



Question Papers and Report of the
Assessors and the Examiners for the
Qualifying Examination for
Promotion to the Rank of
Sub-Officer
Part I: Written Examination 2004

QUESTION PAPERS AND REPORT OF THE ASSESSORS AND EXAMINERS FOR THE
QUALIFYING EXAMINATION FOR PROMOTION TO THE RANK OF SUB-OFFICER
PART I WRITTEN EXAMINATION 2004

GENERAL COMMENTS

The nineteenth examination conducted by the Fire Services Examinations Board produced a pass rate of 31.8% from 434 candidates who sat the examination. These figures show an increase in the percentage pass rate to that achieved last year (26.0%), but a decrease in the number achieving success (-122) from a significant decrease in the number of candidates sitting the examination (-507).

However, the percentage of candidates achieving a pass improved in three of the four papers, but decreased significantly in one, this being Paper 3 – Human Resource Management which assesses the candidates' knowledge and understanding of the subjects relating to Employment Law, Training and Development, Health, Safety and Welfare. The responses of candidates in this paper clearly indicated a weakness in these subjects.

As in previous years, there were a number of excellent scripts, but regrettably, these were in the minority. However, the number of candidates who failed to pass any paper was greatly reduced.

Those who failed to achieve passes provided the impression that they had not undertaken any reasonable steps to prepare themselves for the examination. This not only expressed itself in the lack of knowledge and understanding demonstrated in the responses submitted on the various subject, but also in the lack of examination technique applied.

With regard to the use of examination technique, candidates should above all use their available time wisely. Candidates should take sufficient care to read and understand what information is being sought and how it suggests that it be presented. The temptation to scan the questions and rush into writing an answer should be avoided. There continues to be many instances where very detailed responses full of excellent information have been provided which were, sadly, not relevant to the questions asked and which consequently attracted no marks.

Having completed the answers to the set questions, candidates should take time to read through them and compare each to the relevant question. Examiners can only mark what has been submitted and are not in a position to imagine what a candidate meant to write. There have been numerous instances where it was considered that inaccuracies and/or inadequacies within a script could have been identified and corrected if sufficient care had been taken when undertaking this final check.

All questions should be attempted. Failure to answer any question will reduce a candidate's opportunity to gain those marks which can mean the difference between obtaining a pass or failure in that paper.

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

PAPER 1: OPERATIONS

GENERAL COMMENTS

Comments Relating to Questions

Considering that this paper relates to operational matters and safety on the incident ground which candidates in most cases should have a solid grounding, it was disappointing to note the lack of knowledge and understanding on most operational subjects to which the questions related, especially that relating to oxidising agents and oil storage tank fires.

It was obvious that a considerable proportion of candidates had not studied appropriately and relied upon previous experience to hopefully get them through the examination. This approach failed to attract adequate marks and so reflected on a candidate's capacity to achieve sufficient marks to obtain a pass for the paper.

The need for in-depth study of the bibliography has to be stressed to candidates.

Many responses were of such a brief nature that they failed to assist in conveying any satisfactory depth of knowledge and understanding of the subjects and resulted in poor marks being obtained.

Candidates failed to appreciate the necessary detail required in some answers to achieve the maximum marks and provided only sparse responses which failed to attract many of the marks available.

Another common failure amongst candidates was the provision of information in their answers that was neither required nor asked for by the question.

The standard of written communication shown by a number of candidates was very poor and provided difficulties for the examiners in trying to interpret the responses submitted.

However, on a positive note, it was readily apparent from the quality of certain scripts that those candidates who took the time to carry out sufficient depth of study of the bibliography and took the care and time to read and understand the question provided good quality answers which attracted high marks.

SECTION A OPERATIONAL PROCEDURES AND INCIDENT COMMAND

Attempt BOTH questions

1 You are the Incident Commander of what was initially a moderately sized incident and, under the circumstances, had implemented Stage I breathing apparatus entry control procedures. However, due to the incident developing, you have decided to move from Stage I entry control procedures onto Stage II.

- (a) Identify the **additional monitoring duties** of the Entry Control Officer at Stage II that you will now expect to be satisfied.

