

2922/302

ENVIRONMENTAL WASTE MANAGEMENT,  
E.LA AND ENVIRONMENTAL LAW

Oct. / Nov. 2021

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY

MODULE III

ENVIRONMENTAL WASTE MANAGEMENT, E.LA AND ENVIRONMENTAL LAW

3 hours

**INSTRUCTIONS TO CANDIDATES**

*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 as shown.*

*Candidates should answer the questions in English.*

**This paper consists of 5 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 A (40 marks)

Answer ALL the questions in this section.

1. Define each of the following:

(a) waste management;

(2 marks)

(b) waste disposal.

(2 marks)

2. Name **four** methods used to reduce the volume of solid waste.

(4 marks)

3. Figure 1 shows a schematic diagram of a typical municipal water treatment plant.

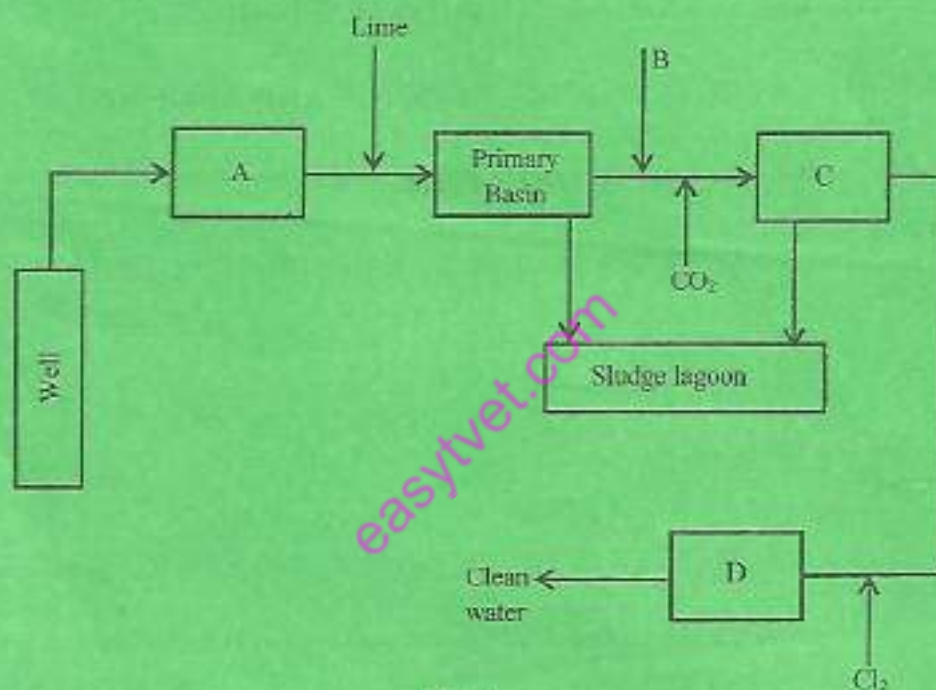


Fig. 1.

Name the equipment and stream labelled A, B, C and D.

(4 marks)

4. State **four** internal treatment processes of wastewater.

(4 marks)

5. Name **four** screening activities in environmental impact assessment (E.I.A).

(4 marks)

6. State **four** activities considered while planning for fieldwork in environmental impact assessment (E.I.A) study.

(4 marks)

7. State **four** considerations taken into account by National Environmental Management Agency (NEMA) while making a decision on issuance of E.I.A license to development company.

(4 marks)

8. State **four** benefits of enforcing environmental laws by county governments in Kenya. (4 marks)
9. List **four** economic factors that motivate compliance to environmental laws in Kenya. (4 marks)
10. Differentiate between treaties and customs with respect to international law. (4 marks)

**SECTION B** (60 marks)

*Answer any THREE questions from this section.*

11. (a) Define the term 'radiation'. (2 marks)
- (b) Describe the working of ionization chambers in the management of radioactive wastes. (6 marks)
- (c) Describe **three** sources of radioactive radiation. (6 marks)
- (d) Explain **three** measures that can be taken to minimize exposure to radioactive sources. (6 marks)

12. (a) Explain four factors considered in designing and operating an industrial water treatment facility. (8 marks)
- (b) Figure 2 shows the physical-chemical treatment process of municipal wastewater.

