

2528/202

2922/202

ENVIRONMENTAL POLLUTION CONTROL,
HEALTH AND SAFETY

June/July 2016

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY
MODULE II**

ENVIRONMENTAL POLLUTION CONTROL, HEALTH AND SAFETY

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

A non-programmable scientific calculator.

This paper consists of TWO sections; A and B.

Answer ALL the questions in section A and any THREE questions from section B in the answer booklet provided.

Each question in section A carries 4 marks while each question in section B carries 20 marks.

Maximum marks for each part of a question are indicated.

Do NOT remove any pages from this question paper.

Candidates should answer the questions in English.

This paper consists of 3 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION B (60 marks)

Answer any THREE questions from this section.

11. (a) State four measures that can be taken to reduce incidences of acid rain. (4 marks)
- Exhaust filter - catalytic converter
- (b) Explain two ways of controlling carbon monoxide emission in an automotive engine. (4 marks)
- Carburettor - air filter
- (c) State six harmful effects of each the following:
- primary and secondary
- (i) Nitrogen oxides. (6 marks)
- respiratory disorder - global warming
- (ii) Acid rain. (6 marks)
- corrosion - plant death - death of animals - fish die - failure of water bodies
12. (a) Explain four negative effects of smog. (8 marks)
- visibility - respiratory - irritation - asthma
- (b) Write a chemical reaction describing the:
(i) formation of Nitrate radical; (2 marks)
(ii) dissociation of Nitrate radical during daytime. (2 marks)
- (c) Explain the role of nitrate radical in smog formation. (2 marks)
- (d) State six factors that affect dispersion of air pollutants to the atmosphere. (6 marks)
13. (a) With the aid of a chemical equation, explain the limitation of soap as a cleaning agent. (5 marks)
- (b) Explain the measures that can be taken to reduce the limitation in 13(a). (3 marks)
- (c) Explain six duties of a hospital officer charged with the responsibility of controlling exposure of hazardous substances to other employees. (12 marks)
14. (a) Differentiate between occupational hygiene and occupational medicine. (4 marks)
OH → Total environment and behavior of employees in a workplace
- (b) Explain any five roles of an occupational hygienist employed in a health facility. (10 marks)
- Sanitary - ventilation - noise - inspection - ergonomics
- (c) State any six benefits that a company gets by operating an appropriate occupational health and safety system. (6 marks)
- production - motivation to workers - injury - cost
15. (a) Explain any five considerations taken when selecting a protective clothing for a worker in a chemical manufacturing factory. (10 marks)
- nature of work - size - use according to site
- (b) A safety engineer is required to undertake a safety audit in an organisation. Explain five areas that the officer will check to ensure that the work environment is safe. (10 marks)
- layout - storage area - exits - latrine - kitchen - Sanitary - working

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Handwritten notes:
- kitchen → workers, cleanliness - working areas
- latrine and washrooms → 3
- electrical →
- Working areas → six
- Working areas → six
- Dietary areas →
- latrine →
- kitchen →
- working areas →