(13 marks)

and

- (b) Whilst awaiting additional resources to arrive, you decide to rationalise the number of BA teams currently deployed within the incident. As a result you have decided to deploy the principle of re-entry. As the Incident Commander, what criteria would you be required to satisfy **prior to allowing** a BA team to re-enter a building?

(12 marks)

Bibliography: Technical Bulletin 1/1997, Chapter 1 Control Procedures (CNP7 and CNP 11).

Whilst it was a popular question with candidates, many were unsuccessful in achieving a satisfactory level of marks. It was clear to the examiner that many candidates were relying on practical experience as opposed to applying knowledge and understanding from study of this subject for the examination.

It should be noted that part (a) asked for the identification of **Additional Monitoring Duties** of an entry control officer at stage II. It did not ask for:

- General duties of an ECO
- Emergency procedures associated with BA
- Criteria for moving from stage I to Stage II
- BA Guideline procedures

Which numerous candidates submitted in their response

Additionally, many candidates appeared to be confused between emergency teams and relief teams. Overall, part (a) was very poorly answered with many candidates failing to gain any of the available marks.

Part (b) asked for the principles relating to **Re - Entry**. Generally this part was well answered by the majority of candidates although there was some confusion displayed over what constitutes **Initial Entry** (face mask seal unbroken) and what constitutes **Re – Entry**.

Overall a disappointing result in a subject which is a principal safety procedure.

2 You are officer-in-charge at a farm fire which has involved a quantity of fertilisers within a barn, severely damaged by fire. During the course of operations, run-off water entered a local watercourse adjacent to the premises involved.

- (a) The Water Resources Act 1991 states that 'it is an offence to cause or knowingly permit polluting substances to enter controlled waters'. However, there are certain conditions that may constitute a statutory defence to this offence.

Identify and briefly describe these conditions. (12 marks)

and

- (b) What are the processes for which the Environmental Agency/SEPA has a responsibility in relation to the protection of the environment? (4 marks)

and

- (c) The responsibility for the disposal of contaminated materials varies dependant on the location of the materials when they become contaminated.

List three parties who normally have such responsibility and provide an example of the areas of jurisdiction for each.

(9 marks)

Bibliography: Study Note 2102 – Pollution, pages 2, 3 and 6.

The question was well understood by all candidates, although those who apparently relied on operational experience rather than a knowledge of the Study Note did not score well.

In part (a), the majority of candidate responses stated that the defence extended to saving property when in fact it is limited to avoiding danger to life or health.

A significant number of candidates understated the limitations still further by also claiming it extended to training and even testing of equipment.

For part (b), the responses were generally poor. Those who had studied the bibliography were readily evident and able to produce a short list which obtained the maximum available marks. However, there were many who produced lengthy responses which failed to identify the specific responsibilities required.

Part (c) of the question provided the best responses. Although a number of candidates used vague terms rather than the precise ones required, many candidates were able to obtain high marks.

SECTION B FIREFIGHTING AND RESCUE INCIDENTS

Attempt BOTH questions

- 3 You are the officer-in-charge of an initial two-pump attendance responding to a person trapped in an industrial silo. On arrival, you are informed that a worker has fallen into the silo and has become partially submerged in the silo contents.

Having carried out your dynamic risk assessment, you decide to commit firefighters into the silo to effect the rescue.

List the control measures that should be adopted to provide a safe system of work for all the personnel under your command and control.
(25 marks)

*Bibliography: Fire Service Guide to Health & Safety –
Volume 3 Guide to Operational Risk Assessment, Section 2.4,
pages 26, 27, 28, 30 and 31.
Section 5.5*

This question was generally well answered with many candidates attracting a satisfactory level of marks. Candidates who had clearly studied were able to display a knowledge and understanding of the bibliography which attained for them the highest marks, as opposed to those candidates who relied upon personal operational experience in determining their response.

This question required candidates to give their answer in list form. However, candidates missed opportunities in attaining all available marks due to their brevity of answer when compiling the list.

- 4 You attend a multi-pump fire within a tank storage depot which involves one large crude oil storage tank on fire.

