



THE INSTITUTION OF FIRE ENGINEERS
Founded 1918 • Incorporated 1924

IFE Level 2 Certificate in Fire Science, Operations and Safety (R/505/5748)

SAMPLE QUESTIONS AND INFORMATION FOR CANDIDATES

Introduction

This document has been provided to aid candidates in their preparation for the IFE Level 2 Certificate in Fire Science, Operations and Safety examination. The document is in two parts:

Part 1: A selection of sample questions mapped to the syllabus.

Part 2: A copy of the front cover of the examination paper and the answer sheet, enabling candidates to familiarise themselves with the instructions for responding to the examination paper.

Part One - Sample Questions

General information

The syllabus for the IFE Level 2 Certificate in Fire Science, Operations and Safety is divided into three sections:

- Fire Engineering Science
- Fire Service Operations
- Fire Safety

The examination takes the form of one written three-hour examination. It contains 120 multiple choice questions and is divided into three sections, reflecting the three sub-sections of the syllabus. The Fire Engineering Science and Fire Service Operations sections of the paper each contain 45 questions and the Fire Safety section contains 30 questions.

Section 1 - Fire Engineering Science

Calculate the capacity in litres of a circular tank 15 metres in diameter and 3 metres in depth.

- a) 353,430 litres
- b) 530,145 litres (Ans)
- c) 540,000 litres
- d) 706, 860 litres

Syllabus Reference: Section 1, 1.1

The temperature at which a solid changes into a liquid is known as the:

- a) freezing point
- b) melting point (Ans)
- c) latent temperature
- d) specific temperature

Syllabus Reference: Section 1, 2.1

Calculate the momentum of a 2kg object travelling at 10 m/s.

- a) 5 kg.m/s
- b) 10 kg.m/s
- c) 20 kg.m/s (Ans)
- d) 25 kg.m/s

Syllabus Reference: Section 1, 3.1

The SI unit used to measure heat is the:

- a) British Thermal Unit
- b) Calorie
- c) Therm
- d) Joule (Ans)

Syllabus Reference: Section 1, 4.3

Convection may occur:

- a) only in solids
- b) only in liquids
- c) in solids and gases
- d) in liquids and gases (ans)

Syllabus Reference: Section 1, 4.5

The relative density of a liquid is the mass of any volume compared to an equal volume of:

- a) Mercury
- b) Water
- c) Hydrogen
- d) Air

Syllabus Reference: Section 1, 5.1

Complete the following:

The _____ of an atom is the number of chemical bonds the atom or group of atoms will form.

- a) atomic number
- b) proton number
- c) valency (Ans)
- d) mass

Syllabus Reference: Section 1, 6.2

The chemical symbol for Phosphorous Pentoxide is PO_5 . A molecule of Phosphorous Pentoxide contains one atom of Phosphorous. How many atoms of Oxygen does it contain?

- a) 1
- b) 3
- c) 5 (Ans)
- d) 6

Syllabus Reference: Section 1, 6.3

The resistance of an electrical circuit is measured in:

- a) volts
- b) amps
- c) ohms (Ans)
- d) watts

[Syllabus Reference: Section 1, 7.1](#)

Section 2 - Fire Service Operations

The term commonly used to describe the continuing risk assessment process carried out in a changing environment is known as:

- a) incident command
- b) hazard identification
- c) dynamic risk assessment (Ans)
- d) environmental risk elimination

[Syllabus Reference: Section 2, 1.2](#)

If people are reported trapped in smoke in a domestic premises fire and nobody can be seen, the officer in charge should firstly:

- a) request fire control to mobilise additional resources
- b) establish the layout of the premises and any associated risks
- c) arrange for the premises to be ventilated to release the smoke
- d) organise a thorough search by firefighters in breathing apparatus (Ans)

[Syllabus Reference: Section 2, 2.1](#)

When venting a smoke filled room fitted with sliding sash windows, firefighters should preferably open the windows:

- a) just at the top
- b) just at the bottom
- c) one third at the bottom and two thirds at the top (Ans)
- d) two thirds at the bottom and one third at the top

[Syllabus Reference: Section 2,2.5](#)

Centrifugal pumps are operated by means of an impeller which:

- a) collects the water supply from the periphery and discharges it from the centre
- b) receives the water supply from the centre and discharges it from the periphery (Ans)
- c) changes potential energy into velocity energy
- d) changes kinetic energy into potential energy

[Syllabus Reference: Section 2, 4.2](#)

Which one of the following foam concentrates is particularly suitable for use on fires involving 'Polar solvents'?

