



Question Papers and Report of the
Assessors and the Examiners for the
Qualifying Examination for
Promotion to the Rank of
Leading Firefighter
Part I: Written Examination 1999

QUESTION PAPERS AND REPORT OF THE ASSESSORS AND EXAMINERS FOR THE QUALIFYING EXAMINATION FOR PROMOTION TO THE RANK OF LEADING FIREFIGHTER.

PART 1 WRITTEN EXAMINATION 1999

GENERAL COMMENTS

The fourteenth examination conducted by the Fire Services Examinations Board produced a pass rate of 46.42% from 1773 candidates who sat the examination. These figures show an increase in the pass rate achieved last year (40.7%) and an increase in the number of candidates sitting the examination.

The pass rate and the overall improvement in the quality of answers provided to the set questions suggests that many candidates undertook preparation for the examination with some form of study groups being established for this purpose. There was a relatively small number of excellent scripts submitted which obtained a just reward in the awarding of marks.

It was pleasing to note the number of occasions where candidates provided unsolicited drawings, diagrams and/or sketches to provide further clarity in their answers. In many cases these were a most useful asset and provided clarity to insufficient written detail thus enabling available marks to be awarded.

It was disturbing to note that some candidates aspiring to advance their rank provided answers from bibliography which was out of date and had ceased to be listed in the syllabus for the examination many years ago. This not only indicates a lack of real preparation for the examination but also questions the depth of knowledge and understanding of these subjects that might reasonably be expected from any firefighter.

Regrettably, the usual shortcomings of candidates were again repeated and must again be emphasised.

Each question provides information and a specific request for information. They are carefully worded to avoid confusion, and hopefully, direct the thoughts of the candidate towards what is required. Marks are only awarded for the answer to the set question and the provision of additional information is invariably time wasting for the candidate. Where a list has been requested, this has been done as it has been considered the best method of providing the information in the time available. The provision of long essays on the subject means that the examiner must search for the required information in order to allocate marks, but more importantly, the candidate will have used valuable time in providing this form of response.

What must have been carelessness when providing an answer has cost some candidates marks. It is considered that this could have been prevented if, having completed the paper, those candidates had re-read their responses and related

these again to the questions in the time available before the paper was handed in.

In the numeracy questions there is always a requirement for the candidate to show all calculations and workings. This is because marks are allocated for them. A failure to satisfy this requirement means that those marks cannot be awarded and could provide the difference between a pass or failure being achieved.

Finally, in order to ensure that the marking of their papers provides no additional problems, candidates should follow the directions provided and commence the answer to each question on a separate page.

The following pages contain detailed comments of the Assessors and Examiners and a careful study of them should be beneficial to future candidates.

PAPER 1: FIREFIGHTING APPLIANCES AND EQUIPMENT:
PRACTICAL FIREMANSHIP

GENERAL COMMENTS ON BOTH SITTINGS

Comments Relating to Objective Questions

The tendency for the pattern of responses to the objective questions to be fairly consistent over the whole range of topics was demonstrated again this year. Whilst, overall, there were no areas of major weakness, it was disappointing to note that, whilst acceptable, the responses to the questions relating to breathing apparatus were towards the bottom of the range. Since this is such a fundamental area of fire service work with its clear implications for safety on the fire ground, this is disappointing.

Comments Relating to Subjective Questions

Whilst the number of excellent scripts is traditionally small and this year was no exception, it was pleasing to note that, where appropriate, many of the better candidates offered diagrams or sketches to illustrate their answers thus clarifying to the examiners the extent of their knowledge of the subject. Whilst not specifically asked for in any question this year, it is a practice which future candidates are encouraged to adopt. Traditionally, candidates rely too much on operational experience, fail to show their workings in the calculation questions and rely on distant memories of recruit training courses as a source of knowledge rather than by studying the up to date bibliography. This latter feature was particularly noticeable this year as there have been a number of significant changes to fire service publications recently, particularly involving standard test regimes. The need to study the bibliography in a systematic manner is emphasised in this report every year but, clearly, this is not sufficient if candidates do not ensure that the documents they are using for study purposes are up to date.