The Incident Commander has nominated you to be a Sector Commander with clear instructions to pay particular attention to the possibility of a 'boil-over' or a 'slop-over' occurring.

(a) Define what is meant by the terms:

(i) 'boil-over'; and

(ii) 'slop-over'

and explain how each can occur. (17 marks)

and

(b) List the typical signs of an impending boil-over. (8 marks)

Bibliography: Fire Service Manual – Volume 2, Firefighting Foam, Chapter 7, pages 60 and 61.

This question was poorly answered with most candidates failing to understand the basic principles of the causes of boil/slop overs.

Part (a) (i) - Boil Overs

The examiners struggled in vain to award marks to what, in general, were poor responses which indicated that candidates had not read the bibliography for this examination, indeed a good proportion of candidates explained and aligned this question with a B.L.E.V.E. (Boiling liquid expanding vapour explosion.)

Almost all candidates failed to understand the movement of the heat layer from the burning oil surface moving downwards due to the differing densities and that the energy that ejects the burning oil from the tank was a result of the descending heat layer coming into contact with residue water resulting in an immediate steam explosion which violently ejects the tank contents.

Part (a) (ii) - Slop Overs

Again candidates failed to understand the relationship of the water or firefighting media applied to a hot burning surface resulting in steam production with the resulting expansion at surface level forcing the tank contents to 'slop over'. Most candidates seemed to think that the thermal expansion of the oil was why the tank contents slopped over.

Part (b)

A simple list of four 'signs' was required and candidates scored better in this section.

SECTION C SCIENCE AND FIREFIGHTING

Attempt BOTH questions

- 5 You are officer-in-charge of an initial two-pump attendance at a farm fire. On arrival, you are confronted with a fire involving a significant amount of stacked hay in a barn. The owner informs you that he stores a quantity of fertiliser within the barn, which you subsequently discover to be the oxidising agent, ammonium nitrate.
- (a) Explain the hazards associated with oxidising agents. (4 marks)
- and
- (b) Why could ammonium nitrate provide problems in the circumstances of this incident? (13 marks)
- and
- (c) Ammonium nitrate is an 'organic nitrate'. Identify four other classes of oxidising agents. (8 marks)

Bibliography: Fire Service Manual - Volume 1, Physics and Chemistry for Firefighters, Chapter 7, Section 7.8, page 55.

An unpopular question with candidates which was answered poorly by the majority of those who attempted it. The question was designed to explore the candidates knowledge of oxidising agents and the hazards associated with their chemical properties using ammonium nitrate as a specific example.

In answering part (a) of the question, many candidates understood that oxidising agents released oxygen upon decomposition/heating, and this would greatly assist the combustion process. Some referred to oxidising agents reacting vigorously/explosively with water. Although this is a true statement, it only applies to a small number of metal peroxides from the inorganic peroxide group. It is not a chemical property of ammonium nitrate.

For part (b) of the question, the chemical properties of ammonium nitrate provided the answer. Unfortunately, many candidates described operational problems and the tactics used to deal with them. Such answers attracted few marks. However, those candidates who listed chemical properties:

- Soluble in water;
- Does not burn itself, but when mixed with fuel becomes explosive;
- Decomposes violently when heated;
- Gives off nitrous oxide and brown fumes of nitrogen dioxide, both of which will support combustion like oxygen and will therefore intensify the fire;
- In large quantities and extreme conditions it can detonate,

were awarded the available marks.

In part (c), those candidates who had clearly studied the bibliography were readily able to provide the required answers and gained the marks available.

The quality of answers highlighted two common mistakes made by candidates. A failure to read and understand the question and a failure to undertake effective study. The level of knowledge displayed on this subject was generally poor.

6 Following a serious fire at an industrial site, you conduct a de-brief with your watch members. Concerns are raised about an unmarked fire hydrant and a lack of water mains pressure which caused difficulties on the fireground. A large private lake was noted close to the industrial site to which access proved extremely difficult.

