



Question Papers and Report of the
Assessors and the Examiners for the
Qualifying Examination for
Promotion to the Rank of
Station Officer 2000

QUESTION PAPERS AND REPORT OF THE ASSESSORS AND EXAMINERS FOR THE QUALIFYING EXAMINATION FOR PROMOTION TO THE RANK OF STATION OFFICER

GENERAL COMMENTS

The Station Officers' examination held under the auspices of the Fire Services Examinations Board attracted an initial entry of 1279 candidates.

Of these, 164 (12.8%) absented themselves, which was an alarming increase when compared to the previous year, leaving 1115 actually attempting the examination, which is a decrease of 8.5% to last year's total. Of this number, 359 (32.2%) were awarded a pass and are now qualified for the rank of Station Officer.

The flexible system of taking the examination introduced in 1997 enables candidates to take two, three or four papers in their first attempt. Consequently, only 435 taking the examination attempted all four papers. This was the final year for some candidates to pass outstanding papers and, regrettably, 39 failed to do so and their previous passes now become null and void.

The number of candidates obtaining an overall pass is similar to that of last year, and that was described as disappointing, but the percentage pass rate improved. It is pleasing to note that the pass rates of Papers 1, 3 and 4 improved, but disappointing that the pass rate of Paper 2 reduced to the lowest figure for many years.

The results achieved by candidates in the objective questions in Papers 1 and 2 indicated that the results achieved by candidates were marginally poorer than those achieved the previous year.

The subjective questions in all four papers provided each candidate with the opportunity to demonstrate the level of knowledge and understanding achieved from their preparation for the examination. As previously mentioned, improved pass rates were achieved in all papers except Paper 2.

The overall standard of the scripts submitted by candidates was generally better than experienced in previous years. There were, of course, the extremes with some of the scripts being outstanding in their quality whilst there were others which clearly indicated that those candidates were far from ready for this level of examination either due to a lack of proper preparation or not being able to achieve the standards necessary. It is for those poorer candidates to decide which of these alternatives relates to them, but it is hoped that the comments and observations provided will assist those who wish to prepare themselves effectively for any future attempts.

The evidence of effective pre-examination study work, and the lack of it, was readily provided in the scripts submitted this year. Having decided to take the step of entering the examination the candidate should prepare for it by applying a planned approach which recognises what has to be studied and understood in the time available. Those who believe that this can be achieved by commencing this within a month or two of sitting the examination are likely to become extremely disappointed by the limitations, which they have created for themselves.

Having undertaken the required study, candidates should consider the manner in which they should attempt questions. Future examinations will not provide a choice of questions to be answered, as all will be required to be attempted. They will, wherever possible, be of a scenario type, which will endeavour to place the candidates in the position of a Station Officer faced with a certain problem for which they need to provide the answer. In all cases the question should be carefully read so that it is understood. There are no hidden elements to catch candidates out. Valuable time should not be wasted by providing information not requested, this can only be considered as a vain effort to hide a lack of knowledge and understanding of what is required. Where the question has been divided into various parts, efforts should be concentrated on the parts of the question for which the higher level of marks are available. The parts with the fewer marks may be less demanding to you but where the answer is known, use your time to its fullest effect. The provision of answers, which would have been correct had they been provided for the appropriate part of the question, but for which no marks can be awarded, suggests carelessness or a lack of understanding of the subject. This may be easily corrected by the candidate carefully re-reading the script after having completed the question paper. This use of a relatively short period of time will never be wasted and could possibly cause you to make certain amendments which could make the difference between a pass and a failure.

The role of Station Officer is becoming more complex and the required level of knowledge and understanding of subjects also needs to become more comprehensive. The bibliography for the examinations is considered to be that which will measure the ability of an individual to progress to that rank and this information will always stand that individual in good stead and assist when the rank is held. A sound knowledge and understanding of it, which will not be obtained by simply reading it, will therefore be of great benefit.

The following pages contain the detailed comments of the assessors and examiners on the individual questions, and it is hoped that these will assist those planning to take the examination in the future.

PAPER 1: FIRE PREVENTION INCLUDING RELATED LAW

Although it was pleasing to see a slight improvement upon the pass rate of last year it is still regrettable to see so many candidates fail to obtain available marks through foolish mistakes and lack of pre-planning.

Candidates must learn to carefully manage their time and to read the question in detail and most importantly to ensure that the element of the question they plan to answer carries sufficient marks to allow them to pass the examination.

Those who set the questions and the Examinations Board which manages the entire process, work on the assumption that the candidates who take this examination have some expectation of passing, in simple terms this can only be achieved if candidates check to ensure that the effort they give to questions, or more importantly parts of questions will carry sufficient marks to allow them to do so.

It is very clear, that candidates most likely to achieve success in this examination have a tactical approach to the entire process, and have developed skills and knowledge on examination technique.

Careful reading of the question before putting pen to paper must be a 'golden rule', particularly focusing on where the significant weight of marks lie.

In conclusion candidates are showing early signs of having an understanding of the type of questions being asked, but a poor understanding of the practical applications of examination technique.

SECTION A: Comments Relating to Objective Questions

The results obtained in the objective tests were marginally poorer than those achieved last year, but there were no clear areas of weakness identified from the marks achieved.

PAPER 2: SCIENCE – HYDRAULICS AND WATER SUPPLIES: ELEMENTS OF COMBUSTION AND EXTINCTION: ELECTRICITY

Results in this paper were disappointing and suffered a further reduction in those obtaining a pass when compared to previous years. This is a worrying indicator as the main reason for failing to achieve a pass mark was overwhelmingly caused by what must be too much reliance upon answering from limited operational experience and not complimented sufficiently by structured study programmes.