Long rambling answers to questions tended to achieve few marks due to the tendency of candidates to introduce a great deal of material relevant to the subject area but not to the question posed, in an attempt to disguise their lack of knowledge of the particular matter which the question was asking them to demonstrate. This practice is wasteful of both the candidates' and the examiners' time and should be avoided.

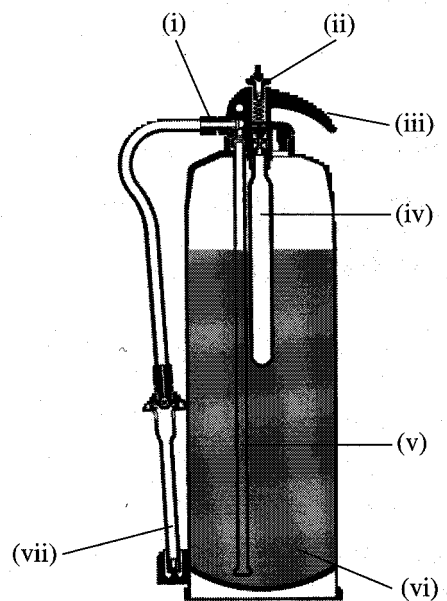
Section B: Comments on Subjective Questions

SUB-SECTION (i) FIREFIGHTING APPLIANCES AND EQUIPMENT

SITTING 1

Attempt TWO questions only from this sub-section

1 Referring to the sketch shown below:



(a) state the correct name for this particular type of extinguisher; (2 marks)

and

(b) name the features numbered (i) to (vii). (8 marks)

Bibliography : Manual of Firemanship Book 3, page 28.
LO : 5.3.2

It was clear that some candidates had studied the bibliography and consequently presented clear concise answers which attracted a high level of marks. However, disappointingly, almost a third failed to attract 50% or more of the marks available for what should have been a straightforward question.

Marks failed to be obtained by candidates who did not identify the type of extinguisher as requested in the question or who inadequately named it by calling it a foam extinguisher or a gas cartridge extinguisher. Only if the full answer, foam extinguisher (gas-cartridge), was given would the full quota of marks for this section be awarded.

The examiners awarded marks to candidates who correctly named the features shown in the diagram whether or not the precise name was used, providing any expression used was deemed as a reasonable description. However, in some cases it was difficult to identify any relationship between some of the names given and the answer required.

Marks also failed to be obtained by candidates who stated that the gas cartridge contained something other than carbon dioxide. Similarly, the extinguisher contained foam solution and credit was not given to those candidates who stated that it was foam concentrate, nor was credit given where the contents were referred to as the extinguishing medium unless they had correctly identified the extinguisher in part (a).

2 With regard to suction hose:

(a) state the most important features which it should possess; (5 marks)

and

(b) explain how it should be cared for after use. (5 marks)

Bibliography: Manual of Firemanship Book 2, page 22.
LO: 3.1.14 and 3.1.17

Most candidates should have been able to attract a reasonable level of marks based on their experience. Regrettably, many candidates apparently failed to read the question and provided irrelevant information for which few, if any, marks could be awarded.

Part (b) of the question clearly asked candidates to explain how hose should be cared for after use. It was disappointing that a number only explained how it was cared for whilst being used.

3 Name and describe the periodic inspection and test of a lowering line.

(10 marks)

Bibliography: Technical Bulletin No. 1/1994, page 18.

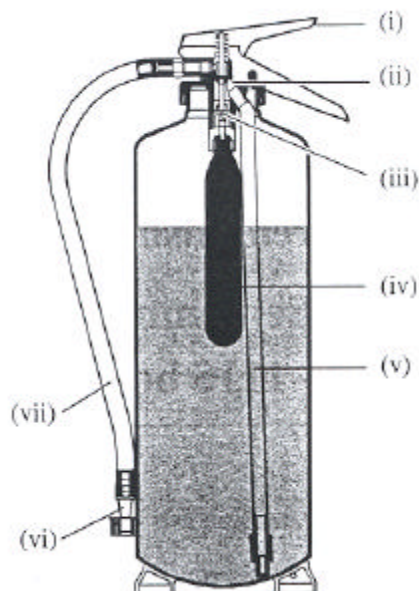
LO: 7.1.27

It was clear from the scripts that the majority of candidates who answered this question had not studied the relevant bibliography relating to the testing and examination of Fire Service equipment. Many candidates described, or mis-described, the standard tests detailed in the old Fire Service Drill Book 1985. In particular, it was disappointing to note that a large number of candidates are still under the impression that lines are tested by applying the weight of firefighters.