- (a) (i) Which organisation has the responsibility for the identification of hydrant locations? and
- (ii) Which organisation will meet the expense of this work? (4 marks)

and

- (b) What are the main factors which are likely to have caused the reduction in water mains pressure? (8 marks)

and

- (c) What action may be taken by the Fire Authority to improve access to enable a water supply to be more easily obtained from the private lake for firefighting purposes? (13 marks)

Bibliography: Study Note 2104 – Hydrants & Water Supplies, page 3.

This question was, in general, well answered. However, candidates displayed confusion about the legislation related to all of the areas, even though this detail had not been required by the question.

In part (a), it was clear that candidates did not always understand the responsibilities of the Water Undertakers and the Fire Authority.

In part (b), the two easier factors that can cause a reduction in mains pressure, (length & diameter) were the ones that were often missed by candidates.

Part (c) was the area in which candidates demonstrated their greatest lack of knowledge and understanding. Most provided some understanding about improving access but failed to identify the other key actions that can be taken by a Fire Authority in order to obtain a water supply for firefighting purposes.

It was evident that a large number of candidates had relied on their operational experience and not studied the information provided in the Study Note.

PAPER 2: FIRE SAFETY, EDUCATION AND ENFORCEMENT

GENERAL COMMENTS

Comments Relating to Questions

The bibliography for this paper is limited and the scope for questions is correspondingly restricted. It is therefore surprising that a seemingly large proportion of candidates relied solely on experience to see them through. Surely, if a candidate is serious about the exam they could invest a small amount of time in reading the bibliography. That time invested would pay dividends in the examination, but as in previous years it is clear that only a few candidates had studied and obtained a satisfactory level of knowledge and understanding of the requisite material.

The questions in this paper will vary in difficulty. When taking this paper, candidates are advised that rather than plough through the paper from questions 1 to 6, candidates would find greater benefit from reading the paper and answer the questions in an order that suits their strengths, answering their easier questions first. This may enable them to gain better marks overall for the paper.

SECTION A FIRE DEFENCE AND ALERTING SYSTEMS

Attempt ALL questions

1 You are the Watch Manager on duty when an electrician enquires about a fire alarm system which is to be installed in a local private school. In the absence of any specialist officer you provide basic information in response to the electrician's questions.

- (a) The electrician is unsure whether to install a larger number of quieter sounders or fewer loud sounders. Which is preferable and why? (2 marks)

and

- (b) What features should the fire alarm system's silencing facility incorporate? (20 marks)

and

- (c) The fire alarm sounders should not generally be used for purposes other than for the evacuation of the building by use of all routes.

What is the one established exception to this rule for schools? (3 marks)

Bibliography: Study Note 2201 – Fire Defence and Alerting Systems, pages 6 and 7.

Clearly, the main part of this question was part (b), yet many candidates failed to realise this and did not make a serious attempt at providing any answer to it. This could be because they had not studied the bibliography and did not have the necessary knowledge.

Part (a) and (c) were not well answered by candidates.

In part (a), it was disappointing to note how many candidates failed to identify the preferred option, but made a case for each alternative. It was considered that this would not have been of great assistance to the electrician who, according to the information provided in the question, was already unsure of which was the preferred option.

In part (c), candidates who had at least read the Study Note, or had some knowledge of school activities were able to identify the correct answer, that being their use to indicate the start and finish of pre-determined periods. Regrettably, there were many candidates who failed to make this distinction.

2 Two Firefighters, as part of their personal development program, have asked you as their Watch Manager to assist them in their study of fire extinguishing agents.

(a) Identify how the following fire extinguishing agents function to extinguish fire, and list their individual advantages and restrictions on their use.

(i) Water;

(ii) AFFF; and

(iii) Foam.

(15 marks)

and

(b) Special powders are used to extinguish fires involving metal powders.

(i) List TWO such special powders; and

(ii) explain why these special powders should be perfectly dry when used.

(10 marks)

Bibliography: Study Note 2202 – Fire Extinguishing Systems, pages 3 and 4.

The responses to this question provided an extremely disappointing result. Bearing in mind the basic knowledge base and operational background of extinguishing media, this question should have ensured excellent responses.

Many candidates wrote in excess of two full pages and still scored poorly, failing to even show that they understood that 'water primarily cools a fire'.