The weaknesses of candidates' knowledge on electricity highlighted in last years' objective questions manifested itself this year in the main paper in which some appalling, indeed even dangerous gaps in candidates' knowledge were identified. Candidates must remember that knowledge obtained in the operational arena alone is not only an inadequate way to prepare for this level of examination but also results in a less than competent officer on the fireground.

Section A: Comments Relating to Objective Questions

Results in this section were of reasonably good standard, with the downward trend of last year being halted. However, it remains apparent that many candidates have not undertaken in depth preparation for the examination and what can only be described as pure guesswork must have been applied to numerous questions.

PAPER 3: STATION MANAGEMENT, ADMINISTRATION AND LEGISLATION

Once again the level of answers provided was generally disappointing. Many responses demonstrated that candidates are more comfortable with simply recalling knowledge, learned by rote, rather than demonstrating any understanding of the subject. The changes to the format of the Examinations from next year will require candidates to take this aspect on board as it will be the key element in question setting for future papers.

A clear division was apparent between those who had studied diligently and provided answers which attracted high marks on all questions, and those who had not. Some scripts were returned either totally blank or with just five or six lines written in response to one question. At this level of examination this is disturbing and less than satisfactory.

PAPER 4: PRACTICAL FIREMANSHIP AND COMMUNICATIONS

The mix of questions on this year's paper was aimed at establishing the level of awareness of operational responses in a number of key areas. There were opportunities for candidates to develop their responses to questions in areas such as tunnel firefighting, a recurrent and difficult operational issue in the Service. Whilst it was pleasing to note that this year's response was to a higher standard than in previous years, it is still evident that many candidates are relying on their personal experience rather than extensive study of the Bibliography relating to the examination.

Whilst some applied this somewhat selective approach to preparation there were a number of candidates who provided excellent scripts and there was a high level of awareness of issues such as arson and decontamination procedures. It was less pleasing to note the disappointing awareness of radiation procedures, ventilation procedures and the correct approach to dealing with electrical incidents. It was even more disappointing to note a number of scripts which contained potentially life-threatening proposals!

COMMENTS ON SUBJECTIVE QUESTIONS

PAPER 1: FIRE PREVENTION INCLUDING RELATED LAW

Questions: Paper 1 - Section B

Attempt FIVE questions only

- 1 Firefighting shafts are provided in certain buildings.
- (a) Detail the criteria which would determine the need for a firefighting shaft. (4 marks)
- and
- (b) List the seven features which should be incorporated into the design and construction of a firefighting shaft. (15 marks)
- and
- (c) The location of firefighting shafts should be such that every part of every floor, other than Fire Service access level, is no more than a prescribed distance away from a firefighting lobby. Identify the distances and the criteria relating to the following situations:
- (i) when the internal layout is known;
- and
- (ii) at the design stage when the internal layout is not known. (6 marks)

Bibliography: Manual of Firemanship Book 8, pages 95 – 96.

Although no candidate achieved maximum marks, some good concise scripts were submitted. Most of the candidates who achieved a satisfactory mark confined themselves to brief lists of the criteria required, while those who went into great detail were usually masking a lack of knowledge of the subject. Those candidates who spent time on explaining practical operational procedures attracted no marks, while others who concentrated on means of escape from high buildings rather than the criteria for access for firefighters purposes also failed to attract marks. A number of candidates attempted to complicate the question and spent time explaining how to determine the number of firefighting shafts for a given floor area, rather than dealing with the maximum distances permitted from every part of every storey to the entrance to the firefighting lobby. Other common faults included reference to types of occupancy and process as the criteria for determining the need for firefighting shafts.

- 2 By virtue of their construction large underground and unfenestrated buildings are especially dangerous to both occupants and firefighters when involved in fire.
- (a) Identify the problems you would expect for firefighters should a fire occur. (12 marks)
- and
- (b) Following a request for advice from an occupier/owner of such a building, specify the fire safety and fire protection measures that would form the basis of your recommendations. (13marks)

Bibliography: Manual of Firemanship Book 8, pages 146 – 147.

Although this was a very popular question with candidates it was regrettable that there was only a small percentage of responses that gained very high marks – clearly these candidates had studied and were able to recall the bibliography. Full marks could easily be gained by repeating the lists from the bibliography AND making reference to BA procedural difficulties. Few candidates dealt with the BA issue effectively.

Many candidates attempted to answer the questions by generalising about fighting fires in buildings – rather than highlighting the specific concerns of basements or unfenestrated buildings. Only a few marks could be gained in this way.

-
- 3 Glass is a material used in building construction.
- (a) Name the three main types of modern fire-resisting glazing and for each describe in detail their behaviour in fire. (18 marks)
- and
- (b) (i) Define the advantages associated with the use of glass in fire-resisting elements of building construction.
- and
- (ii) State briefly any precautions which should be taken with regard to its installation. (7 marks)

Bibliography: Manual of Firemanship Book 8, page 9.

Those candidates who were able to identify the three main types of fire resisting glazing required by part (a) also went on to accurately describe the behaviour of each related component when involved in fire. Most other candidates appeared to be confused by the difference, and this was reflected by some clearly uninformed answers.

Only a few responses to Part (b)(i) were confined to the required answer, which clearly related to the advantages of the FR elements of the material. The majority went into considerable detail about other unassociated aspects attached to its use in a building.

Knowledge relating to the need for frames and hardware to conform to the same standard was poor and very few candidates understood this requirement.