SITTING 2

Attempt TWO questions only from this sub-section

1 Referring to the sketch shown below:



(a) state the correct name of this particular type of extinguisher; (2 marks)

and

(b) name the features numbered (i) to (vii). (8 marks)

Bibliography: Manual of Firemanship Book 3, pages 24 and 25.

LO: 5.2.1(a)

The majority of candidates attempting this question achieved a satisfactory level of marks. However, many marks could not be awarded because of a lack of attention to detail. In particular, a large number of candidates identified what were, presumably, the correct parts but allocated them to a different number on the question paper. The Examiner cannot assume that this is a slip of the pen and consequently is unable to give the candidate the benefit of the doubt.

- 2 (a) List FOUR methods of making up and stowing hose and identify the type of appliance on which each may normally be found. (6 marks)
- and
- (b) Describe the TWO main causes of damage to modern hose. (4 marks)

Bibliography: *Manual of Firemanship Book 2, pages 17, 18 and 20.*
LO: *3.1.12 and 3.1.10*

Whilst a good number of candidates achieved more than 50% of the available marks, it was disappointing that a straightforward question like this did not attract more excellent scripts. The main reason for this in Part (b) was the provision of information gleaned from out of date bibliography. Not only should candidates study the bibliography, they should ensure that it is current.

- 3 In relation to periodic inspections and tests:
- (a) explain the difference between the terms 'after use' and 'after each period of use'; (5 marks)
- and
- (b) explain **how** a weight or force should be applied to an item of equipment and **why** in this manner, when it is necessary as part of a periodic test. (5 marks)

Bibliography: *Technical Bulletin No. 1/1994, page 2.*
LO: *7.1.8 and 7.1.16*

Whilst an unpopular question with candidates, it was generally well answered. Many marks failed to be obtained by candidates who had not read the question properly, in particular part (b) which was about HOW a weight should be applied during the test and not WHY. Some candidates provided detailed information regarding the tests of particular items of equipment. This was not required and attracted no credit.

SUB-SECTION (ii) PRACTICAL FIREMANSHIP

SITTING 1

Attempt TWO questions only from this sub-section

- 4 Describe the features which are incorporated into a BA guideline to enable the 'way out' to be identified by touch.

(10 marks)

Bibliography: Technical Bulletin No. 1/1997, EP5, page 7 and Appendix 8.
LO: 10.2.28

The majority of candidates were able to obtain a high level of marks, displaying a sound knowledge of this topic. Although not specifically asked for in the question, some candidates clarified their answers by providing well-labelled diagrams, a practice to be encouraged.

Where available marks failed to be obtained this was often due to the candidate's inability to provide important detail and by relying on their 'experience' rather than knowledge gained through a thorough study of the subject. However, the most disappointing feature demonstrated by a small number of candidates was the incorrect identification of "way out".

-
-
- 5 Explain briefly the THREE alternative methods which might be adopted when ventilating a fire in a two-storey residential house when the fire occurs on an upper level.

(10 marks)

Bibliography: Fire Service Manual - Volume 2
*Fire Service Operations: Compartment Fires
and Tactical Ventilation, page 55.*
LO: 8.7.17(c)

It was disappointing that this question was not well answered bearing in mind the clear guidance in the bibliography regarding the three methods which might be adopted when ventilating a fire in these circumstances. Very few candidates took into account the possibility that roof and ceiling construction can be a factor in choosing whether to carry out vertical ventilation. When describing horizontal ventilation, few candidates considered the need for safety associated

with breaking windows. The explanation of pressurisation, where offered, was generally better than the other alternatives.

Generally, the question was not well answered indicating a failure to study what is no longer new bibliography. There was confusion over terminology thus preventing candidates from demonstrating to the Examiner their knowledge of the subject, if any.

-
-
- 6 Define the THREE generic methods by which fires can be extinguished and give TWO examples of each method.

(10 marks)

*Bibliography: Fire Service Manual - Volume 1
Fire Service Technology, Equipment and Media, Psychics
and Chemistry for Firefighters, pages 82 and 83.*

LO: 8.1.2 and 8.1.3

This popular question was generally well answered. However, a significant number of candidates were unable to define the generic methods of fire extinguishment as required in the question. Some candidates failed to understand the difference between starvation and smothering in that the former is the removal of fuel from the fire whilst the latter is the removal of or separation from the oxygen supply.

Some candidates had difficulty identifying a second example of each method whilst others demonstrated that they did not understand the way in which some extinguishing media, particularly foam, worked.

SITTING 2

Attempt TWO questions only from this sub-section

- 4 Describe a set of breathing apparatus tallies for:

(a) main guide lines; (5 marks)

and

(b) branch guide lines. (5 marks)

Bibliography: Manual of Firemanship Book 6, pages 41 & 42.

Technical Bulletin No. 1/1997, EP5, page 7 and Appendix 9.
LO: 10.2.29

This was a very well answered question with many candidates providing good answers. The best answers were those where candidates supported their script with clear well annotated diagrams.

-
-
- 5 Explain briefly the TWO alternative methods which might be adopted when ventilating a fire in a two-storey residential house when the fire occurs on a lower level. (10 marks)

*Bibliography: Fire Service Manual - Volume 2
Fire Service Operations: Compartment Fires
and Tactical Ventilation, page 55.*

LO: 8.7.17(c)

The question clearly stated that the fire was on a lower level and candidates might have reasonably guessed that horizontal methods of ventilation were required without any knowledge of the bibliography. A few candidates gained excellent marks by giving clear and concise answers supported by a simple sketch to demonstrate the ventilation processes. A small number of candidates explained the process of ventilation in terms of tactics rather than methodology thus failing to obtain many of the available marks. Notwithstanding the foregoing remarks, it was clear that a significant number of candidates had little knowledge of ventilation methods or were unable to adequately communicate it.

-
-
- 6 (a) List the changes which ALL extinguishing media may undergo as they extinguish fire by cooling. (4 marks)
- and
- (b) Why is water such an excellent general purpose extinguishing medium? (6 marks)

*Bibliography: Fire Service Manual - Volume 1
Fire Service Technology, Equipment and Media, Psychics
and Chemistry for Firefighters, pages 83 and 84.*

LO: 8.1.3 and 8.1.5

This was a reasonably well answered question with the majority of candidates obtaining a satisfactory level of marks. Many marks were not obtained by candidates who failed to list the changes which extinguishing media undergo, instead providing descriptions of how different types of extinguishing media work. Of those candidates who had read the question properly, few managed to list all four of the changes generic to all extinguishing media.

Only a relatively small number of candidates referred to the thermal capacity and latent heat and vaporisation of water when answering the second part of the question.

SUB-SECTION (iii) CALCULATIONS AND MEASUREMENT

SITTING 1

Attempt TWO questions only from this sub-section

7 (a) Define the term 'latent heat of vaporisation'. (5 marks)

and

(b) Explain the effect of changes in pressure on the boiling point and latent heat of liquids. (5 marks)

*Bibliography: Fire Service Manual - Volume 1
Fire Service Technology, Equipment and Media, Psychics
and Chemistry for Firefighters, page 20.*

LO: 13.2.10 and 13.2.11

This was a reasonably well answered question with most candidates identifying that the energy input to the liquid was used to bring about the change of state from liquid to vapour at its boiling point without a change in temperature. However, many failed to recognise that the latent heat of vaporisation is related to the unit mass of a substance.

Most candidates identified the effect of pressure change on the boiling point of a liquid correctly but few understood that latent heat is lowered as the boiling point, i.e. pressure, increases.

8 Explain the term 'water hammer' and its effect on the behaviour of water flowing in a pipe.

(10 marks)

Bibliography: Manual of Firemanship Book 7, page 59.

LO: 13.7.13

A small number of candidates identified the principle features of water hammer thus attracting a reasonable level of marks. However, too many candidates relied upon a weak knowledge of the subject in which too frequently they confused water hammer with cavitation.

9 A circular tank 3 metres high and 5 metres in diameter is full of water.

(a) Calculate the capacity of the tank, using the formula:

$$C = 0.8D^2h$$

where D = diameter in metres;

h = depth in metres; and

C = capacity in cubic metres.

(3 marks)

and

(b) On the assumption that the total contents can be pumped out, how long will it take to empty the tank if, after the first half hour of pumping at 1200 litres per minute, the rate is reduced to 800 litres per minute?

(7 marks)

(All calculations and workings MUST be shown).

Bibliography: Manual of Firemanship Book 7, pages 13 and 14.

LO: 13.4.3

A large number of candidates achieved extremely high levels of marks for this question, although some produced unnecessarily lengthy scripts whilst others provided so little information regarding their methodology and workings that, particularly where incorrect answers were given, it was not possible to give credit. Candidates must understand that, even if the correct answer is given, full credit cannot be given where the answer appears to have been conjured out of thin air.

SITTING 2

Attempt TWO questions only from this sub-section

7 With regard to 'density':

(a) define the term;

(3 marks)

and

(b) explain how it affects the behaviour of gases.

(7 marks)

*Bibliography: Fire Service Manual - Volume 1
Fire Service Technology, Equipment and Media, Psychics
and Chemistry for Firefighters, pages 1, 3 and 4.*

LO: 13.1.1

Whilst there were a high number of reasonable attempts at this question, in part (a) few candidates offered a complete definition of the term density. The Fire Service Manual offers a number of simple definitions of the term, any one of which would have attracted all the available marks.

In responding to part (b) of the question, a number of candidates referred to the effect of heat on the density of gases. This was not sufficient to attract any marks since, whilst the density of gases does change with temperature, this information alone tells the examiner nothing about any changes in the behaviour of gases.

-
-
- 8 When a high nozzle pressure is used for a firefighting jet:
- (a) what are the advantages? (5 marks)
- and
- (b) on what factors will the pressure adopted depend? (5 marks)

Bibliography: Manual of Firemanship Book 7, page 64.
LO: 13.8.5

In part (a), most candidates identified the advantages of high nozzle pressures. Part (b) of the question was poorly answered, with candidates clearly placing reliance on dubious operational experience. Very few candidates identified that weather conditions such as intensity of wind can affect choice of nozzle pressure.

-
-
- 9 It takes 36 minutes to fill a tank, whose surface is 3 metres square from a 50 millimetre diameter pipe discharging water at a velocity of 4 metres per second.

The discharge from a pipe can be calculated using the formula:

$$L = \frac{vd^2}{20} \quad \text{where } v = \text{velocity in metres per second;} \\ d = \text{diameter of pipe in millimetres; and} \\ L = \text{discharge in litres per minute.} \quad (10 \text{ marks})$$

Calculate the depth of the tank.

(All calculations and workings MUST be shown).

Bibliography: Manual of Firemanship Book 7, pages 11,12, 48 and 49.

LO: 13.4.3 and 13.7.5

A large proportion of candidates attempted this question and despite being asked to do so many failed to show all their workings and calculations resulting in certain available marks not being awarded. The most common error lay in the calculations of the surface area of the tank due to a failure to read the question properly. Some candidates multiplied the surface area, which is measured in litres, by 1000 (the conversion factor from cubic metres to litres) and divided this into the total volume of the tank thus producing an answer of 2 which, coincidentally, was the figure required. However, this is mathematically unsound and no credit could be given for it.

LEADING FIREFIGHTER WRITTEN EXAMINATION 1999
PAPER 2 BUILDING CONSTRUCTION AND FIRE PROTECTION

GENERAL COMMENTS

There is evidence to demonstrate that the results of this paper have improved from last year. This was supported by the submission of a number of high quality scripts that attracted excellent marks and clearly showed those candidates who had studied the bibliography carefully, applied good examination technique and understood exactly what the questions were asking for.