- a) Protein
- b) Synthetic
- c) Alcohol-resistant (Ans)
- d) Fluoroprotein

[Syllabus Reference: Section 2, 4.7](#)

Section 3 - Fire Safety

Cast iron possesses:

- a) good compression and tension ratios
- b) strength in compression and tension
- c) relatively little strength in compression but is capable of sustaining a considerable load in tension
- d) relatively little strength in tension but is capable of sustaining a considerable load in compression (Ans)

[Syllabus Reference: Section 3, 1.1](#)

The stability of a brick wall depends upon:

- a) The applied load
- b) Its thickness in relation to its height (ans)
- c) Whether the bricks have been autoclaved
- d) The quantity of calcium silicate in the bricks

[Syllabus Reference: Section 3, 1.2](#)

Sprinkler heads are spaced in a building so that the discharge:

- a) minimises any water damage
- b) from any two overlaps (Ans)
- c) forms a spherical pattern
- d) forms a paraboloid pattern

[Syllabus Reference: Section 3, 2.1](#)

What type of fire detector is used to detect the invisible products of combustion?

- a) Optical
- b) Ionisation (ans)
- c) Radiation
- d) Heat

[Syllabus Reference: Section 3, 3.2](#)

The distance people need to go to escape from a building (the travel distance) should be as short as possible. The travel distance should be measured from the:

- a) centre point of a room to a final exit from a building
- b) exit door of a room to a final exit from a building
- c) farthest point in a protected corridor to a protected stairway or final exit from a building
- d) farthest point in a room to the door to a protected stairway or final exit from a building (Ans)

[Syllabus Reference: Section 3, 4.1](#)

Part Two - Examination Paper Instructions

Instructions for candidates undertaking the examination are provided on the front cover of the question paper (see below) and should be read carefully.

Candidates must provide their answers on the separate answer sheet provided - a copy of the answer sheet is also provided below.



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SAMPLE FRONT COVER

Instructions to Candidates

1. The time allowed for this examination is **three hours**.
2. You must mark all of your answers **on the answer sheet** provided.
3. Write your **Name, Centre Number** and **Candidate Number** in the correct spaces at the top of the answer sheet.
4. This examination has 120 questions, **all of which** must be attempted. Each question offers a choice of four possible answers but there is only **one correct answer** to each question.
5. Marks will not be awarded for questions where more than one answer is given.
6. You must use a **pencil** to complete the answer sheet.
7. For each question, indicate your answer by **striking it through** like this: **1 [a] [b] {c} [d]**. Please do not indicate your answers with ticks, crosses or circles.
8. If you make a mistake, or you change your mind about an answer, erase the first pencil mark completely (without damaging the answer sheet) and then indicate your new answer.
9. Any blank pages in this booklet may be used for working out answers to the calculation questions. Please do not use the answer sheet for this purpose.
10. At the end of the examination, the question paper and the answer sheet will be collected by the invigilators. You will not be allowed to keep the question paper.

**IFE LEVEL 2 CERTIFICATE IN FIRE SCIENCE, OPERATIONS AND SAFETY (VRQ)
ANSWER SHEET**

CANDIDATE NAME:

CENTRE NUMBER:

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CANDIDATE NUMBER:

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Please enter your Name, Centre number and Candidate Number in the boxes above.

**SECTION 1:
FIRE ENGINEERING**

- 1 [a] [b] [c] [d]
- 2 [a] [b] [c] [d]
- 3 [a] [b] [c] [d]
- 4 [a] [b] [c] [d]
- 5 [a] [b] [c] [d]

- 6 [a] [b] [c] [d]
- 7 [a] [b] [c] [d]
- 8 [a] [b] [c] [d]
- 9 [a] [b] [c] [d]
- 10 [a] [b] [c] [d]

- 11 [a] [b] [c] [d]
- 12 [a] [b] [c] [d]
- 13 [a] [b] [c] [d]
- 14 [a] [b] [c] [d]
- 15 [a] [b] [c] [d]

- 16 [a] [b] [c] [d]
- 17 [a] [b] [c] [d]
- 18 [a] [b] [c] [d]
- 19 [a] [b] [c] [d]
- 20 [a] [b] [c] [d]