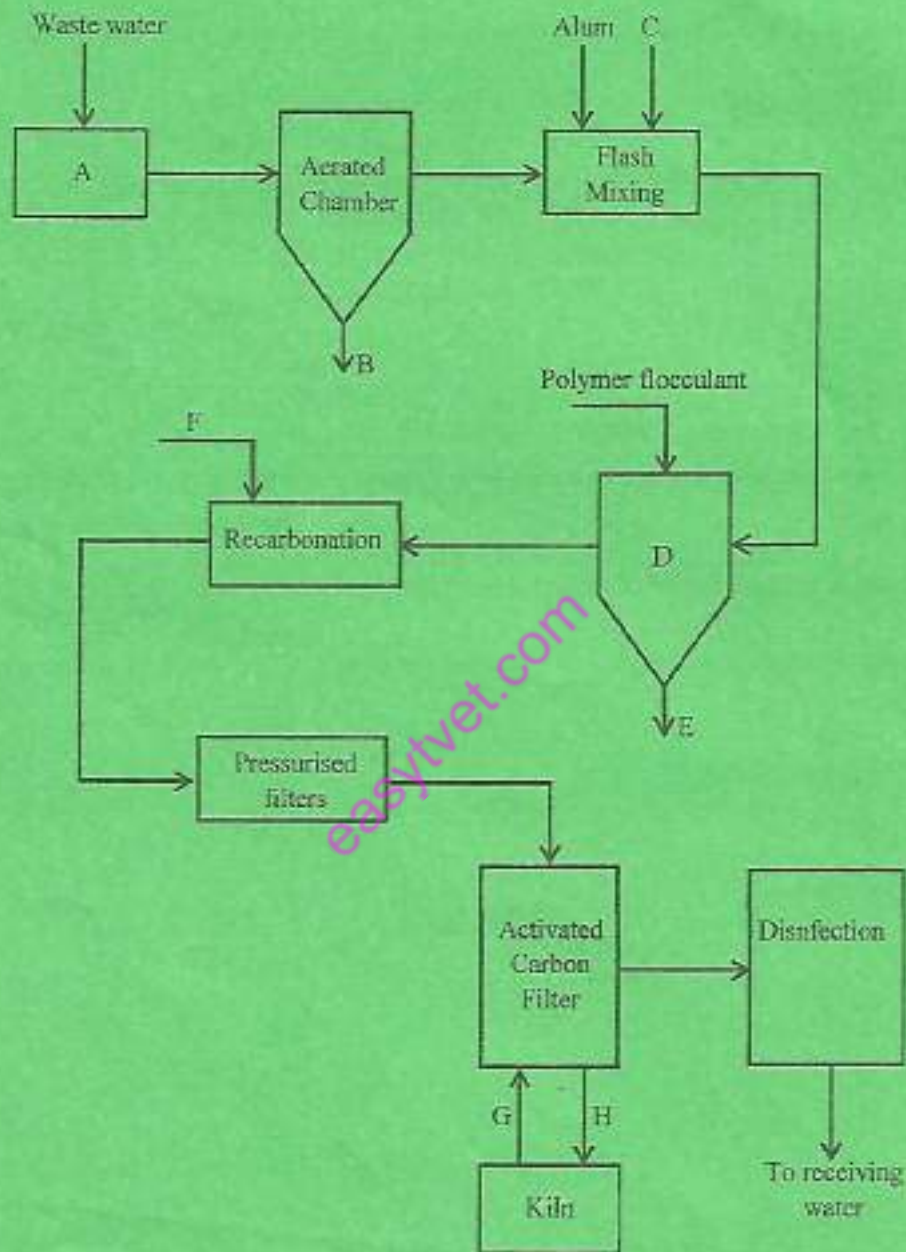


Fig. 2

- (i) Name the processes labelled A and D. (2 marks)
- (ii) Identify the streams labelled B, C, E, F, G and H. (6 marks)
- (iii) Describe the process of flash mixing. (4 marks)

13. (a) (i) Define environmental auditing. (2 marks)  
 (ii) Outline the process of environmental auditing. (5 marks)
- (b) (i) State **three** reasons for carrying out environmental monitoring. (3 marks)  
 (ii) State **five** requirements of a sound environmental monitoring process. (5 marks)  
 (iii) List **five** contents of an E.I.A monitoring report. (5 marks)
14. (a) (i) Describe 'Strategic Environmental Assessment' (SEA). (2 marks)  
 (ii) State **five** considerations that an environmental committee should take into account while reviewing a SEA report. (5 marks)
- (b) (i) Describe 'Environmental Impact Assessment' in the trans-boundary context. (2 marks)  
 (ii) The government of Kenya intends to mine oil in a location close to a neighbouring country. Explain **four** reasons why E.I.A should be carried out in this context. (8 marks)  
 (iii) State **three** objectives of implementing E.I.A in the context of international and regional agreements. (3 marks)
15. (a) Describe **four** obligations of a waste transporter according to environmental law. (8 marks)
- (b) Describe each of the following principles in regard to international environmental law:
- (i) precautionary principle; (2 marks)  
 (ii) polluter pays principle; (2 marks)  
 (iii) principle of non-discrimination. (2 marks)
- (c) Explain each of the following roles played by courts in enforcement of environmental law:
- (i) adjudication; (2 marks)  
 (ii) relevant and irrelevant considerations; (2 marks)  
 (iii) interpretative role. (2 marks)

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