In responses that identified 'restrictions', emphasis was given by some candidates to the operational risk of injury to personnel through slip hazards and time taken to clean up foam rather than the dangers of putting the wrong media on a type of fire, eg water on oil, electrics, etc.

Candidates are still using the provision of weight of words to hopefully pass, rather than the provision of a satisfactory depth of knowledge and understanding.

3 During a fire safety visit to an industrial and commercial business unit development, you are told that the owner is considering the installation of a sprinkler system in each unit as it becomes vacant and before new tenants move in.

(a) List the FOUR types of sprinkler systems. (8 marks)

and

(b) The actuation of a sprinkler is generally governed by a seal being broken by a rise in temperature at the sprinkler head allowing water to flow from the pipeline.

What are the TWO categories into which these seals may be divided? (6 marks)

and

(c) The owner has two particular concerns:

- (i) water damage due to the sprinklers operating; and
- (ii) sprinklers being unsightly.

How would you reassure the owner regarding these concerns? (11 marks)

Bibliography: Study Note 2202 – Fire Extinguishing Systems, pages 12, 13 and 14.

This was a generally well answered question for which the majority of candidates obtained high marks. Those who provided simple lists for their responses to parts (a) and (b) ensured that their responses were easy to mark and identify appropriate marks. Those who provided lengthy answers used valuable time unnecessarily and on numerous occasions failed to identify the required information. A logical thought process should have been sufficient to enable candidates to answer part (c) and it seemed that those who had at least read the Study Note found this to be easier than those who had not and benefited accordingly with higher marks.

SECTION B FIRE INVESTIGATION

Attempt ALL questions

- 4 You are the officer-in-charge of a fire in non-domestic premises and you believe the fire to be of suspicious origin.
- (a) What are the primary tasks of the Fire Officer in the investigation? (10 marks)
- and
- (b) What are the primary tasks of the Police Officer in the investigation? (8 marks)
- and
- (c) Why should Fire Officers or Police Officers not be considered as expert witnesses in fire investigation and what type of evidence should they restrict themselves to giving in court? (7 marks)

Bibliography: Study Note 2203 – Non-Accidental Fires, page 3.

In all 3 areas of the question, it was obvious where candidates had studied the relevant bibliography and gained good marks.

However, in part (a), many candidates resorted to giving a detailed account of the 'crew's tasks' at an incident prior to the arrival of a fire investigation officer and this gained them no marks as it was not required by the question.

In part (b), it was pleasing to note that there was no significant lack of understanding in the role of the police at a fire incident of this type.

The responses to part (c) identified the weaker area of knowledge and understanding in this subject. Whilst most candidates were aware of giving 'factual evidence', many failed to identify that officers were not equipped to give 'interpretive evidence' in court.

- 5 It is often useful in fire investigations to deduce some indication of whether the fire developed slowly or quickly.

Describe the various indications of the rate of fire growth on:

- (i) glass (windows and mirrors);
- (ii) plaster; and
- (iii) wallpaper. (25 marks)

Bibliography: Manual of Firemanship Book 12, Chapter 14, pages 216 and 217.

A very poorly answered question, especially when it is realised that all fires that are attended by the Fire and Rescue Service require a basic investigation to be carried out regarding the development and growth of fire.

As in previous years, candidates demonstrated a failure to read the question with sufficient care, which caused many to provide inappropriate answers that failed to obtain marks. Some candidates showed a lack of knowledge and understanding of what is meant by 'quick' or 'slow' development of fire and their indicators.

However, the small number who had identified the needs of the question and had studied the relevant bibliography achieved very high marks, these, unfortunately were in the minority. The answers provided gave the impression that a large majority of candidates had a poor understanding of how fire develops and relied upon their operational knowledge instead of extending this limited knowledge by studying and learning the bibliography in order to improve a fundamental part of a firefighter's and crew manager's role. The common mistakes related to how glass reacted with heat, particularly how it fractured under the differing circumstances and also how plaster reacted, in particular the rate of expansion between brick and plaster.

6 You attend a fire as the officer-in-charge and the owner of the premises informs you that it is believed that the fire is due to arson (*wilful fire raising in Scotland*).