It was disappointing to note that the majority of candidates who produced poor results appeared to do so through the lack of application in respect of commitment to appropriate study and the necessary concentration during the examination. Many candidates continue to arrive at examinations apparently without any preparation and expect to obtain a satisfactory level of marks for responses to questions based on their local knowledge and experience. Evidence shows that this strategy is never successful and is no substitute for candidates to prepare and implement an appropriate study plan combined with using good standard techniques of reading and understanding the question and following the instructions precisely.

Section A: Comments Relating to Objective Questions

BOTH SITTINGS

Experience in the subjective questions has been repeated in the objective questions in that an improvement on last year's results has clearly been demonstrated. There was a broad spread of successful candidates across the whole range of topics covered with no exceptional weakness. The poorer responses were often associated with questions that required a numerical answer to be selected.

Whilst the trend seems to be improved performance, candidates must be encouraged to prepare themselves adequately with structured committed studying.

Section B – Comments Relating to Subjective Questions

SUB-SECTION (i) BUILDING CONSTRUCTION

SITTING 1

Attempt TWO questions only from this sub-section

- 1 List SEVEN factors which can affect the behaviour of building materials in a fire situation.

(10 marks)

Bibliography: *Manual of Firemanship Book 8, page 1.*

LO: 1.1.1.

This was a very popular question with candidates. There were numerous candidates who provided excellent answers and achieved high marks, but regrettably these were overshadowed by many who displayed little or no knowledge of the subject on which the question was based which suggests a lack of preparation.

Of the candidates who clearly failed to understand the requirements of the question, possibly through a lack of care when reading it, the majority provided details of signs of collapse or the effect of fire on elements of structure, for which no marks were available.

It might prove beneficial in the future, if candidates isolated the key words in the question and having done so attempted to picture a situation, for example, "affect the behaviour", "building materials" or "in fire". Then for "building materials" candidates could picture, for example, 'steelwork' or 'wood' in the various ways in which they are used and identify the factors which would affect their behaviour in fire.

Having noted a number of factors by using this process, the identification of the seven factors required should be possible by expanding the thought processes in a similar manner to the other "building materials".

Reference to the bibliography used for the question will show that the required answer was totally logical and related to factors which those attending fires, especially as the officer-in-charge, should be readily aware of, since in a fire they are usually the causes of collapse of elements of structure.

-
-
- 2 (a) State the THREE reasons for using steel as the reinforcement in reinforced concrete. (5 marks)
- and
- (b) List the TWO disadvantages of using reinforced concrete as a structural material. (5 marks)

Bibliography: *Manual of Firemanship Book 8, pages 36 - 37.*
LO: 2.2.14, 2.2.15.

This was a popular question with candidates but with only a small number achieving high marks. Many candidates apparently failed to understand that the question related to the use of steel in reinforced concrete as a building material and not to the behaviour of steel in a fire situation. None of the scripts describing the physical properties of steel achieved marks.

The number of candidates who stated that a reinforced concrete building was likely to collapse in a fire, without warning, due to the presence of steel, was disturbing and showed a lack of understanding of building construction.

A high number of candidates failed to display any meaningful knowledge of the subject.

-
-
- 3 State and explain the meaning of identification marks which will be found on a fire door which is also required to resist the passage of smoke. (10 marks)

Bibliography: *Manual of Firemanship Book 8, pages 59 - 60.*
LO: 2.3.11.

The majority of candidates who correctly interpreted the question gained high marks by stating the identification marks found on a fire resistant door and explaining their specific relevance to its performance in a fire situation.

It was disappointing to note the number of candidates who felt that all fire resistant doors incorporated an equal smoke seal performance level, irrespective of the identification marks found on the door. (e.g. FD30 without the 'S')

The biggest disappointment, however, was the large number of candidates who completely misinterpreted the question and despite some extremely detailed explanations as to how to identify a fire door within a means of escape etc, were unable to be awarded any marks.

SITTING 2

Attempt TWO questions only from this sub-section

- 1 State FOUR reasons why the performance of timber in a fire situation may be superior to unprotected non-combustible materials. (10 marks)

Bibliography: Manual of Firemanship Book 8, page 4.
LO: 1.1.4.