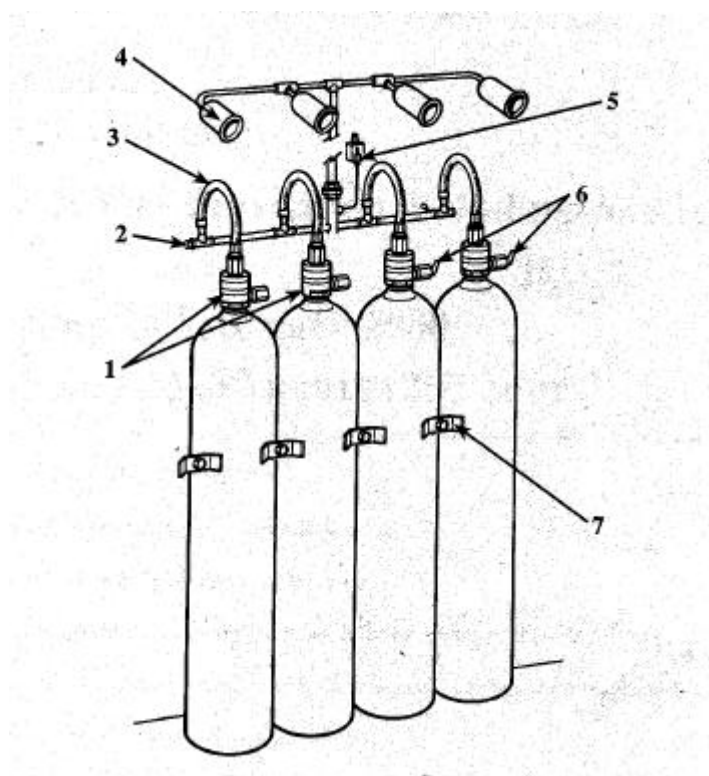
- 4 Pressurisation can be used for the protection of staircases, lobbies or corridors as an aid to means of escape.
- (a) What are the two basic factors that must be considered when a pressurised system is designed? (4 marks)
- and
- (b) Briefly describe the **three** different types of single or two-stage system operation that can be used. (8 marks)
- and
- (c) Describe the different design features that can be incorporated into a building to provide a final leakage path where there is insufficient leakage through windows and doors. (13 marks)

Bibliography: Manual of Firemanship Book 9, pages 196 -197.

The question specifically referred to 'Pressurisation' of staircases, lobbies or corridors yet many candidates related the question to 'ventilation'. Descriptions of Exhaust, Plenum and Balanced ventilation systems for part (b) attracted no marks, as there is no common ground with the bibliography for single or two stage pressurisation systems.

Candidates should always look carefully at the allocation of marks for a question and target their time and effort where it will achieve the greatest result. Those candidates who looked at the allocation of marks saw that part (c) was worth 13 marks and that a simple list of features that can be incorporated into a building that allow for escape of air (final leakage path) attracted good marks. Candidates who did not attempt part (c) effectively failed to achieve satisfactory level of marks in this question, as insufficient marks were available even if parts (a) and (b) were answered 100% correctly.

- 5 In relation to carbon dioxide (CO₂) fixed installation systems:
- (a) List the main factors that will have been considered when identifying how much gas is required. (5 marks)
- and
- (b) describe the three types of cylinder arrangement that are usually found where protection is required for more than one compartment or zone. (12 marks)
- and
- (c) name the seven identified parts of the diagram below of a battery of (CO₂) cylinders covering a small risk. (8 marks)



Bibliography: Manual of Firemanship Book 9, pages 81 - 82.

The majority of candidates answered parts (a) and (c) of the question well. However, the responses to part (b) were disappointing with only a minority of answers achieving anything near the maximum 12 marks. This was due to a poor understanding of what was required by the question, to the extent that a number of candidates referred to refrigerated tanks and not the types of arrangements asked for.

The poor responses to part (b) therefore resulted in a lower number of candidates achieving high marks than should have been expected.

6 Section 6 of the Fire Precautions Act, 1971, refers to the contents of a fire certificate.

(a) Detail those matters which every fire certificate must specify. (14 marks)

and

(b) Detail the requirements which may be imposed by a fire authority within a fire certificate. (11 marks)

Bibliography: Digest of Legislation for the Station Officers' examination, pages 11 - 12.

This question proved to be the most popular choice of candidates taking this paper. Although there were many excellent scripts, there were a significant number of candidates who had evidently not studied the digest of legislation. These candidates must have attempted to answer the questions using limited practical experience, as the detail provided was extremely limited.

The candidates who performed best were those who understood the meaning of the items referred to in Section 6, and were able to express these using correct terminology. Common faults included:

1. A failure to differentiate between those items which 'must' be specified and those which 'may' be imposed. This led to information required in part (a) of the answer being listed in part (b) and as a result many available marks failed to be obtained.
 2. Another common failing was confusion over the explanations used to describe the means of escape in case of fire and the means (other than for firefighting) provided for securing the means of escape. This confusion often led to combined descriptions and duplication and thus wasted effort.
-
-

7 Premises can be granted an exemption under the Fire Precautions Act, 1971.

(a) Subsection 1 of Section 8A specifies the changes of conditions which must be notified to the fire authority.

(i) State these changes of conditions.

and

(ii) Identify who is required to give such notice.

and

(iii) State when the notice should be given. (13 marks)

and

(b) Section 8B of the Fire Precautions Act 1971, deals with the arrangements for making charges in connection with fire certification work.

