



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 2002

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

GENERAL COMMENTS

The seventeenth examination conducted by the Fire Services Examinations Board produced a pass rate of 33.7% from 1253 candidates who sat the examination. When comparing these results with those of last year they show a decrease in the number of candidates sitting the examination (-156), an increase in the number achieving a pass (+160), and an increase in the pass rate from 18.6%.

With only one exception, the number and percentage of candidates achieving a pass in each of the papers increased, the exception being Paper 1, 'Operations', which provided a slightly reduced pass rate to that achieved last year. This is the exact opposite of the results achieved last year which suggests that work has taken place to improve the weaker areas recognised last year whilst just failing to maintain the improvement previously made in the 'Operations' paper.

Whilst there were a number of excellent scripts submitted it is unfortunate that these remain a minority. It remains apparent that there are still many who do not adequately prepare themselves for the examination.

The bibliography on which the candidates' level of knowledge and understanding will be measured by set questions is well documented in the syllabus of the examination. Many study notes have been produced and issued to assist candidates in their endeavours. If candidates decide to ignore these and rely on day-to-day experiences to provide their responses, they will be significantly reducing their chances of achieving the success they must desire.

When proper preparation and study has been applied it only remains for candidates to exercise basic care and examination technique when providing their responses to ensure that they achieve the results that their efforts should deserve. This necessitates each question to be read with care to identify what information is being sought. It would appear that many candidates quickly scan a question and then write an answer. Unfortunately, there have been many cases where candidates have provided a great deal of information which has not been required by the question, and no marks can be awarded.

When the candidate considers that all that can be achieved in the answers provided to the set questions has been satisfied, a careful reading of those responses could ensure many of the omissions and mistakes identified when marking them being obviated and ensure that those marks that would have been otherwise lost being awarded.

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

Overall, this paper was generally poorly answered. Whilst there were some good scripts, the majority of candidates failed to reach a satisfactory standard.

When considering that the majority of questions in this paper relate to operational procedures and the safety of crews, it is a worrying aspect that the majority of candidates failed to demonstrate an acceptable level of knowledge and understanding of this subject.

It was obvious that a considerable proportion of candidates had not studied appropriately and relied upon their operational experience to get them through, hence few responses were concise with candidates using local and general terminology.

It was also apparent that a number of candidates failed to apply sufficient care and time to read the question properly and therefore provided inappropriate responses which failed to gain valuable marks. A common failure amongst candidates is the provision of information in their answers that is neither required nor asked for. Too many used vague statements in the hope that they would gain marks.

The standard of communication shown by some candidates was very poor resulting in untidy work which made the work of the examiners difficult in trying to interpret what was intended

In conclusion, it has to be stressed to candidates that there is a need to study the bibliography in depth and not to rely on operational experience getting them through the examination. Additionally, the need to read the question carefully and respond to what is being asked cannot be over-emphasised.

However, on a positive note, those candidates who had carried out sufficient depth of study and took care and time to read and understand the question, provided quality answers which attracted very high marks.

SECTION A OPERATIONAL PROCEDURES AND INCIDENT COMMAND

Attempt BOTH questions

- 1 You arrive as the officer-in-charge at a serious house fire and you are advised that the elderly couple who live there are in a neighbour's house where all are 'distressed'.
- (a) Identify the TWO distinct headings under which the signs and symptoms of a distressed person may be classed, and provide FIVE examples for each heading by which they can be identified (13 marks)

and

- (b) When bringing this incident to a conclusion the assistance of others may be considered necessary to reduce/resolve the distress of these people. List those who you would consider as being suited to provide:
- (i) short term assistance; and
- (ii) long term assistance. (12 marks)

Bibliography: Study Note 2103 - Victim Support, pages 2, 3, 4 and 5.

Part (a) of this question clearly asked for the two distinct headings under which the signs and symptoms of a 'Distressed Person' may be classed and asked candidates to list five examples of each.