(a) Provide your understanding of the term 'arson'/ 'wilful fire raising'. (9 marks)

and

(b) List the possible motives for people to commit arson/ wilful fire raising. (6 marks)

and

(c) List and briefly explain the general indicators which might suggest that arson/ wilful fire raising is the cause of a fire. (10 marks)

Bibliography: Manual of Firemanship Book 12, Chapter 15, pages 223 and 224.

Overall this was a well answered question, but very few candidates provided an adequate explanation of their understanding of the term 'Arson/Wilful Fire Raising'. Several marks failed to be obtained by those candidates who did not have a full understanding of the term.

Both parts (b) and (c) were generally very well answered with most candidates being able to compile the lists required.

PAPER 3: HUMAN RESOURCE MANAGEMENT

GENERAL COMMENTS

Comments Relating to Questions

The questions within the Human Resource Management Paper seek a knowledge and understanding of Employment Law, Training and Development and finally Health, Safety and Welfare matters.

In order to assist the candidates, the questions are scenario based whenever possible, making them relevant to the workplace and Study Notes are provided for pre-examination study.

Sadly, the standard of responses to many of the questions still support the year on year comment that many candidates:

- do not appear to read the question with sufficient care;
- rely on their experience in respect of providing answers;
- provide insufficient detail within their responses;
- fail to prepare adequately;
- do not effectively read the Study Notes and Bibliography.

In all sections of this examination these comments are relevant, but this year in particular, the fact that many failed to read the question fully disadvantaged themselves by providing inappropriate and/or inadequate responses which demonstrated to the Examiner their inadequate level of knowledge and understanding of the various sections of the examination.

SECTION A EMPLOYMENT

Attempt BOTH questions

- 1 As a Watch Manager, you identify poor performance by a firefighter which is attributable to lack of capability.
- (a) Explain the term 'lack of capability' regarding a member of staff. **(2 marks)**
- and
- (b) What could be the consequences of failing to deal with a firefighter who displays a lack of capability? **(7 marks)**
- and
- (c) In conducting an informal discussion with the firefighter on this subject, describe the areas that you would cover and any record you would make of the interview. **(16 marks)**

Bibliography: Study Note 2303 – Procedure Relating to Performance, pages 2 and 3.

Answers to this question indicated that candidates generally understood the subject.

Candidates who attracted a greater number of marks were those who appeared to have read the question thoroughly and had made good use of the Study Notes. Those candidates who appeared to give answers which were a 'work related' knowledge tended to give a confused answer rather than the in depth information available in the Study Notes.

A large number of candidates concentrated on the counselling aspect and tended to forget that there is a need to have a plan to assist the individual to improve over a prescribed period.

- 2 A member of your watch returns to work following a further period of repetitive sickness absence.
- (a) As the Watch Manager, what procedure and actions should you apply as your part of the sickness control procedure? (15 marks)
- and
- (b) Explain in detail when a fire authority is entitled to determine sick leave payments. (10 marks)

Bibliography: Study Note 2301 – Absence Through Sickness, pages 3 and 4.

This question was well answered by those candidates who had obviously read the Study Notes. Unfortunately, some seemed to rely on what they believed to be the local procedure when answering part (a), with many relevant points being omitted. With regard to part (b), there were many candidates who lacked the knowledge of the circumstances in which the Fire Authority was entitled to determine sick leave payments, instead they detailed the procedure for providing doctors certificates to support sickness absence, which again did not attract marks.

SECTION B TRAINING AND DEVELOPMENT

Attempt BOTH questions

- 3 You have been asked to organise a scenario training event. As part of your duties you have to carry out a training risk assessment. List the items you will have to take into account whilst carrying out the risk assessment. (25 marks)

Bibliography: Study Note 2306 - Scenario Based Training, pages 4 and 5.

This was a poorly answered question and the responses were yet another illustration of the often repeated observation that study of the Bibliography is essential. Training risk assessments are a common activity that candidates will have performed many times and they seemed to rely on this experience rather than in the published information to carry out this function correctly. Invariably, candidates who relied on this method seemed to repeat minor points within their answers, which gained few marks, whilst, by ignoring the significant issues, could not accumulate sufficient marks to demonstrate an adequate level of knowledge and understanding of the subject.