Detail the circumstances under which a fire authority may and may not make such a charge in connection with fire certification work.

(12 marks)

Bibliography: Digest of Legislation for the Station Officers' examination, page 6.

A very popular question with approximately 60% of the candidates who attempted it achieving a satisfactory level of marks. Once again candidates who had put the work in to pre-study reaped the benefits. It was disappointing to see that some candidates had not apparently read the question properly and /or interpreted the question incorrectly. It was however reassuring to see that many candidates achieved high marks.

Simple errors and the apparent failure to read the question correctly resulted in many candidates failing to obtain the available marks.

PAPER 2: SCIENCE - HYDRAULICS AND WATER SUPPLIES: ELEMENTS OF COMBUSTION AND EXTINCTION: ELECTRICITY

Questions: Paper 2 - Section B

Attempt a total of THREE questions. Attempt ONE question only from each sub-section

SUB-SECTION (i) ELEMENTS OF HYDRAULICS AND WATER SUPPLIES

Attempt ONE question only from this section

- 1 (a) List the main sources from which water undertakers obtain water. (3 marks)
- and
- (b) Identify the main groups into which water mains are classified and explain briefly the function of each group. (10 marks)
- and
- (c) Name the four factors that are taken into account when calculating the maximum flow necessary for a typical water distribution pressure zone. (10 marks)
- and
- (d) Name two natural ways in which over time the carrying capacity of cast iron and other ferrous metal pipes is often reduced. (2 marks)

Bibliography: Manual of Firemanship Book 7, pages 70 - 72.

Approximately half of the candidates attempted the question and about half of these obtained a satisfactory level of marks.

Those candidates who had studied the bibliography were able to quickly demonstrate their knowledge of the subject and obtain a high level of marks for simple, concise answers.

In Part (b), marks failed to be obtained by a number of candidates who provided inaccurate descriptions of main classification possibly by relying on 'experience' rather than a study of the subject.

In Part (c), a number of candidates failed to demonstrate an understanding of the question referring to main dimensions rather than the requested information, the answer required was a simple list, as contained within the bibliography.

Notwithstanding the foregoing remarks, it was evident that a good percentage of candidates had a reasonable level of knowledge of water supplies.

2 (a) Name the six basic rules governing the principle characteristics of pressure in liquids. (12 marks)

and

(b) For the measurement of atmospheric pressure:

(i) name the two principal types of barometer used;

and

(ii) explain why it would be impracticable to generally use a water barometer for this purpose. (3 marks)

and

(c) List and describe briefly the factors to contend with when a fire pump is got to work from an open water supply. (10 marks)

Bibliography: Manual of Firemanship Book 7, pages 3 - 7, and 23 - 27.

Generally the question was answered to a high standard by those candidates who attempted it.

Part (a) was better answered than either part (b) or (c). For these parts a large number of candidates appeared to rely on personal experience rather than studying, but this only displayed a lack of any depth of knowledge. Candidates must realise that the term 'etc' has never attracted any marks as it conveys nothing to an examiner.

A number of candidates included diagrams and, although not required, where they were clear and correct, these helped the examiner to award marks where there was any ambiguity in the text of the answer provided.

SUB-SECTION (ii) ELEMENTS OF COMBUSTION AND EXTINCTION

Attempt ONE question only from this sub-section

- 3 (a) Define briefly the following terms and state their recognised unit of measurement:
- (i) speed;
 - (ii) velocity; and
 - (iii) acceleration. (15 marks)

and

- (b) At a special service, there is a need to raise a weight of 6 kg vertically through 4 metres. Calculate the work done against gravity to achieve this objective. (10 marks)

(All formulae and workings to be shown).

Bibliography: Fire Service Manual - Volume 1 - Fire Service Technology, Equipment and Media - Physics and Chemistry for Firefighters - pages 9, 10 and 11.

This was not a popular question with candidates, but it was readily apparent that those who had prepared themselves for the examination obtained the high marks that their efforts deserved.

In Part (a) it was disappointing to note the number of candidates who failed to provide any reasonable definition of the three elements in the question. Some produced very detailed drawings and explanations for speed and velocity when three accurate sentences would have provided the responses necessary.

A number of candidates gave the definition of speed as the answer for velocity and acceleration, omitting any reference to displacement or velocity. This only demonstrated a confused understanding of the subject which obtained no marks.

In Part (b) many candidates failed to define the formula adequately in terms of mathematical function or the SI units of the variables. Unfortunately, elaborate drawings of pulley arrangements to lift the weight provided little relevance to any calculation.

- 4 (a) List the properties of metals. (14 marks)
- and
- (b) When faced with separate fires involving: barium; chromium; lead; and bismuth:
- (i) what would be the expected reaction of each if water was applied;
- and
- (ii) what specific precaution would firefighters need to take at such an incident? (6 marks)
- and
- (c) List five metals which are 'pyrophoric'. (5 marks)

Bibliography: Fire Service Manual - Volume 1 - Fire Service Technology, Equipment and Media - Physics and Chemistry for Firefighters - pages 76 and 77.

This was the most popular question with candidates and was, in the main, well answered.

In Part (a) some candidates listed the qualities of metals in terms of their use in the construction of building rather than their basic properties.

The answers provided by candidates for Parts (a) and (c) attracted the most of their marks whilst Part (b) was in the main poorly answered. For the first section of the Part (b)(i) many candidates provided one answer for all metals which attracted few marks due to the need for different reactions which would be expected. For Part (b)(ii) candidates detailed the various methods of fighting fires involving metals and ignored the specific and essential precaution of wearing breathing apparatus.