Unfortunately candidates referred to classes of either 'Directly' or 'Indirectly' involved in an incident or 'Distressed' and 'Deceased' categories of victims. Candidates had seemingly studied the note, but failed to identify the needs of the question properly.

Part (b) of the question resulted in many candidates providing lengthy lists which invariably failed to differentiate between those best suited for 'short term' and 'long term' assistance.

- 2 You are the initial Incident Commander of a three pump incident involving a large industrial premises. Your main responsibility will be concerned with the tactics and operational tasks in the initial stages, which will include the securing and controlling of resources on the incident ground.
- (a) List the resources that you may consider in your assessment of the situation. (5 marks)
- and
- (b) List the specific areas of resource control that may be delegated as sectors to appointed officers as the incident develops. (8 marks)
- and
- (c) Cordons may be employed as an effective method of controlling resources and maintaining safety. Identify each type of cordon and describe the specific purposes of each. (12 marks)

Bibliography: Fire Service Manual Volume 2 - Incident Command, pages 4 and 5.

Less than half of the candidates were successful in gaining a satisfactory level of marks with only one response attracting full marks.

For part (a), many candidates identified the majority with the most common omission being consumables ie, BA cylinders and fuel.

Part (b) was disappointingly answered with few candidates identifying an appropriate definitive list.

For part (c), a small number of candidates identified the types of cordon as Gold, Silver and Bronze and failed to relate to inner and outer cordons thus attracting no marks. Few identified all the specific purposes of an inner cordon, failing to cover control measures for non fire service personnel.

It seemed that many candidates had not read the study material and as an alternative, relied on operational experience to answer the question. Regrettably, this resulted in few responses being concise and many rambled on using local terminology in an attempt to cover as many points as possible.

SECTION B FIREFIGHTING AND RESCUE INCIDENTS

Attempt BOTH questions

3 As the Sub-Officer in charge of an appliance responding to a road traffic accident you will need to give careful consideration to the positioning of your appliance and the safety of your crew members.

- (a) When driving uphill to the incident, you note vehicles on fire and discover these to have various fuel systems. Explain briefly FOUR additional points that will need to be considered when deciding the position of your appliance. (13 marks)

and

- (b) In addition to the wearing of the appropriate personal protection equipment and coning-off, list SIX other crew safety procedures that you would apply. (12 marks)

Bibliography: A Guide to Operational Risk Assessment Volume 3, section 4.1 – Incidents Involving Transport Systems – Roads, pages 4, 5 and 6.

Unfortunately, it appeared that a number of candidates failed to identify the information provided in the question and so failed to deal with the two distinct parts required in the answer.

For part (a), a number of candidates provided information in their answers that was not required ie generic terms:

- 'weather conditions'
- 'Movement of equipment and equipment dumps'
- 'Effect of LPG on the diesel engines of fire appliances'

leaving the examiner to attempt to interpret what the candidate actually meant.

In part (b), much effort and time was expended by candidates in listing PPE requirements which was not required by the question.

Marks failed to be obtained by candidates who it was assumed, did not understand the difference between upwind and downwind. If this assumption is incorrect, certain candidates need to review their level of knowledge as to position appliances and crews downwind of a dangerous situation could have dire consequences.

- 4 You are the officer-in-charge of two pumping appliances and crews responding to a special service call involving a sewer. On arrival, the supervisor informs you that a colleague has been injured whilst working inside the sewer and requires rescuing. You decide to commit personnel to enter the sewer to effect the rescue.
- (a) Identify the FIVE hazards which are specific to such rescue operations that present a serious health and injury risk to firefighters. (10 marks)
- and
- (b) List your operational considerations as the incident develops. (15 marks)

*Bibliography: A Guide to Operational Risk Assessment, Volume 3, Section 2.3
– Rescues- From Sewers, pages 15 and 20.*

This question was poorly answered with relatively few of the candidates attracting a satisfactory level of marks.

In part (a), many candidates explained in some detail the control measures to be put in place together with the operational procedures to be adopted instead of limiting their answer to the health and injury risks to firefighters.

In part (b), many candidates detailed the list of considerations on arrival and subsequently gained few marks. This highlighted a need for candidates to read questions carefully.

A number of candidates wrote in depth about generic command and control issues (sectorisation, command support etc) and obviously had little knowledge of the operational considerations specific to sewer incidents. Those candidates who had studied the bibliography were quite apparent and invariably attracted high marks.

SECTION C SCIENCE AND FIREFIGHTING

Attempt BOTH questions

- 5 You are the Incident Commander carrying out an investigation into the cause of fire at a premises undergoing re-decoration work. There are no obvious ignition sources and your initial investigation leads you to believe that the cause of fire may be due to Spontaneous Combustion.
- (a) Define the term 'Spontaneous Ignition Temperature'. (6 marks)
- and
- (b) Identify the conditions which can lead to Self Heating and Spontaneous Combustion. (6 marks)
- and
- (c) What are the circumstances or conditions involving the use of linseed oil that will lead to Self Heating and Spontaneous Combustion? (13 marks)

Bibliography: Fire Service Manual Volume 1, 'Physics and Chemistry For Firefighters' Chapter 7, Sections 7.7.1 & 7.7.2, page 54.

This question was answered very poorly which would indicate a lack of in-depth study and understanding of this subject by candidates. In part (a), whilst variations on the correct answer attracted some marks, few candidates provided a clear knowledge of this term.

Part (b) of the question was the most poorly answered. Some candidates referred to mixtures and decomposition of different chemicals when all that was required to attract full marks was that certain compounds may react with oxygen at room temperature and any organic material stored in bulk quantities may be suspect if stored at elevated temperatures.

Part (c) of the question gave the candidate the opportunity to gain high marks by displaying an understanding of how linseed oil under the correct conditions, could lead to self heating and spontaneous combustion. Candidates who had a vague idea attracted a few marks and candidates who had taken the time to learn the concept, gained valuable marks which in some cases made up for poor answers in Part (b). Regrettably, the majority displayed either no idea or a vague idea on this subject.

In general, candidates demonstrated that they were familiar with the terms 'Self Heating' and 'Spontaneous Combustion' but could not explain the principles of how this occurs and in what circumstances. Candidates must ensure that they have a good knowledge and understanding of the subject to gain the available marks.

- 6 You are the initial Incident Commander of a three pump attendance at a farm fire in a remote area. On arrival you confirm that the water supply is some distance away and you send an assistance message for two additional pumps.

You decide to set up a water relay initially utilising the three pumps which are in attendance, incorporating a procedure known as 'The Porter Relay'.

- (a) Explain in detail the principle of 'The Porter Relay'. (14 marks)

and

- (b) Describe each stage of 'The Porter Relay' in the order in which it would be applied, initially using the three pumps with these being finally supported by your additional pumps. (11 marks)

Bibliography: Study Note 2105 – Water Relaying, pages 5 and 6.

Nearly 50% of the candidates were successful in achieving a satisfactory level of marks. Credit was given for answers which were presented utilising simple diagrams to display or confirm the knowledge required.

Of those candidates who failed to achieve a satisfactory level of marks, a significant number displayed no knowledge of the subject. The question did not require:

- Details of how to perform Water Carrying/Shuttle
- The hydraulic benefits of twinning hose lines
- Pointers on practical pump operation

Candidates who used these areas as the basis of their answers consequently gained little or no marks.

GENERAL COMMENTS

Comments Relating to Questions

Regrettably comments made in previous reports appear not to have been either read or noted and remain valid.

Having entered for the examination candidates will need to undertake a study of the bibliography that has been identified and on which questions will be set. This will provide the candidate with a level of knowledge that will not only greatly assist in creating satisfactory responses to the set questions, but also provide them with a level of knowledge and understanding of subjects that will be useful should advancement be achieved to a higher rank. To ignore any such preparation is likely to provide only one unfortunate result for the candidate.

From the general quality of responses submitted, the weakest areas are clearly identified as those dealt with in questions 2, 3 and 5. The majority of responses of the candidates, particularly to these questions, suggest a very limited level of knowledge of this subject, and it is considered that this must mainly have been caused by candidates not undertaking any serious preparation for the examination in the belief that their clearly limited day-to-day experiences would be sufficient to carry them through.

It was also apparent that many candidates continue to rush into writing their responses without understanding what specific information is being requested by the question. It is of little use to write down an answer that bears little or no resemblance to what has been asked for in the hope that somehow it will be sufficient to attract marks. From the amount that some candidates do write it suggests that the time allocated for answering the questions is not a problem so taking greater care in identifying what is being requested, and the appropriate format for the response, could be beneficial.

SECTION A FIRE DEFENCE AND ALERTING SYSTEMS

Attempt ALL questions

1 You are the Sub-Officer in charge of a watch. Two firefighters on your watch are to sit the Sub-Officers' examination. You agree to assist them in their study of fixed firefighting systems.

- (a) List the five types of media currently available in fixed firefighting systems. (10 marks)

and

- (b) (i) Before selecting a particular medium, engineers must consider the effects on anyone exposed to it. What are the factors that engineers will consider in regard to the chosen medium?

and

- (ii) List the aspects that engineers will need to bear in mind regarding the medium to ensure that it will have no adverse effect on the goods or equipment being protected. (15 marks)

Bibliography: Study Note 2202 - Fire Extinguishing Systems, pages 6 and 7.

In general, the question was well answered by the majority of candidates. Part (a) caused few problems except to those who miss-read the question and provided examples of fixed installation systems, rather than the types of media, in their responses.

For those candidates who had evidently studied the bibliography, and thus provided good responses, the higher marks available in part (b) were readily achieved.

However, there were clearly a number of candidates who were either ill-prepared or failed to take sufficient time in reading the question. The provision of information regarding details of fixed installation systems or general procedures relating to their operation was not requested.

- 2 You have firefighters on your watch who wish to improve their knowledge of fire and combustion systems and ask you for assistance. They ask you to explain the constituents and properties of smoke that are important when considering automatic fire detection.

In this context describe the constituents and properties of smoke.
(25 marks)

Bibliography: Study Note 2201 - Fire Detection, Alarms and Transmission Systems, page 3.

This was generally a very poorly answered question with the majority of candidates failing to display any depth of knowledge of the constituents and properties of smoke.

Those candidates who wrote lengthy responses to explain the principles of siting automatic fire detectors and the operation of AFD systems obtained little reward for their efforts.

-
- 3 Your watch is undertaking an inspection of a factory under Section 1(1)(d) of the Fire Services Act 1947. The factory roof space has been subdivided with screens to increase the efficiency of the fitted automatic roof vents. You decide to explain more about these screens to your watch members.

- (a) Describe:
- (i) the material used and the construction of the screens;
 - (ii) the positioning of the screens; and
 - (iii) the significance of their depth. (17 marks)

and

- (b) Describe the effects the screens will have when fire occurs on:
- (i) the spread of hot gases produced;
 - (ii) the opening of the vents; and
 - (iii) the operation of an automatic sprinkler system.
- (8 marks)

Bibliography: Manual of Firemanship Book 9, Part 3, Chapter 19, pages 170 and 171.

This was a poorly answered question.

The question was divided into two distinct areas that dealt with the aspects of the design and the effects when fire occurred. Unfortunately, candidates generally failed to follow this basic format which led to vague descriptions of smoke screens and venting systems with many explaining a system appropriate to a shopping mall rather than a factory roof space. Fortunately, the principles are similar so some of the available marks could be awarded.

The wide and varied descriptions of the material used in the construction of such screens highlights a particular lack of knowledge in this area.

Many answers to (b)(iii) included debate over the activation of sprinklers versus the opening of vents, rather than describing the limiting effects that the provision of screens would have on the operation of an automatic sprinkler system.

SECTION B FIRE INVESTIGATION

Attempt ALL questions

4 You are the Sub-Officer in charge of a fire and are tasked with investigating it. A police officer is also present. Before you commence your investigation you confirm with the police officer your respective roles in the fire investigation.

(a) What are the primary tasks of a fire officer in a fire investigation?
(12 marks)

and

(b) What are the primary tasks of the police officer in a fire investigation?
(8 marks)

and

(c) The investigation leads to criminal proceedings in court. The prosecution case needs expert witness evidence. What would be your standing if requested to act as an expert witness, giving reasons?
(5 marks)

Bibliography: Study Note 2203 - Fire Investigation, Non-Accidental Fires, pages 2 and 3.

Those candidates who depended on what was their perceived experience or beliefs tended to write extensively for little reward.

It was particularly disappointing to note that in the responses to part (c), very few candidates could provide any conviction that they are aware of their limitations.

A much greater depth of study by the majority on this subject is advised to assist in providing a normal and expected level of knowledge to satisfy daily needs.

5 Following a fire at a house, your initial investigation suggests that there are only two possible causes for the fire.

(a) Your first impression suggests that it was caused by faulty mains electrical circuits (not faulty electrical apparatus). What would you check and be looking for to influence the conclusion that this was or was not the cause? (15 marks)

and

(b) Your second impression suggests that it might have been caused by a discarded lighted cigarette end.

Explain:

(i) The general limitations of this as a possibility;

and

(ii) The most favourable conditions for this to have been the possible cause. (10 marks)

Bibliography: Manual of Firemanship Book 12, Part 5, Chapter 14, pages 219 and 220.

Part (a) of the question centred around 'faulty mains electrical circuits' and asked for evidence to influence this conclusion. Many candidates concentrated their responses on other signs and symptoms of electrical fires including electrical apparatus, rodent damage, damaged wiring, etc. all of which attracted no marks.

Part (b)(i) and (ii) were poorly answered with reliance for marks being apparently placed on a very limited understanding of the subject possibly obtained from attending operational calls rather than a study of the subject.

6 In the context of fire investigation, the fire service divides fire incidents into two categories for reporting purposes - 'primary' and 'secondary'.

(a) In broad terms, list the different types of:

(i) Primary fires;

and

(ii) Secondary fires. (16 marks)

and

(b) As regards secondary fires:

(i) What limitations are normally applied to investigating such fires?

(ii) What implications do they often hold for the neighbourhood in which they occur? and

(iii) What steps could follow where such fires become numerous in a neighbourhood? (9 marks)

Bibliography: Study Note 2203 - Fire Investigation Non-Accidental Fires, pages 3 and 5.

In general, the question was poorly answered.

The question did not require an essay style response yet a number of candidates wrote long answers possibly in the hope that the information provided would attract some marks. In most cases this was a forlorn hope.

The most successful candidates responded with short concise answers or bullet points to each part of the question.

Some candidates failed to identify the needs of the question properly by ignoring the information provided in the stem. They then proceeded to confuse the issue by describing outbreaks of fire by referring to initial fire(primary) leading to outbreaks elsewhere(secondary).

PAPER 3: HUMAN RESOURCE MANAGEMENT

GENERAL COMMENTS

Comments Relating to Questions

This paper examined basic managerial areas covering conditions of service, health safety and welfare, and operational training and assessment, all of which are adequately covered in the Study Notes circulated for the use of all prospective candidates.

Although there were a number of responses which demonstrated a good understanding and knowledge of the subjects, there still appear to be many instances where candidates failed to read or understand the question and thus failed to provide a reasonable response and gain sufficient marks. Greater attention to the Study Notes would invariably assist candidates not only with providing satisfactory answers but also giving a more informed grasp of terminology used in the various subjects and perhaps question wording.

Although comment is made from time to time about candidates providing long scripts when the answer seeks a definition or a list, candidates should be aware that half a dozen lines in response to a three part question is unlikely to attract an adequate number of marks.