Almost half of the candidates who attempted this question showed sufficient knowledge and understanding of the subject to achieve a reasonable level of marks.

The lack of any meaningful information provided by many candidates not only indicated a lack of preparation for the examination but a general lack of knowledge of this subject.

- 2 (a) Describe the function of a column. (4 marks)

and

- (b) List the FIVE factors on which the fire resistance of a reinforced concrete column depends. (6 marks)

Bibliography: Manual of Firemanship Book 8, pages 30 - 32.
LO: 2.2.1 and 2.2.3.

Full marks were awarded to a small number of candidates who provided a clear, concise and accurate response to both parts of the question.

In part (a), to describe a concrete column as an 'element of structure' is not sufficient on its own.

Few candidates recognised that a column is provided where internal space is required or where an internal wall would interfere with the designed use of a building.

In part (b), the majority of unsuccessful candidates failed to demonstrate an understanding of the question referring to fire protection of steel columns, i.e. solid or hollow methods. Comments regarding the severity of fire and the proximity of fire did not attract marks relating to factors on which the fire resistance depends.

The opportunity to gain marks by reference to a simple list of factors was missed by a large number of candidates which suggests application to study could be improved.

3 (a) State the TWO primary functions of a fire door. (6 marks)

and

(b) What periods of fire resistance may be required for fire doors for compartmentation and segregation of special risks? (4 marks)

Bibliography: *Manual of Firemanship Book 8, pages 58 - 59.*
LO: 2.3.7 and 2.3.10.

It was disappointing to note that most candidates who attempted this question achieved low scores. It was clear that many had either not studied the bibliography in enough depth or had not understood what they were reading.

A substantial number of candidates surprisingly structured their answer around the functions of a smoke stop door which attracted no marks. Many candidates appeared to make a generalisation from basic operational experience. A fire door does hold back the effects and spread of fire but the reason for doing so needed to be expressed. Those candidates who did mention protecting escape routes and the contents and structure of a building obtained available marks. Regrettably, many of the candidates failed to satisfy this standard.

Very few candidates understood the relevance of the fire door having a period of fire resistance which is appropriate to the structure within which it is set.

Very few candidates mentioned fire doors with a fire resistance of 4-6 hours for compartmentation and segregation of special risks.

Overall, the question was very poorly answered. Spurious detail such as the marking of fire doors, fire doors principally being for persons to shelter behind whilst awaiting rescue from the fire brigade, or detail regarding intumescent strips and fire retardant paint finishes, all attracted no marks.

SUB-SECTION (ii) FIRE PROTECTION

SITTING 1

Attempt TWO questions only from this sub-section

4 (a) Name the THREE main types of drencher. (3 marks)

and

(b) Describe how the function and operation of a drencher system differs from a sprinkler system. (7 marks)

Bibliography: Manual of Firemanship Book 9, page 60.
LO: 3.2.1 and 3.2.2.

Although there was a high percentage of candidates who attained maximum marks for section (a) of this question, the generally low scores obtained for part (b) demonstrated that there was a lack of depth in knowledge of this subject. A number of candidates described in detail the component parts of a sprinkler system, water supply and pressure details for drenchers, which was not the information that was sought and as a consequence available marks could not be awarded.

5 What advice would you give to members of the public to enable them to safely deal with a chip pan fire. (10 marks)

Bibliography: 'Fire Safety in the Home' Booklet FSH1.
LO: 4.3.9 and 4.3.10.

An extremely popular question attempted by nearly all candidates. Those who had studied the bibliography were able to demonstrate their knowledge and obtained high marks for simple concise answers.

However, candidates who quoted local practices or went to great lengths to describe methods of preventing rather than dealing with a chip pan fire, failed to answer the question and, therefore, failed to obtain marks.

6 The Fire Precautions Act 1971 allows the Fire Authority to make a reasonable charge to applicants for Fire Certificates.

(a) List when charges may be made.

(7 marks)

and

(b) State the circumstances under which no fee is chargeable.

(3 marks)

Bibliography: Digest of Legislation for the Leading Firefighters' Examination, page 16.