SUB-SECTION (iii) ELECTRICITY

Attempt ONE question only from this sub-section

- 5 You attend a special service call as the officer-in-charge. A person has climbed a pylon and is close to high voltage overhead lines, but is unable to climb down unaided.
- (a) From whom, and in what forms, should you seek authorisation to enable firefighters to scale the pylon to carry out the rescue? (5 marks)

and

- (b) What dangers could ensue even if the power appears to be off? (20 marks)

Bibliography: Fire Service Manual - Volume 2 - Fire Service Operations - Electricity - pages 13 and 14.

This was a popular question which was poorly answered. Most candidates appeared to rely on operational experience even though few are likely to have met this problem and this therefore proved to be insufficient to achieve the required level of marks.

In Part (a), many candidates stated that a safety document must be issued before a rescue could be initiated, when this was not the case. Very few candidates mentioned that the instructions issued by the authorised person must be followed.

Part (b) dealt with the dangers that could ensue if the power appears off. Candidates must understand that this is a science paper and that the question required them to display an understanding of how the supply system operates, together with the characteristic of electricity particular to high voltage overhead lines on pylons.

-
- 6 On arrival at a fire involving a building, you discover several neon signs (luminous discharge tubes) operating on the outside of the building.
- (a) Explain briefly the working principles of a luminous discharge tube. (6 marks)

and

- (b) (i) What dangers do these signs present to the firefighter?

and

- (ii) What precautions should be applied to overcome any dangers from these signs?

(19 marks)

*Bibliography: Fire Service Manual - Volume 2 - Fire Service Operations -
Electricity - pages 12, 35 and 36.*

This question did not prove itself to be popular with candidates and many of those who attempted it failed to display any reasonable level of knowledge of the subject.

Far too many candidates appeared to rely on experience and practical firefighting knowledge for their answers. What was required was an understanding of the principles of a luminous discharge tube and the dangers they can provide to firefighters – not a detailed list of firefighting actions on arrival at an incident involving such devices.

A significant number of candidates failed to identify the risk of electrical shock in their answers which was a particularly disturbing omission from candidates aiming to achieve the rank of station officer.

Some candidates stated that the operation to disconnect power via the “firefighters switch” was to pull down on the lever. If this completely erroneous action were taken at an incident, the potential risk of electrocution to firefighters is clearly identified.

In general many candidates demonstrated a lack of preparation. There is no substitute for a comprehensive study of the bibliography, if a good quality pass mark is to be achieved.

Candidates who correctly identified the working voltages associated with luminous discharge tubes and the dangers associated with working in proximity to them gained, relatively high marks.

Overall this was a question which was poorly answered by the majority of candidates who attempted to use their limited knowledge obtained at operational incidents rather than scientific knowledge as the basis for their answers.

PAPER 3: STATION MANAGEMENT, ADMINISTRATION AND LEGISLATION

Questions: Paper 3 - Section A

Attempt TWO questions from this section

- 1 (a) A systematic approach to risk assessment requires a clear understanding of terminology.

Explain what is meant by each of the following terms:

- | | |
|---------------|----------------|
| (i) Accident. | (v) Near miss. |
| (ii) Danger. | (vi) Risk. |
| (iii) Harm. | (vii) Safe. |
| (iv) Hazard. | (viii) Task. |
- (16 marks)

and

- (b) Explain, in detail, the three general principles that should be satisfied in a risk assessment. (9 marks)

Bibliography: Principles of Management booklet for Station Officers' examination - pages 55 & 56.

Part (a) was generally well answered. However, a high proportion of responses did not provide a satisfactory explanation, and therefore implied a lack of understanding, of the terms 'Danger' and 'Safe' which prevented the awarding of marks accordingly.

Part (b) asked for the three general principles to be satisfied in a risk assessment namely:

- identify the significant risks arising out of the work.
- enable the employer to identify and prioritise measures that need to be taken.
- that these should be appropriate to the nature of the work.

Many candidates apparently mis-read or failed to understand this question, making responses to the levels of assessment, Strategic/Systematic/Dynamic or detailing the "Safe Person Concept", neither answer attracting marks.

A significant number of candidates used valuable time in providing answers which included scenarios to illustrate risk situations not required by the question, and therefore securing no additional marks.

Generally it was evident from the responses that the information required for Part (a) was well understood, but the need for any explanation of the general principles demonstrated a lack of any particular depth of knowledge and understanding of the subject.

- 2 Douglas McGregor propounded a theory concerning the influence of the working environment on motivation and job performance. He made certain assumptions that he grouped under headings which he called 'Theory X' and 'Theory Y'.
- (a) What assumptions are made under 'Theory X'? (6 marks)
- and
- (b) What assumptions are made under 'Theory Y'? (6 marks)
- and
- (c) Give a brief explanation of the overall concept of his theory and its relevance to the task of a commander. (13 marks)

Bibliography: Principles of Management booklet for Station Officers' examination, pages 26 and 27.

This was a popular question with candidates. However, whilst many attempts attracted good marks for the first two sections on theory "X" and "Y" assumptions, the third part of the question was not well answered.

Many candidates failed to demonstrate an understanding of the overall concept. In particular, aspects concerning supervisors' attitudes and management styles and their effects on employee behaviour.

Many responses misunderstood the concept, placing the onus on the employees' attitudes rather than those of the commander.

- 3 Local Government Finances require the setting of a budget to control the expenditure and income of the Authority.
- (a) Explain briefly the five reasons for preparing a budget. (10 marks)
- and
- (b) Explain the difference between Capital spending and Revenue spending, and give two examples of each. (6 marks)
- and
- (c) Explain the budget planning process relative to:
- (i) Capital expenditure.
- and
- (ii) Revenue expenditure. (9 marks)

Bibliography: Principles of Management booklet for Station Officers' examination, pages 38 and 39.

A very popular question with candidates which provided a poor overall mark for the majority of candidates who attempted it.

Whilst many candidates gave good answers to Parts (a) and (b), Part (c) was in general poorly answered. Very few candidates were able to gain the marks on offer in this part.

It appeared that whilst many candidates started well, providing a firm foundation to their efforts to collect good marks for the question, their efforts foundered by either their failure to provide an answer of any kind to Part (c) and/or giving a long answer on where the finance for Capital/Revenue comes from. Unfortunately, this was not asked for.

Whilst the failure to answer Part (c) was probably a reflection of an individual's lack of knowledge, giving a long answer to a question which was not asked can only be the result of careless reading of the question.

Candidates are urged to read the questions with care, checking each part to ensure that it truly reflects their understanding.

Section B – Administration and Legislation

Attempt THREE questions from this section

- 4 The National Joint Council for Local Authorities' Fire Brigades' Scheme of Conditions of Service (Grey Book) uses a formula to determine rank, and provides criteria for the typical responsibilities of those various ranks.
- (a) What are the two main factors included in the formula used for grading of officer ranks within a divisional rank structure? (2 marks)
- and
- (b) State in detail the typical responsibilities of the following ranks:
- (i) Divisional Officer I.
 - (ii) Divisional Officer II.
 - (iii) Divisional Officer III.
 - (iv) Assistant Divisional Officer.
 - (v) Station Officer. (18 marks)
- and
- (c) Define the term 'appliance' when used in connection with the responsibilities of a Leading Firefighter. (5 marks)

Bibliography: National Joint Council for Authorities' Fire Brigades' Scheme of Conditions of Service (Grey Book), pages 1.1 & 1.2.

This question was unpopular, with few candidates attempting it. Of those who thought it worthy of their interest, few managed to answer all but the first part with any degree of success.

Part (a) was generally well answered.

Part (b) provided a mixed response with some candidates giving a good answer whilst others relied on "perceived wisdom".

Part (c) was, in the main, very poorly answered.

The quality of answers provided, or lack of it, is sufficient to suggest that candidates be urged to carry out a programme of study rather than trust that a reliance on vague knowledge will carry them through.

5 (a) *The Motor Vehicles (Wearing of Seat Belts) Regulations 1993, provides specified exemptions from the general requirements relating to the wearing of seat belts.*

(i) *LIST these exemptions.*

and

(ii) *Notwithstanding these exemptions, what safety advice has been strongly recommended to personnel when using Fire Service vehicles?*

(20 marks)

and

(b) *Explain the exemptions applicable to fire brigade drivers in relation to drivers' hours in Part VI of the Transport Act 1968 and the EU (EEC) Regulations.*

(5 marks)

Bibliography: Digest of Legislation for the Qualifying Examination for Promotion to the Rank of Station Officer, pages 70 and 71.

This was a popular question with candidates and some very good scripts were received.

Candidates who had clearly studied the bibliography presented well structured responses with little or no padding and achieved good results.

However, yet again, too many candidates appeared to be relying on their limited knowledge of brigade practice and personal experience. There is no reference in the bibliography relating to this examination on this subject to "pregnant women" and "drivers of milk floats". Far too many scripts contained irrelevant information such as this and repeated the same answer two or three times. Perhaps these candidates had lost sight of the fact that the examination being taken related to the rank of Station Officer in the Fire Service.

6 The Fire Services Act 1947 makes provision for fire services in Great Britain.

(a) List the six particular duties placed upon every fire authority by Section 1(1) of the Act.

(16 marks)

and

(b) Explain the provisions contained in Section 15 of the Act relative to the provision of water supplies otherwise than by statutory undertakers.

(9 marks)

Bibliography: Digest of Legislation for the Qualifying Examination for Promotion to the Rank of Station Officer, pages 40 and 47.

This proved to be a popular question which attracted a large response with the majority who attempted it obtaining a satisfactory level of marks.

In Part (a) the majority of candidates gained a high level of available marks and displayed a sound knowledge of Section 1 of The Fire Services Act. However, there were numerous occasions when available marks failed to be obtained when specific detail was omitted from the answer provided.

Overall, Part (b) was poorly answered. A general lack of knowledge was displayed by candidates as to the fire authorities power under this section of the Act. Candidates failed to appreciate the difference between securing a water supply by agreement and the fire authority's statutory power to use water, and therefore gave a confused response which failed to gain the available marks.

Short unclear statements relating to water provision failed to attract marks. The question focused upon supplies other than by statutory undertakers and the impact of the brigade taking water from this source. Candidates would have benefited from obtaining a general understanding from the bibliography and placing this in a logical format.

Candidates who had obviously prepared well for the examinations reflected this in a well constructed and detailed answer.

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-
- 7 The National Joint Council for Local Authorities' Fire Brigades' Scheme of Conditions of Service (Grey Book) details the provisions relating to sick leave.
- (a) Detail a member's entitlements relating to pay when on authorised sick leave. (13 marks)
- and
- (b) Explain the effect, on leave entitlement, of sickness during periods of annual leave and public holiday leave. (12 marks)

Bibliography: National Joint Council for Local Authorities' Fire Brigades' Scheme of Conditions of Service (Grey Book), pages 4.1 and 4.2.

