THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education

233/1 — **CHEMISTRY** — **Paper 1**

(THEORY)

Nov. 2019 – 2 hours

Name ..... **Index Number** .....

Candidate's Signature ..... **Date** .....

Instructions to candidates

(a) Write your name and index number in the spaces provided above.
(b) Sign and write the date of examination in the spaces provided above.
*(c) Answer **all** the questions in the spaces provided in the question paper.*
(d) KNEC mathematical tables and silent non-programmable electronic calculators may be used.
*(e) All working **must** be clearly shown where necessary.*
*(f) **This paper consists of 16 printed pages.***
*(g) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.***
*(h) **Candidates should answer the questions in English.***

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

17	18	19	20	21	22	23	24	25	26	27	28	29	**Grand Total**	

1. An atom of element **A** has mass number **39** and **19** protons.

(a) Write the electron arrangement of the atom. (1 mark

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(b) State the period and group to which element **A** belongs.

Group ..... (½ mark)

Period ..... (½ mark)

(c) State whether the element is a metal or a non-metal. (1 mark)

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2. Describe how an increase in concentration increases the rate of a reaction. (2 marks)

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3. The flow chart in **Figure 1** represents some stages in the extraction of copper metal. Study it and answer the questions that follow.

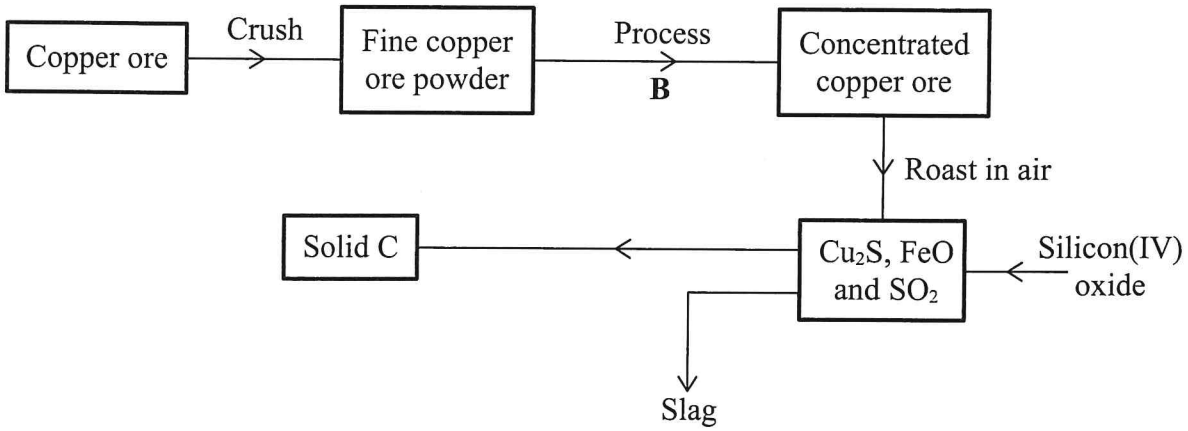

Figure 1

7. (a) Identify:

(i) the copper ore ..... (1 mark)

(ii) process B ..... (½ mark)

(iii) solid C ..... (½ mark)

(b) Write an equation for the reaction that forms the slag. (1 mark)

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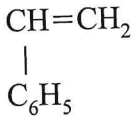
4. A monomer has the following structure.



(a) Draw the structure of its polymer that contains three monomers. (1 mark)

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(b) A sample of the polymer formed from the monomer has a molecular mass of 4992. Determine the number of monomers that formed the polymer (C=12; H=1.0). (2 marks)

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28. Draw in the space provided a labelled diagram of the set-up of the apparatus that can be used t electrolyse molten lead(II) bromide.
(3 marks

29. Name an appropriate apparatus that is used to prepare standard solutions in the laboratory.
(1 mark)

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