- 4 (a) You are planning some training for your watch. Having considered the appropriate method, list the points of best practice that should be adopted to deliver the training. (20 marks)

and

- (b) As a Watch Manager, you will understand it is impractical to provide detailed training for every type of activity a firefighter may be expected to deal with. Explain how this problem can be overcome. (5 marks)

Bibliography: Study Note 2305 – Operational Training, pages 4 and 5.

Although this question was fairly well answered, it was clear that those who had read the Study Notes were able to provide detail for their answers, thus gaining just reward for the response.

Part (a) required candidates, having considered the appropriate method in respect of planning training to list points of best practice. Many listed different types of training or confined their answers to a drill scenario, thus demonstrating a failure to carefully read and understand the requirements of the question and subsequently gained few marks.

Part (b) was poorly answered with many achieving no marks. The answer required candidates to demonstrate an understanding of the need for analysis of knowledge and skills to ascertain if they could be applied in some other situation.

SECTION C HEALTH, SAFETY AND WELFARE

Attempt BOTH questions

- 5 You have carried out an accident investigation and have been asked by the Station Manager to produce an accident report. Explain in detail the key data which should be included in the report about the event. (25 marks)

Bibliography: Study Note 2307 - Accident Reporting & Investigation, page 9.

The response to this question was very poor with many candidates failing to take sufficient care when reading and understanding the question.

The question indicated that a report was required about an event that the candidate had investigated. It would be expected to have basic information in any report such as who, what, when, where and why, but even this was missed by many candidates who therefore failed to accumulate marks. Many compounded the situation by missing important points such as:

- consideration of the immediate or underlying causes of the accident;
- when considering the outcome of the accident, there may be process disruptions; emissions to the environment and the creation of other hazards;
- identifying the continuing risks and the following of emergency procedures.

The response to this question again highlighted a lack of preparation by candidates.

6 You have been given the responsibility for the assessment of risks to which the Control of Substances Hazardous to Health Regulations 1999 (COSHH) apply within your station area.

(a) List the categories of substances which are hazardous to health to which the COSHH Regulations apply. (12 marks)

and

(b) Describe the substances relating to each of the categories listed in (a) above, with examples, where appropriate, of where they may normally be found. (13 marks)

Bibliography: Study Note 2308 - The Control of Substances Hazardous to Health Regulations 1999, pages 2 and 3.

This two part question should have attracted better quality responses from candidates. It was clear that many relied on guess work rather than having a sound knowledge and understanding of this important area of Health & Safety matters.

Part (a) asked for information in list form and those candidates who had read the Study Notes were able to gain high marks.

Within part (b), it was evident that many candidates had failed to read the question with sufficient care. Candidates were required to describe and provide examples, where appropriate, of where the categories of substances may normally be found. Unfortunately, some candidates did not provide the appropriate information and restricted their answer to places within the fire station as opposed to where in the station area.

PAPER 4: BUSINESS ADMINISTRATION

GENERAL COMMENTS

Comments Relating to Questions

This paper was generally well answered. The majority of candidates passed with many gaining full marks in one or both of the questions.

The two main failings were, failure to show calculations in question 1, for which marks are available and poor graphics in question 2.

Graphs should have appropriate, well labelled axis with the scale marked on them so that they can be accurately read. Many candidates failed to do this and marked points which only approximated to the figures given, consequently they failed to obtain available marks.

There were also some simple mathematical errors in calculating the accumulative totals on the chart provided.

Attempt BOTH questions

- 1 As a Watch Manager, you have been asked to calculate the costs of a special service request to fill a swimming pool and other related matters.

The details are as follows:

The pool will hold 405,000 litres of water when filled to the top.

The appliance to be used pumps at 2,250 litres/minute and will have an adequate water supply.

It will take 15 minutes to get to the location from the fire station and set up.

It will take 15 minutes to make up and return to the fire station.

The crew will comprise of 1 Station Manager, 1 Crew Manager and 3 x Firefighters.

Charges for appliance and crew are:

Appliance	£45 per hour
Station Manager	£31 per hour
Watch Manager and below	£26 per hour.