Much more study is required by many candidates in respect of an understanding of the basics of the managers role in subjects such as assessments covering training and capability, however, there is an improvement in responses dealing with day to day health issues elsewhere than on the incident ground.

SECTION A EMPLOYMENT

Attempt BOTH questions

- 1 As a Watch Sub-Officer you identify poor performance by a firefighter which is attributable to lack of capability.
- (a) Which Act covers the subject of capability in relation to the ability of employees to perform the work for which they have contracted? (3 marks)
- and
- (b) List the four areas that would lead you to deal with poor performance as lack of capability, without recourse to the Fire Service Discipline Regulations. (4 marks)
- and
- (c) In conducting an informal discussion with the firefighter on this subject, describe the areas that you would cover and what record you would make of the interview. (18 marks)

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

This subject had been studied well by many candidates and most were able to demonstrate a basic understanding of how to deal with a lack of capability.

Marks failed to be gained by many of the candidates not knowing the title of the empowering legislation for the subject.

The majority of marks gained were from part (c) of the question, but candidates would do well to take note of what is asked for within the question. Many chose to 'list' their answer when the question asked for a description. Those candidates who provided the additional information in the form requested were rewarded with an appropriate number of marks to their advantage.

- 2 A firefighter returns to work following a period of repetitive sickness absence.
- (a) What procedures would the Watch Sub-Officer be responsible for as part of the sickness control system? (15 marks)
- and
- (b) Give the two examples whereby the Fire Authority is entitled to determine sick leave payment for repetitive sickness absence. (10 marks)

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

Although a considerable number of candidates produced a good response to this question, greater attention to the information provided in the comprehensive Study Note would have produced better responses and additional marks.

In part (a), many candidates appeared to confuse the return to work procedures with the initial notification of sickness absence and seemed to relate this to some internal administration within their own brigade. In addition many failed to realise that they should only involve their line manager when they have concern with the validity of the employees reason for sickness.

Part (b) required an awareness of the role of the Fire Authority in relation to paid sick leave and many good answers were provided. However, there appeared to be a lack knowledge on the effect of absence due to injury when carrying out employment or professional sporting activities for hire or gain might have on paid sick leave and the requirement where appropriate to attend for treatment or medical examination.

SECTION B TRAINING AND DEVELOPMENT

Attempt BOTH questions

- 3 As the Watch Sub-Officer you are responsible for assessing the performance of the personnel on your Watch.
- (a) (i) Define 'continuous assessment';
and
(ii) provide a brief explanation of the method and effect of using this form of assessment. (10 marks)
- and
- (b) Identify when the three types of performance review should take place within the fire station and give a brief explanation of each (15 marks)

Bibliography: Study Note 2304 – Assessment in the Workplace, pages 6 and 7.

In general this question was poorly answered with many candidates appearing not to have read the question fully and providing answers not relevant to the question.

Many responses to part (a)(i) of the question gave lengthy explanations as opposed to providing the definition requested and in the second part, whilst many candidates could identify the headings for the three types of performance review, many marks could not be awarded to those who failed to expand on these to demonstrate their knowledge and understanding of the subject, as required by the question's wording.

4 As a Sub-Officer in charge of watch training you use the three progressive levels of operational training which are:

- (i) drills;
- (ii) techniques; and
- (iii) scenario based training.

Define each of these and provide examples of the learning objectives of each level. (25 marks)

Bibliography: Study Note 2305 – Operational Training, pages 2, 3 and 4.

The responses to this question were considered to be poor probably due to candidates failing to read or understand the Study Notes on the subject.

A number of candidates appeared to try to adapt their perceived experiences to suit explanations for the progressive levels of training requested in the question. It appeared that many candidates confused techniques with combined drills and learning objectives with outcomes thus failing to gain available marks.

SECTION C HEALTH, SAFETY AND WELFARE

Attempt BOTH questions

5 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) require responsible persons to notify the Health and Safety Executive of certain events.

- (a) Identify the four categories of circumstances associated with accident or injury that require such notification, and give two examples of each. (20 marks)

and

- (b) Give five examples of reportable diseases. (5 marks)

Bibliography: Study Note 2307 – Accident Reporting and Investigation, pages 3, 4 and 5.

The response to this question was fairly good but some candidates appeared to base their answers on what might be brigade procedures rather than the requirements of the RIDDOR Regulations.

High marks were obtained in part (a) as candidates were able to identify the categories requested and to provide a few examples relevant to the question asked.

In part (b), candidates failed to gain available marks by responding with a list of diseases that, although possibly reportable under some circumstances to health authorities, were not relevant to the Regulations under examination, and again indicated a lack of knowledge of the subject.

6 As the Watch Sub-Officer you have been approached by the station safety representative with concerns over the 'noise levels' in the Breathing Apparatus compressor room.

(a) The Noise at Work Regulations 1989 set out three 'action levels'. Identify the first two action levels and the specific steps that employers must take when the noise reaches each of these levels. (16 marks)

and

(b) Give three examples of noise control measures. (9 marks)

Bibliography: Study Note 2310 – Noise at Work Regulations, pages 2 and 3.

A well answered question indicating that candidates understood the subject although with further expansion to their answers many candidates could have gained additional marks.

In this instance, listing the various points was an appropriate method for candidates to gain marks and the examples of control measures indicated a good understanding of the subject.

PAPER 4: BUSINESS ADMINISTRATION

GENERAL COMMENTS

Comments Relating to Questions

The questions required candidates to demonstrate their ability to add, subtract, multiply and divide, and to read a graph. In addition, the ability to form a bar chart was assessed.

Although over 80 % of candidates indicated a satisfactory level of knowledge, many candidates failed to convey to the examiners a complete understanding of the subject.

Work that was laid out in a methodical manner gained a greater number of marks but unfortunately there were many scripts where the examiner had to sift through irrelevant information in an attempt to identify marks for the candidate.

As in previous years the questions clearly require candidates to show all formulae and calculations but this point was frequently missed and consequently available marks failed to be obtained.

It is essential that candidates take sufficient care to understand the question fully if they wish to answer all the points necessary to indicate their understanding of the subject and accordingly gain maximum marks.

Attempt BOTH questions

1 You have been requested to undertake certain work to support reports that are to be submitted to the fire authority.

- (a) A policy of achieving at least one smoke alarm in 95% of homes in the brigade area is being proposed. In order to do this it is planned to fit, free of charge to householders, one smoke alarm in those homes that do not already have one. The project is scheduled to take place over four years and an equal number will be fitted each year.

The following information is available:

- Number of households in the brigade area – 532,000.
- % of households already in possession of a smoke alarm – 83%.
- Cost of alarms – £7.30 each.

Calculate:

- (i) the **total number** of smoke alarms still needed to satisfy this policy.
- (ii) the **total cost** of these additional smoke alarms; and
- (iii) the **financial provision** each year to complete the project. **(8 marks)**

(All formulae and working out to be shown).

and

- (b) In the year 2000 a retained station attended 600 calls. Because of the station's commitment to community safety activity, calls in the retained station area fell by 13% in 2001.

On average 1 sub-officer, 1 leading firefighter and 4 firefighters turnout and 2 firefighters receive attendance payments.

Given the following simplified pay rates, how much will the authority save as a result of the reduction in calls?

	Turn Out	Attendance
SubO	£18.47	£9.29
Lf	£16.27	£8.49
Ff	£13.98	£7.56

(8 marks)

(All formulae and working out to be shown).

Question 1 Cont'd

and

- (c) The savings on another station were £10,000. The authority has agreed to share the money between the personnel on that station on the following basis:

The sub-officer will receive 2 times the amount to be allocated to a firefighter.

Each leading firefighter will receive $1\frac{1}{2}$ times the amount of a firefighter.

On the station there is 1 sub-officer, 2 leading firefighters and 8 firefighters.

How much will:

- (i) the sub-officer receive;
- (ii) each leading firefighter receive; and
- (iii) each firefighter receive? (9 marks)

(All formulae and working out to be shown).