There was not a sound depth of knowledge on the overall subject to which the question related displayed in the answers submitted.

Part (a) required candidates to differentiate between pay entitlements relating to both non-service and service related sickness together with the relevant calculation methodology. Only a few answers accurately detailed the various levels of entitlement and the majority gave confused responses relating to both circumstances. This often included unnecessary procedural detail about local arrangements.

By contrast, the majority of candidates were familiar with the leave entitlement arrangements referred to in Part (b) and this was reflected by some well informed answers.

- 8 Section 30 of the Fire Services Act 1947 confers certain powers on members of a fire brigade for extinguishing fires.

Identify the powers relating to:

- (i) powers of entry;
- (ii) control of operations;
- (iii) the improvements of water supplies; and
- (iv) closure of streets.

(25 marks)

Bibliography: Digest of Legislation for the Qualifying Examination for Promotion to the Rank of Station Officer, page 52.

The subject of powers of entry is one which every recruit to the Service should have detailed knowledge and it is therefore disappointing that almost 50% of the scripts failed to achieve a satisfactory level of marks.

Many candidates confused the requirements for improvement of supplies for firefighting with the provision of adequate sources of water under the Water Act.

There were many good scripts which had clearly resulted from proper study of the digest combined with the working knowledge of the fundamental legal powers of firefighters.

Finally, whilst it did not detract from the marking tally, it is disappointing to note that a small minority of candidates still use the term 'fireman', which, given their aspiration for middle management of the service, show a lack of understanding of the basic philosophy of equal opportunities.

PAPER 4: PRACTICAL FIREMANSHIP AND COMMUNICATIONS

Questions: Paper 4

Attempt FIVE questions only

- 1 (a) There are seven broad categories of motive which can be linked to the typical arsonist, what are they? (11 marks)
- and
- (b) Detail seven general indicators which might suggest that arson is a cause of fire. (14 marks)

Bibliography: Manual of Firemanship Book 12, pages 223 – 226.

The question was very popular with candidates the majority of which achieved a satisfactory level of marks. Candidates who read the question understood its requirements and provided answers in list form generally attracted higher marks than candidates who provided essay-type answers.

The popularity of the question suggests that operational knowledge and experience of candidates, as opposed to thorough studying and understanding of the bibliography would be sufficient to achieve a pass mark. Whilst it is fair to say that operational knowledge was sufficient in this question to obtain a small number of marks, it was not sufficient to provide a base on which to build a pass for the total paper. Candidates who had obviously studied the bibliography were able to attain high marks. Many of the candidates who attracted the highest marks, answered the question with carefully applied words in two lists, using less than one sheet in the answerbook.

It was disappointing to note that Part (a), which asked for categories of motive for arson, was answered better than Part (b), suggesting that candidates know the reasons for arson but were unable to identify indicators for considering arson as a cause of fire.

There are a number of other points worthy of note:

- Poor spelling - 16 different ways to spell 'accelerant' were noted.
- Poor handwriting - Whilst every attempt is made by examiners and no penalties applied on poor handwriting – no marks can be awarded if the Examiner cannot read the answer.
- Many candidates apparently failed to read the question; often details of broad categories given when only a list was asked. In Part (b), detail was asked for and should have been given. Again many failed to gain full marks as less than the requirement of the question was provided in a short list.

- 2 You are the officer-in-charge of the pre-determined attendance responding to a fire involving a number of vehicles. Whilst en route to the incident, you receive a further message informing you that 'RADIATION IS SUSPECTED'.

Summarise the procedural guidelines that you will need to action and consider.

(25 marks)

Bibliography: Technical Bulletin No. 2/1993, pages 39-40.

The question required candidates to summarise the procedural guidelines they would consider "en route" to a fire involving vehicles where radiation is suspected.

The vast majority of candidates wrongly described an initial action plan, which was not called for, and as a result, failed to obtain available marks. Most failed to consider contacting a competent person on arrival, whether the source was involved, PPE, instrumentation, restricted area, duties of the BAECO and decontamination, and provided stock phrases such as:

"Remember time, distance, shielding", "ALARP" and "Carry out a dynamic risk assessment" which attracted no marks.

Too many candidates wandered off at a tangent and referred to their actions at a RTA on a motorway, resulting in lengthy scripts which gained no marks. The response to this question was disappointing, both in terms of quantity and quality.

- 3 You have been appointed as Brigade's liaison officer, to meet with the representatives of the operator of a long tunnel used for rail traffic, to discuss the creation/formation of a contingency plan should an accident involving fire occur.
- (a) List the five key factors which you believe will create a heavy strain on firefighting operations at such an incident. (10 marks)
- and
- (b) Identify the steps you would recommend to the Brigade Management Team which should enable required preparation and planning to be implemented. (15 marks)

Bibliography: Technical Bulletin 1/1993, pages 14 and 15.

This was not a popular question with candidates and the great majority incorrectly treated this question as an incident using Part (a) as en route, and Part (b) as on arrival and dealing with it. With candidates failing to recognise that the question was about planning before an event, this meant that the required information was not provided and, therefore, few gained the available marks.

The question made it clear that the candidate had already been appointed liaison officer, with a mandate to meet the tunnel operator so as to develop a contingency plan for a rail accident involving fire.

Part (a) directed candidates to list five key factors which would create a heavy strain on operations. The factors were basic, poor access, long travel distances below ground, congestion, high temperatures and poor communications. Many candidates went into use of a split attendance, BA, long hose lines etc, which were to do with dealing with the key factors rather than the factors themselves.