- 21 [a] [b] [c] [d]
- 22 [a] [b] [c] [d]
- 23 [a] [b] [c] [d]
- 24 [a] [b] [c] [d]
- 25 [a] [b] [c] [d]

- 26 [a] [b] [c] [d]
- 27 [a] [b] [c] [d]
- 28 [a] [b] [c] [d]
- 29 [a] [b] [c] [d]
- 30 [a] [b] [c] [d]

- 31 [a] [b] [c] [d]
- 32 [a] [b] [c] [d]
- 33 [a] [b] [c] [d]
- 34 [a] [b] [c] [d]
- 35 [a] [b] [c] [d]

- 36 [a] [b] [c] [d]
- 37 [a] [b] [c] [d]
- 38 [a] [b] [c] [d]
- 39 [a] [b] [c] [d]
- 40 [a] [b] [c] [d]

- 41 [a] [b] [c] [d]
- 42 [a] [b] [c] [d]
- 43 [a] [b] [c] [d]
- 44 [a] [b] [c] [d]
- 45 [a] [b] [c] [d]

Score:

**SECTION 2:
FIRE OPERATIONS**

- 46 [a] [b] [c] [d]
- 47 [a] [b] [c] [d]
- 48 [a] [b] [c] [d]
- 49 [a] [b] [c] [d]
- 50 [a] [b] [c] [d]

- 51 [a] [b] [c] [d]
- 52 [a] [b] [c] [d]
- 53 [a] [b] [c] [d]
- 54 [a] [b] [c] [d]
- 55 [a] [b] [c] [d]

- 56 [a] [b] [c] [d]
- 57 [a] [b] [c] [d]
- 58 [a] [b] [c] [d]
- 59 [a] [b] [c] [d]
- 60 [a] [b] [c] [d]

- 61 [a] [b] [c] [d]
- 62 [a] [b] [c] [d]
- 63 [a] [b] [c] [d]
- 64 [a] [b] [c] [d]
- 65 [a] [b] [c] [d]

- 66 [a] [b] [c] [d]
- 67 [a] [b] [c] [d]
- 68 [a] [b] [c] [d]
- 69 [a] [b] [c] [d]
- 70 [a] [b] [c] [d]

- 71 [a] [b] [c] [d]
- 72 [a] [b] [c] [d]
- 73 [a] [b] [c] [d]
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- 75 [a] [b] [c] [d]

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- 77 [a] [b] [c] [d]
- 78 [a] [b] [c] [d]
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- 80 [a] [b] [c] [d]

- 81 [a] [b] [c] [d]
- 82 [a] [b] [c] [d]
- 83 [a] [b] [c] [d]
- 84 [a] [b] [c] [d]
- 85 [a] [b] [c] [d]

- 86 [a] [b] [c] [d]
- 87 [a] [b] [c] [d]
- 88 [a] [b] [c] [d]
- 89 [a] [b] [c] [d]
- 90 [a] [b] [c] [d]

Score:

**SECTION 3:
Fire Safety**

- 91 [a] [b] [c] [d]
- 92 [a] [b] [c] [d]
- 93 [a] [b] [c] [d]
- 94 [a] [b] [c] [d]
- 95 [a] [b] [c] [d]

- 96 [a] [b] [c] [d]
- 97 [a] [b] [c] [d]
- 98 [a] [b] [c] [d]
- 99 [a] [b] [c] [d]
- 100 [a] [b] [c] [d]

- 101 [a] [b] [c] [d]
- 102 [a] [b] [c] [d]
- 103 [a] [b] [c] [d]
- 104 [a] [b] [c] [d]
- 105 [a] [b] [c] [d]

- 106 [a] [b] [c] [d]
- 107 [a] [b] [c] [d]
- 108 [a] [b] [c] [d]
- 109 [a] [b] [c] [d]
- 110 [a] [b] [c] [d]

- 111 [a] [b] [c] [d]
- 112 [a] [b] [c] [d]
- 113 [a] [b] [c] [d]
- 114 [a] [b] [c] [d]
- 115 [a] [b] [c] [d]

- 116 [a] [b] [c] [d]
- 117 [a] [b] [c] [d]
- 118 [a] [b] [c] [d]
- 119 [a] [b] [c] [d]
- 120 [a] [b] [c] [d]

Score:

Total Score: