following:

- a) Be totally enclosed in arc resistant material
- b) Be mounted close to a fire extinguisher
- c) Be protected by an IMD
- d) Be provided with a warning notice 'Danger of Fire!'

24. An overload current could arise

- a) During an earth fault
- b) During a short-circuit fault
- c) When a motor becomes jammed
- d) When a shower is switched on

25. To provide protection against electric shock, the protective measure of double reinforced insulation relies on basic insulation and

- a) Bonding
- b) Connection of exposed metalwork to the protective conductor
- c) Earthing in the fixed wiring of the installation
- d) Supplementary insulation

26. The earth fault loop impedance (Z_s) for a consumer's circuit is determined by

- a) $R_1 + R_2 - Z_e$
- b) $R_1 + R_2 + Z_e$
- c) $R_1 + R_2 + R_n$
- d) $R_1 + R_2 \div Z_e$

27. A copper earthing conductor not mechanically protected and not protected against corrosion is buried in soil. The minimum size of earthing conductor is

- a) 4mm²
- b) 16mm²
- c) 25mm²
- d) 50mm²

28. When selecting a cable for a single circuit installation, rating factors are to be used and applied to the

- a) Total current taken by the installation
- b) Current-carrying capacity of the cable
- c) Design current of the circuit
- d) Rated current of the protective device

29. A suitable supply for safety services is a

- a) Primary cell or cells
- b) Standard mains supply
- c) Non earthed transformer
- d) Mains operated generator

30. Non-sheathed cables for fixed wiring installations should be

- a) Thermosetting
- b) Thermoplastic
- c) Enclosed in conduit or trunking
- d) A minimum of 4mm² cross-sectional area

31. A permanent label with the words 'Safety Electrical Connection – Do Not Remove' shall be permanently fixed

- a) At the point of connection between the earthing conductor to an earth electrode
- b) At the main earthing terminal which is incorporated within the main switchgear
- c) At the point of connection between the earthing and PEN conductor of a TN-C-S system
- d) At the point of connection of to an exposed-conductive-part

32. A conduit or cable trunking system classified as non-flame propagating need not be internally sealed providing its maximum cross-sectional area does not exceed

- a) 625mm²
- b) 710mm²
- c) 1250mm²
- d) 2500mm²

33. Where practical, the main protective equipotential bonding to the gas service in a building should be made within

- a) 3m of the meter on the supply side
- b) 3m of the meter on the consumer side
- c) 600mm of the meter on the supply side
- d) 600mm of the meter on the consumer side

34. Every fire-fighter switch should be

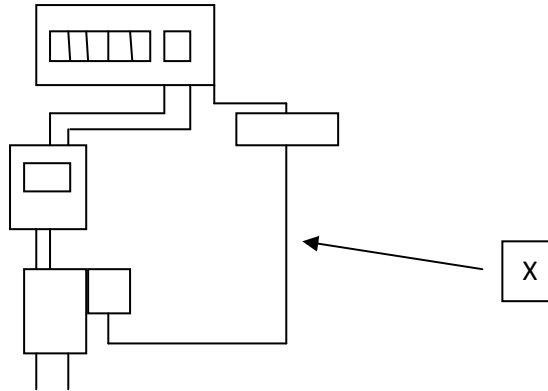
- a) Coloured red with the off position at the top
- b) Coloured red with the off position at the bottom
- c) Installed in the high-voltage circuit
- d) Mounted at a minimum height of 3m

35. An RCD that is installed for protection against the risk of fire must be

- a) Integral to and socket-outlet
- b) Installed at the origin of the circuit
- c) Rated at 500mA
- d) Arranged to switch line conductors only

36. The diagram below illustrates which type of earthing system?

- a) TN-C-S
- b) TN-C
- c) TT
- d) TN-S



37. Referring to the diagram above the conductor marked 'X' is a

- a) Circuit protective conductor
- b) Earthing conductor
- c) Main protective bonding conductor
- d) Supplementary bonding conductor

38. Socket-outlets with a rated current not exceeding 20A and intended to be used by ordinary persons should be

- a) Protected by an RCD with an operating current not exceeding 30mA
- b) Protected by an RCD with an operating current not exceeding 100mA
- c) Protected by an RCD with an operating current not exceeding 300mA
- d) Protected by an RCD with an operating current not exceeding 500mA

39. A single-phase circuit using 2.5mm² single-core pvc cables in conduit supplies a design current of 20A. If the cables are 15m long and have a rated voltage drop of 18mV/A/m, the actual voltage drop will be

- a) 2.5V
- b) 5.4V
- c) 6V
- d) 16.6V

40. For reason of external influences, any outdoor lighting installation must have a degree of protection of at least

- a) IP22
- b) IP24
- c) IP33
- d) IP44

41. Which of the following is not allowed for use as a circuit protective conductor?

- a) Galvanised metallic conduit
- b) Lead sheath of cable
- c) Steel wire armouring of cable
- d) Metallic flexible conduit

42. Before issuing an Electrical Installation Certificate for a new installation, a recommendation must be made with regard to the inspection and test period. This recommendation is made by the person responsible for

- a) Providing the supply on behalf of the Electricity Supplier
- b) The construction and erection of the installation
- c) Carrying out the initial inspection and testing
- d) The design of the electrical installation

43. One item that should be included on charts and diagrams made available to the person carrying out the inspection and test is

- a) All isolation and switching arrangements
- b) The location details of portable equipment
- c) The total number of outlets in the installation
- d) The details of the original contract arrangements

44. Which of the following items must be included for checking during the initial verification of an installation?

- a) Site works orders and alterations
- b) Presence of diagrams and instructions
- c) Minutes of all site meetings
- d) All variations of contract

45. During the testing phase of an electrical installation which test would be carried out first?

- a) Continuity of protective conductors
- b) Insulation resistance
- c) Polarity
- d) Earth fault loop impedance

46. The minimum insulation resistance value for a 400V circuit is

- a) 1k ohm
- b) 0.25Mohm
- c) 0.5Mohm
- d) 1Mohm

47. Once complete a Periodic Inspection Report should be given to

- a) The originator of the request
- b) The supply distributor
- c) The contractor
- d) The occupier of the property

48. Which of the following is not permitted to be installed in zone 1 of a bathroom?

- a) Shower
- b) Towel rail
- c) Shaver socket
- d) Whirlpool unit

49. A ceiling heating system should incorporate means of limiting the temperature to

- a) 50°C
- b) 60°C
- c) 70°C
- d) 80°C

50. With reference to BS7671 the height to which zone 1 of a large swimming pool extends above a diving board is

- a) 1m
- b) 1.5m
- c) 2m
- d) 2.5m

51. Regional Electricity Companies are reluctant to provide which of the following to construction sites?

- a) PME supply
- b) TT earthing system
- c) Single-phase supply
- d) Three-phase supply

52. Fire protection in a cattle shed may be achieved by use of a

- a) 30mA RCD
- b) 6A type B MCB
- c) 300mA RCD
- d) 6A type C MCB

53. Protection by obstacles in a bathroom is

- a) Allowed in all zones
- b) Allowed in zones 1 and 2
- c) Allowed in zone 2 only
- d) Not allowed

54. Which is the preferred method of protection on the dc side of a photovoltaic power supply?

- a) Class II or equivalent insulation
- b) Placing out of reach
- c) Non-conducting location
- d) Earth-free local equipotential bonding

55. The maximum interval between periodic inspection of a touring caravan is

- a) 5 years
- b) 3 years
- c) 1 year
- d) 3 months

56. A 40A BS88-2 (Fuse system E & G) fuse subjected to a fault current of 290A should operate in

- a) 0.2s
- b) 0.4s
- c) 1s
- d) 5s

57. BS7671 gives the classification of external influences. Which one of the following is described as being in the general category of external influences?

- a) Utilisation
- b) Installation
- c) Propagation
- d) Ionisation

58. The tables listing current-carrying capacities of various cables in appendix 4 of BS7671 are based on an ambient temperature of

- a) 30°C
- b) 50°C
- c) 70°C
- d) 90°C

59. A 230V circuit is protected by a 20A type B BSEN60898 circuit breaker. If the value of earth fault loop impedance (Z_s) for the circuit is $2.3\bar{U}$, disconnection under a fault of negligible impedance will occur in

- a) 0.1s
- b) 15s
- c) 20s
- d) 30s

60. The external influence having a classification of AD7 indicates

- a) Humidity
- b) Immersion in water
- c) Dust in the atmosphere
- d) High levels of vibration

Answers

2382-10 - Revision Paper #1

1. D – 110.1 p.14
2. B – 110.2 p.15
3. C – 115.1 p.15
4. D 132.16 p.20
5. B – Part 2 Definitions p.28
6. B. – Part 2 p.28
7. A. – Part 2 definitions p.38
8. B. – Part 2 Definitions p.36
9. C – 314.1 p.46
10. C
11. B – 312.2 p.43/44
12. B. – 361.1 p.48
13. A – 416.2.2 p.67
14. C – Tab 41.3 p.56
15. D – 433.1.100 p.81
16. A – 422.3.1 p.74
17. B – 445.1.1 p.109
- 18 C – 415.1.1 p.66
19. C – Tab 41.5 p.57
20. C – 433.1.1 p.81
21. C – 411.1 p.52
22. D – 411.5.3 p.57
23. A – 421.1.3 p.72
24. C – Part 2 Definitions p.32
25. D – 412.1.1 p.61
26. B
27. C – Tab 54.1 p.159
28. D – Appx 4 5.1.1 p.308
29. A – 351.1 p.48
30. C – 521.10.1 p.122
31. A – 514.13.1 p.118
32. B – 527.2.3 p.132
33. D – 544.1.2 p.167
34. A – 537.6.4 p.155
35. B – p.139
36. A – Part 3 Earthing Systems
37. B – fig 2.1 p.37
38. A 411.3.3 p.54
39. B – volt drop calc
40. C – 559.10.5.2 p.180
41. D- 543.2.1p.163
42. D – 134.2.2 p.22
43. A – 514.9.1 p.117
44. B – 611.3 (xvi) p.190
45. A – 612.2.1 p.191
46. D – Tab 61 p.191
47. A – 634.1 p.196
48. C – 701.55 p.200
49. D – 753.424.3.1 p.273
50. D – Fig 702.1 p.175
51. A – 704.411 p.215
52. C – 705.422.7 p.217
53. D – 702.410.3.5 p.204
54. A – 712.412 p.242
55. B – Fig 721 p.255
56. B – Appx 3 p.300
57. A – appx 5 p.376
58. A – p.332-375
59. A – Appx 3 p.301
60. B – Appx 5 p.381