Charges run from the time of leaving the fire station to time of return to station.

- (a) What will be the total charge by the fire service to fill the pool to the top, assuming that the pump works at 100% efficiency?
(10 marks)

and

- (b) If the pump only works at 80% efficiency:
- (i) how much longer will it take to fill the pool to the top? and
 - (ii) what would be the added cost to that provided for part (a) above to complete the task? (10 marks)

and

- (c) If the pump is used for the same period of time calculated for part (a) above when running at 80% efficiency, how far will the water level be below the top of the pool which measures 15 metres x 10 metres? (5 marks)

Bibliography: Study Note 2401 – Application of Number.

This was a well answered question with the majority of candidates achieving a satisfactory level of marks, many gaining the maximum available.

However, available marks failed to be obtained through some basic mathematical errors.

Additionally, a small number of candidates 'rounded up' time to whole hours. This was not specified in the question and as a result the available marks were not awarded.

Candidates must read the question carefully before attempting to answer.

- 2 You are doing work on road traffic collisions for your Integrated Risk Management Plan. The following chart gives figures for 10 months of the year for people killed or seriously injured on the roads.

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct
1. Target	32	31	28	37	39	33	38	37	34	45
2. Actual	39	37	36	46	39	40	34	50	43	32
3. Difference										
4. Cum Target	32	63	91	128	167	200	238	275	309	354
5. Cum Actual										

- Line 1 gives the target for each month.
- Line 2 gives the actual number killed or seriously injured each month.
- Line 3 is the difference between the target figure and the actual figure. Where the actual figure exceeds the target figure this is a positive number. Where the actual figure is less than the target figure it is a negative number.
- Lines 4 and 5 are to show the cumulative totals calculated by adding each month's total to the preceding month's total as shown in Line 4.

- (a) Using the answer sheet inserted in your question paper, calculate the difference between the target figure and the actual figure for each month and enter your figure in the appropriate box for each month on line 3 of your chart. **(5 marks)**

and

- (b) Using the answer sheet inserted in your question paper, calculate the cumulative actual for each month and enter your figure in the appropriate box for each month on line 5 of your chart. **(5 marks)**

and

- (c) Draw a graph which shows both:
- (i) the target details provided on line 1 of the chart; and
 - (ii) the actual details provided on line 2 of the chart,
- making clear which line on the graph applies to each of the above. **(5 marks)**

and

- (d) By means of a bar chart, show the differences you have calculated for line 3 of your chart. (5 marks)

and

- (e) If target figure for November is 47 and for December 39, what will be the cumulative target figure at December? (1 mark)

and

- (f) Using the detail provided in the chart, calculate the average number of people killed or seriously injured per month to the nearest whole number. (2 marks)

and

- (g) If the average number of people per month (calculated to the nearest whole number) for part (f) above are killed or seriously injured in both November and December, what will be the difference between the cumulative actual total and the cumulative target total at December? (2 marks)

REMOVE THE ANSWER SHEET INCLUDED IN YOUR QUESTION PAPER, AND ENTER YOUR CANDIDATE NUMBER AND INSERT THE SHEET INTO YOUR QUESTION BOOK.

Bibliography: Study Note 2401 – Application of Number.

Most candidates were able to identify the correct numerical data required to complete part (a) of this question. Full marks were gained by many, especially those who had taken the time to check their mathematical calculations and also clearly identify negative numbers.

When answering part (b) of this question, most candidates failed to pay attention to detail, with some presenting freehand diagrams and approximate markings. High marks were gained by those who identified the full range of data and applied the use of appropriate sized scales to accurately present the information requested. Additional available marks were also obtained by those candidates who correctly identified the axis.

The importance of reading the question cannot be stressed enough in relation to the final section, as many candidates employed the wrong data in their calculations. High marks were obtained by those who presented their calculations and clearly indicated their answer.

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

Telephone: 0207 296 6600
Fax: 0207 296 6591

www.fseb.gov.uk

PDF version produced for FSEB by Electronic Equipments Ltd. eelnet@ntlworld.com

This PDF file was produced on 4 January 2005.