LO: 6.1.10.

Less than half the candidates attempted this question and a substantial number failed to display any knowledge of the subject and thus were awarded no marks at all.

In (a) a large number listed the issue or amendment of a fire certificate but most failed to identify the issue of a new certificate as an alternative to amending an existing one. A number of candidates referred to the renewal of a fire certificate. Certificates are not licenses and are never renewed in this way. This demonstrated a lack of basic fire safety knowledge in terms of fire safety legislation.

In part (b) it was necessary to link the amendment or issue of a fire certificate directly to the introduction of Regulations under the Fire Precautions Act as specified in Section 12. Many candidates wrongly assumed that this was an alteration to the FP Act or new legislation. Neither assumption gained the total marks available.

A fair proportion of the better prepared candidates achieved full marks for a brief concise list. Others had clearly not studied the digest of legislation sufficiently in detail to display the level of knowledge required.

SITTING 2

Attempt TWO questions only from this sub-section

4 (a) Describe a rising main. (4 marks)

and

(b) List the criteria used to determine the type of rising main to be installed in a building. (6 marks)

Bibliography: Manual of Firemanship Book 9, pages 73, 75 and 76.
LO: 3.2.7 and 3.2.11.

The majority of candidates provided a logical and accurate description of a rising main which attracted available marks.

Accurate reference to building height relating to the type of riser provision was fairly common.

For some reason some candidates wasted valuable time and effort by describing the purpose of a rising main and the appropriate operational procedures to be adopted when used.

Available marks failed to be obtained due to simple omissions such as failing to include a general statement relating to height and the type of riser provision.

Few candidates included a reference to 'operational reasons' whereby riser provision may be appropriate regardless of the height of the building being less than that usually specified.

5 When giving advice to members of the public on domestic smoke alarms:

(a) explain the main advantage of fitting a smoke alarm in their home; (2 marks)

and

(b) identify the TWO most common types of smoke alarm;

(2 marks)

and

(c) describe where a smoke alarm(s) should be fitted to provide minimum protection in:

(i) a single level dwelling; and

(ii) a dwelling of more than one floor. (6 marks)

Bibliography: 'Wake Up/Get a Smoke Alarm' Leaflet FB2.
'Fire Safety in the Home' Booklet FSH1.

LO: 4.2.1, 4.2.2 and 4.2.5.

Generally, this was a very well answered question, with every candidate who attempted it obtaining some marks and over half obtained a high level of marks. Of those who failed to score highly, the most common mistakes were in the following areas:

In part (a), failing to state that the precious moments given to occupants by smoke alarms enables them to **get to safety**.

In part (b), not too many candidates were able to identify the most common types of smoke alarm. In the majority of scripts only one was identified but in some cases neither was provided. Many candidates gave additional explanations as to how the alarms worked, which was unnecessary and attracted no marks.

In part (c) (i), the biggest disappointment identified in the answers provided was that many candidates felt that in view of the high risk area of the kitchen, then a smoke alarm in a single level dwelling should be fitted **in** or just outside the kitchen. The model answer being that where a single detector is fitted, it should be centrally located in a hallway between the **living** and **sleeping** rooms.

In part (c) (ii), quite a few candidates failed to obtain marks by referring to their previous answer for alarm locations relating to single level dwellings. Consequently they neglected to state that an alarm should be placed at the bottom of each staircase even though they correctly covered all other upstairs landings.

- 6 List the THREE principal duties which are imposed on an occupier/owner of premises under the Fire Precautions Act 1971, during the period between making an application for a Fire Certificate and its issue.

(10 marks)

Bibliography: *Digest of Legislation for the Leading Firefighters' Examination, page 15.*

LO: 6.1.3.

This question was generally well understood by the most of the candidates who attempted it, with the majority achieving a satisfactory level of marks. Many of those who failed to obtain the available marks did so by not expanding their answers beyond:

means of escape in case of fire
firefighting equipment
staff training.

Published by:
Fire Services Examinations Board
Layden House
76-86 Turnmill Street
London
EC1M 5LG

Telephone No: 020 7296 6600