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1. Distinguish between a primary cell and a secondary cell.
2. Define the term “e.m.f” of a cell. (1mk)
3. Distinguish between electromotive force and potential difference (2mks
4. State one major difference between a primary cell and a secondary cell(1mk)
5. State the major difference between a dry cell and a wet cell (1mk)
6. State two advantages and one disadvantage of alkaline cells over lead acid accumulator. (3mk)
7. Name two advantages which a lead accumulator has over a dry cell (2mk)
8. Give a reason why it is necessary to leave the caps of the cells open when charging an accumulator. (1mk)
9. State the reason for topping up a lead acid accumulator with distilled water.

(1mk)

1. Give a reason why it is not advisable to smoke a cigarette near a charging battery. (1mk)
2. It is common practice that once an accumulator is recharged the terminals are connected using a wire so as to assess its state of charge. How is this dangerous to the life of the accumulator?
3. Recharging is one of the practices of maintenance of accumulators. State two measurements, which need to be taken to help you decide when an accumulator is due for charging.
4. State **two** qualities that are used to determine whether accumulator require charging or not. (2mks)
5. The figure below shows a simple cell made of copper and zinc electrodes dipped in dilute sulphuric acid.

**Bulb**

**DilH2SO4**

**Zinc plate**

**Copper plate**

a) Identify the cathode and the anode. (2 mks)

Cathode ………………………..

Anode ………………………..

b) State the two common defects in a simple cell. (2 mks)

c) Explain how the defects in b) are minimized. (2 mks)

1. The figure below shows the set – up for a simple cell.

**Bulb**

**Dil H2SO4**

**A**

**Copper plate**

(i) Name the electrode **A**. (1 mk)

(ii) Explain why the bulb goes off after only a short time.

1. Differentiate between local action and polarization as defects in a simple chemical cell (1mk)
2. **State** how polarization is reduced in a dry cell (1mk)
3. Explain how polarization affects the working of a simple cell. (1mk
4. Distinguish between open and closed circuit. (2mk)
5. Draw a well labeled diagram of a dry cell
6. The figure below shows the features of a dry Leclanche cell. Name parts **A, B, C** and **D**

**B =** ……………………………………………………

**C =** …………………………………………………

**A =** …………………………....................................

**D=**……………………………………………………

(4mk)

(ii) Indicate on the same diagram the positive **(+)** and the negative **(-)** terminals.

(1mk)

1. State the use of manganese (IV) oxide in a dry cell (1mk)
2. State two precautionary measures you would take to maintain the efficiency of an accumulator.
3. State the advantage of Nickel-cadmium battery over the lead -acid type
4. Give a reason why it is not advisable to arrange cells in parallel unless they have identical e.m.f .
5. A form two student found his dry cells leaking on removing them from his torch. He asked his friend what could be the cause of this. What answer did his friend provide?
6. Figure below represents a simple circuit diagram containing cells of e.m.f 1.5V each.

**S**

**C**

(i) What does component **C**represent. (1mk)

(ii) Determine the reading of **V** when the switch is open. (1mk)

1. **State** the changes in brightness of the bulbs in the circuit diagram as the switches S1, S2 and S3 are switched on one after the other.

**X1**

**X3**

**X2**

1. Fig (a) and (b) show two possible arrangements of a bulb to a source of power.

In which of the arrangement above would the cells drain faster. Explain your answer. (2mk)

1. A battery is rated **120AH**. How long will it work if it steadily supplies a current of **4A**. (2mk)
2. Calculate the amount of current flowing through a bulb if **720C** of charges flow through it in **200** seconds.
3. Calculate the amount of current flowing through a bulb if **300C** of charges flow through it in **2.5** minutes.
4. Find the time takes for a charge of **960C** to pass through a conductor where a current of **4A** is flowing.
5. If **180C** of charge flows through a circuit in one minute. Find the current through the circuit.
6. Calculate the amount of charge passing through a point in a circuit if a current of **5A** flows for **1.5** minutes.
7. A current of **4.8A** was passed through an electrolyte for **½** hours. **Calculate** the quantity of electricity used.

1. A charge of magnitude **1200C** flows through a point in **15** minutes. Calculate the current. (2mks
2. A current of **0.5A** flows in a circuit. Determine the quantity of charge that crosses a point in **4** minutes
3. A current of **2 A** passes through bulb **Q** for **2** minutes **30** seconds. Determine the quantity of charge through Q (2mk)
4. A charge of magnitude flows through a point in 15 minutes. Calculate the current. (2mks
5. A charge of 360 coulombs flows through a lamp every minute. Calculate the number of electrons involved (electron charge is 1.6x10-19C). (3 mk)

**SCHEEM**

1. Give a reason why it is not advisable to smoke a cigarette near a charging battery. (1mk)

***ANS: Charging battery produces hydrogen and oxygen gases which are highly flammable.***

1. It is common practice that once an accumulator is recharged the terminals are connected using a wire so as to assess its state of charge. How is this dangerous to the life of the accumulator?

***ANS:* This causes buckling of the plates as this is short circuiting**

1. Name two advantages which a lead accumulator has over a dry cell (2mk)

***Ans A lead accumulator give strong current over a long time compared to a dry cell;***

***A lead acid accumulator can be recharged while dry cell cannot be recharged***

1. State the major difference between a dry cell and a wet cell (1mk)

***ANS Dry cells uses solid electrolyte while wet cells uses solution***

***of an electrolyte;***