

Paper 1

SECTION A (all questions to be answered)

1. Write notes on:
 - (i) Locard's principle
 - (ii) Sources of contamination
 - (iii) Prevention of cross-contamination.
2. Write notes on the following methods of identification of an asylum seeker entering the UK:
 - (i) biological identification
 - (ii) personal identification
 - (iii) cultural identification.
3. Write notes on how the following specimens could be used in the identification of a freshly deceased cadaver:
 - (i) blood
 - (ii) histological samples
 - (iii) hair.
4. Write notes on which features suggest that the following skeletal elements are from a male or female:
 - (i) pelvis
 - (ii) a long bone
 - (iii) skull.
5. Write notes on the Civil Contingencies Act 2004 dealing with:
 - (i) categories of responders
 - (ii) accepted methods of human identification
 - (iii) local and regional planning.

SECTION B (5 questions to be answered)

6. A hand-written suicide note, torn from a notepad, was found near a body. What forensic techniques could be used to identify the author from this document?
7. A worn shoe has been linked to the scene of a crime through the presence of the victim's blood on the upper surface of the shoe. The suspect denies ownership of the shoe. Describe the process involved in identifying the foot of the suspect to that shoe.
8. Discuss the use of radiology in the identification of a decomposed body.
9. Discuss why it is that, with the exception of identical twins, our DNA is unique yet DNA evidence is given as a match probability.

10. Discuss the value of contact trace evidence (excluding DNA) as an aid to identification.
11. Why is it important to secure a crime scene and protect it to aid the identification of a suspect?
12. Discuss the following statement:
"Low copy number (LCN) PCR is better than mitochondrial DNA profiling (mtDNA) for analysing touch DNA".

Note: "touch DNA" refers to the analysis of small amounts of epithelial cells that are transferred from a person to an object through brief handling.
13. Discuss the difficulties that may arise in the identification of a severely incinerated body and how these may be addressed.
14. Discuss the identification of deceased in the mortuary by relatives or acquaintances.
15. List five common errors or omissions occurring in dental records which may complicate their use in identification procedures.

Paper 2

1. A mask, which has been constructed from the sleeve of a jumper, has been discarded at the scene of an armed robbery which resulted in the shooting dead of a company guard.
 - a. ***What forensic investigation of the mask might ensue?***
 - b. ***A DNA result is obtained. The DNA Database interrogation proves negative. What scientific process might the police initiate to take the investigation forward?***
 - c. ***If action at (b) above is fruitless and a witness gives a description of the person responsible as a white male approximately 35 years of age, what police action could follow to identify the culprit?***
 - d. ***A suspect is identified. What other scientific investigation could take place to identify other possible connections?***
2. A case of a sexual assault that was never resolved is being reinvestigated using current DNA profiling methods. The assault occurred in 1984 in London. The victim described the attacker as being white and in his mid-20s or early thirties. The clothing of the victim has been stored and a full DNA profile has been obtained from a semen stain. His profile has been placed on the National DNA

Database and found to match Mr Smith who is now 55 years old. Mr Smith is white, and lived in Manchester at the time of the offence. He has family, including two brothers, his father and two uncles who live in London.

Consider how the DNA evidence can be evaluated.

3. During a party in a busy central London pub one man shoots another in the leg. Intelligence suggests that drugs may be the root cause of the disagreement. The victim is now in hospital, his injuries are non-life-threatening. During a police pursuit a gun is thrown from a vehicle. The driver (answering the description of the gunman) makes good his escape. The passenger is arrested.
 - a. ***Identify each of the crime scenes implicit in this scenario and prioritise them, giving reasons for your decision.***
 - b. ***Describe how forensic techniques might be applied to each of the scenes in a way that will:***
 - (i) ***identify the perpetrator, and***
 - (ii) ***link him to criminal offences.***
4. Following the 2004 Boxing-day Tsunami, visual identifications took place before international Disaster Victim Identification (DVI) standards were adopted.

Several purported British victims were visually identified and their bodies either repatriated to the UK or another country (Republic of Ireland, South Africa, France). Additionally, some were buried or cremated in Thailand. The ashes of many of those cremated were returned to the UK. The errors in visual identification and transportation also resulted in a Swiss and a German national being brought mistakenly to the UK. A non-British victim was also sent to the UK for burial with her British partner.

- a. ***What advice would you give to the police Senior Identification Manager (SIM) in dealing with these non DVI identifications?***
 - b. ***Outline the Coronial responsibility for all of the above if they had been returned to London Heathrow, and the Fatal Accident Inquiry responsibilities if they had been sent to Glasgow.***
 - c. ***If the bodies had been returned to various airports, i.e. Manchester, Heathrow, Gatwick and Stansted, what difference would this make to Coronial jurisdiction and in what circumstances could a single Coroner deal with all cases?***
5. Builders attend a house that is to be demolished prior to redevelopment; the house has been unoccupied for some years. On entry they find a large amount

of bloodstaining distributed through several rooms; there is also evidence of recent occupation as well as drugs paraphernalia.

a. How should the police proceed with their initial investigation?

Fingerprint matches are made to two people with drugs convictions. Blood pattern indicates several areas of impact spatter typical in a battering attack; most of these were from the same individual but one was from a different person. There were smaller areas of blood splashing and dripping from several sources, and some pools from both sources of the impact distributions.

b. What might these findings indicate about the possible events leading to the bloodstaining and how would they affect the investigation?

No DNA matches are found with either of the sources of the spatter. One of the fingerprint hits is deceased and there is no DNA sample. A man who lived in the property some years previously has apparently disappeared. A length of scaffolding pole wrapped in clothing is found under floorboards.

c. How might these findings be pursued and what information could they provide?

The other fingerprint hit is located, and he informs the police of the names of a number of squatters who were at the location. Blood on the scaffolding pole matches both sources of the impact spatter, and a fingerprint identifies the brother of the missing person. Blood on the clothing comes from two sources, who are related.

d. How can this information be used to identify future developments? Discuss possible scenarios that could be considered.

6. Between 1940 and 1955 a number of bodies of young children were found in shallow graves in various places in the United Kingdom and in various stages of decomposition. Recently, investigative journalism has suggested that they were a linked series.

a. How might you, as a reviewing Investigating Officer, progress a new investigation into these crimes using currently available procedures in order to identify the perpetrator/s and victims?

Clothing from three of the victims is stained with semen with the same DNA profile; clothing from the other victims is available but DNA is not obtained from staining present.

b. What actions would be pursued as a result of this information?

7. A human skull is unearthed in the garden by a new owner of a domestic property. A forensic dentist is present to assist in the investigation.

a. What initial features should he/she report?

b. On continuing observation, it is clear that the dentition is unusual. Give three examples of features which might indicate this.

c. The mandible is missing. Describe two ways in which you might proceed.

d. What further investigations might you make? Briefly describe three possibly productive activities insofar as an identification is concerned.

8. A young man is seen aimlessly wandering the streets of a small town. When questioned by a concerned passer-by, he does not appear to respond or understand the nature of what he is being asked. The passer-by is concerned enough to call for assistance and a police officer arrives and similarly is not able to elicit any information from him. The young man appears in a confused state so is taken under the care of social services who facilitate his admission to a hospital ward for assessment.

In such circumstances how would you, as part of the care team, together with the police try and find out who he is?