Bibliography: Study Note 2401 – Application of Numbers.

This question required candidates to provide information by means of calculation from figures provided and to indicate the means by which this was achieved.

Basic errors could have been avoided with the application of greater care especially when transposing information already provided or calculated by the candidate.

Each point of the question required calculations and formulae to be shown and greater attention to this point would have assisted candidates in achieving a greater number of marks.

- 2 (a) For a report on health and safety you are studying certain information. The following table shows comparative average fatality and 3 day injury rates for the EU and Great Britain per 100,000 workers.

Industry	EU		Great Britain	
	Fatal	Over 3 days	Fatal	Over 3 days
Construction (F)	13.3	8000	5.6	2700
Agriculture (A)	12.9	6800	10.8	2000
Transport, storage & communication (I)	12.0	6000	1.2	2400
Electricity, Gas & Water (E)	5.7	1600	1.4	1700
Manufacturing (D)	3.9	4700	1.4	2200

- (i) Draw a bar chart comparing the over 3 day injuries for each industry sector between the EU and Great Britain per 100,000 workers.

and

- (ii) Calculate the average fatality rate across all the sectors to one decimal place for:

- the EU; and
- Great Britain.

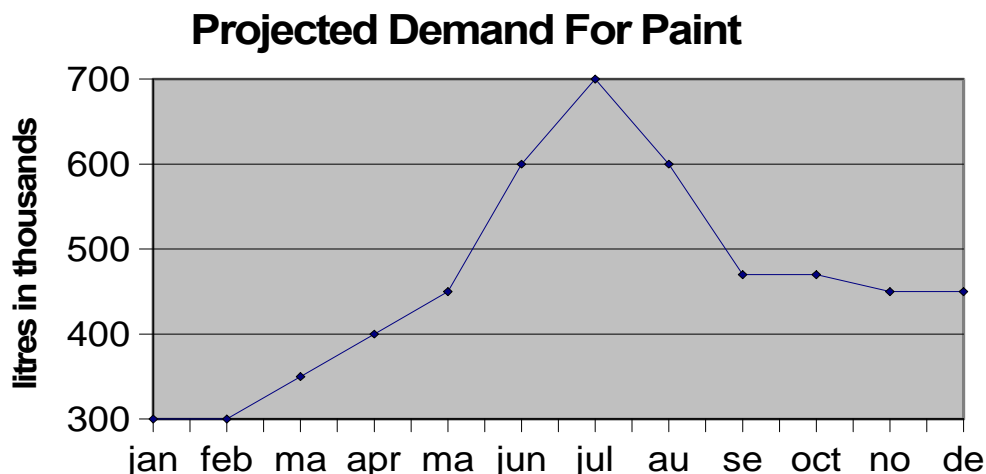
(14 marks)

(All formulae and working out to be shown).

and

Question 2 Cont'd

- (b) A factory in your area produces a liquid product (paint) the demand for which is seasonal. The following graph shows the projected demand for litres per month of the product. Assuming each worker produces 8,000 litres per month, and production can only be increased by increasing the workers:



- (i) By how many will the workforce need to increase from the month of lowest demand to that of maximum demand?

(Round all decimal points upwards).

and

- (ii) In June, ten of the workers employed to satisfy the projected demand were absent for the whole month. However, those remaining increased their assumed productivity by 5% during that period.

During June, how much would actual production vary from the projection? (11 marks)

Bibliography: Study Note 2401 – Application of Numbers.

Although both sections of this question were fairly well answered some candidates failed to gain marks due to simple errors.

In part (a), candidates either failed to provide a satisfactory bar chart to gain a considerable number of marks or failed to study the question in full, producing answers that did not provide the information required.

Candidates who produced well formed and labelled bar charts demonstrated their knowledge of the subject and accordingly gained marks.

Part (b) of the question required candidates to interpret information from a graph, but unfortunately some failed to achieve this and could not go on to produce the correct final answer, and therefore failed to obtain the available marks.

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