Having set their thoughts on dealing with an incident, the majority proceeded to deal with it rather than address Part (b) of the question. This was all about determining resources, seeking specialist advice, knowing where to obtain specialist equipment and that it would be available ensuring that equipment provided for Brigade use was regularly inspected/tested, preparing a contingency plan which would incorporate procedural and technical advice being innovative about procedures and equipment and about an effective training programme for local crews and officers, incorporating familiarisation visits, exercises etc.

Careful reading of the question by the candidate would have clearly overcome many of the problems that this question provided for them.

- 4 In connection with international systems for providing information on dangerous goods being carried by road vehicles:
- (a) describe an ADR label and explain the significance of the numbers which are found in the upper panel; (13 marks)
- and
- (b) list the information which will be given on a Transport Emergency Card (Tremcard). (12 marks)

Bibliography: Manual of Firemanship Book 12, pages 133 – 135.

A popular question which was answered by most candidates taking Paper 4, with many achieving a good level of marks.

A small number of candidates answered Part (a) of the question with the UK Transport Hazard Information System (Hazchem) which resulted in a much lower mark being achieved.

The most difficult part of the required answer proved to be the significance of the Kemler code numbers.

Part (b) of the question was well answered, and many candidates picked up a valuable number of marks even if Part (a) had proved more difficult.

It was obvious that where candidates had studied the relevant chapter in the Manual of Firemanship, they were able to construct a high scoring answer.

-
- 5 Ventilation can be used as a tactical option during firefighting. When properly used, it can have significant beneficial effects on firefighting.
- As the officer-in-charge of an incident, summarise the basic principles which you need to consider and apply before commencing ventilation. (25 marks)

Bibliography: Fire Service Manual Vol 2, Compartment Fires and Ventilation, page 67.

This was a popular question with candidates which only occasionally attracted high marks.

This was disappointing as, it had been provided to reinforce the subject which had been dealt with in previous years and was considered worthy of further testing.

Some effort was wasted by candidates giving great detail on the advantages and disadvantages of ventilation rather than the principles to be considered.

Many marks failed to be obtained by candidates who seemed to rely on their practical operational skills rather than the detail given in the bibliography. This is a relatively new concept in the British Fire Service and a clear understanding of these principles is fundamental to the safe use of the equipment.

Those wishing to achieve the rank of Station Officer would do well to study this important subject in greater depth than the result of this question suggests is the case at the present time.

- 6 You are tasked with identifying the most appropriate type of breathing apparatus set to be provided for dealing with fires in extensive underground structures in your brigade's area.

Detail the three available options and identify the strengths and weaknesses applicable to each.

(25 marks)

Bibliography: Technical Bulletin 1/1993, pages 19 and 20.

This was not a popular question with candidates. However, some excellent responses to the question gained a high level of marks.

Marks failed to be obtained where candidates could not identify the requirements for sufficient working duration with CABA.

Many candidates gave "Airlines" in isolation as an option. This option must require/utilise a combination of CABA and Airlines. Failure to combine these meant that marks could not be awarded.

A number of candidates mentioned air instead of oxygen in the closed circuit BA. This could have been carelessness or a lack of knowledge of the subject, but whatever the reason, marks could not be awarded for this.

Oxygen Rebreather sets were mentioned on a number of occasions, but there is no reference to this concept in the bibliography. Candidates who achieved low marks clearly had not studied the bibliography.

- 7 You are appointed as the Decontamination Officer at a large chemical incident requiring wet decontamination.

(a) Identify the eight factors you need to take into consideration regarding siting the decontamination zone.

(16 marks)

and

(b) With the aid of a labelled diagram, illustrate the typical layout of a decontamination zone and the location of key personnel for the decontamination procedure.

(9 marks)

Bibliography: Manual of Firemanship Book 12, pages 146-148.

This question attracted the majority of candidates to attempt it, most of whom achieved satisfactory marks. However, in some cases the responses could have been more concise simply by providing what was asked for by the question.

Whilst the labelled diagrams provided for Part (b) were generally satisfactory, some were overly complicated and difficult to interpret.

It was obvious that a number of candidates chose to answer this question because of their familiarity of operational procedures within their Brigade rather than their awareness of the Bibliography/Manual of Firemanship.

8 In relation to rescues of persons injured by, or in the vicinity of, electricity:

- (a) draw a Rescue Flow Chart showing the risk assessments that should be made when attempting a rescue in the vicinity of electricity. Your risk assessment should start with the question 'is the casualty alive?'

(17 marks)

and

- (b) if it is felt justified to switch out the electrical circuit to an overhead transmission line, what information will be needed by the Grid Control centre?

(8 marks)

Bibliography: Fire Service Manual Vol 2, Electricity, page 48.

This was the first year that a risk assessment flow chart had been required and the results were disappointing. Candidates who studied well, answered well and achieved high marks. The majority had not studied well in this area and achieved very poor marks. The plain wording of the question is evident, yet some candidates gave answers regarding vehicles in contact with power cables and some gave detailed explanations of problems faced by incidents involving electric trains. Candidates who used this method to deal with the question might have been successful if they had understood what was being asked, but regrettably this failed to be the case.

The first part of the question asked for a Simple Rescue Flow Chart. Some candidates did not understand what a flow chart was and obviously had not read the Bibliography. Other candidates gave very good Risk Assessment Flow Charts, which was very encouraging to see, but gained no marks as they did not deal with the subject identified in the question.

Once again, the recurrent theme must be that those who put the work in will provide themselves with a better opportunity to reap the rewards, whilst those who do not put the work in, are more likely to fail.

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