Question 1

(a) Identification

A - Canine
B - Premolar / molar

2 x 1 = 2 marks
[Correct spelling to score]

(b) Name of labelled parts

no plural

I - cementum/cement
II - enamel
III - nerve / nerve ending
IV - dentine/dentin
V - root

5 x 1 = 5 marks
[Correct spelling to score]

(c) Main function of

(i) A / Canine:-
For biting /cutting/tearing/ripping/grasping/gripping (solid food)
1 x 1 – 1 mark

(ii) III / nerve:-
Senses hot / cold environment/ provides sensation of heat / cold/protects the tooth
1 x 1 = 1 mark

IV / dentine:-

- Provides support to the enamel / prevents enamel fractures
- Protects the pulp cavity
- Allows substance to pass to the other parts of the tooth/transmits impulses from enamel/root to the dentin.

1 x 1 = 1 mark

V / Root:-

- Anchors/holds the tooth in position (to jawbone)

1 x 1 = 1 mark

(d) Observable structural differences between

A / Canine	B / premolar / molar
A single root present	Double roots present
Conical / bluntly / absence of ridges	Flat surface with cusps/ridges

absence of ridges 2

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Smaller	Larger
One set of nerves	Two sets of nerves

Corespond to score

Any 2 x 1 = 2 marks

(e) Activities of humans

- smoking/tobacco use
- eating too much sweets/sticky foods
- failing to clean/brush teeth regularly/flossing the teeth/poor oral hygiene
- aggressive brushing/brushing the teeth vigorously
- medication of drugs
- drinking/eating too hot/cold food
- using the teeth as bottle opener

Any 2 x 1 = 2 marks

QUESTION 1 TOTAL = 2 + 5 + 4 + 2 + 2 = 15 MARKS

Question 2

(a) Identification

C - tapeworm

D - weevil/beetle

2 x 1 = 2 marks
[Correct spelling to score]

(b) Classification of organism

do not consider spelling here

C - parasite

D - pest

2 x 1 = 2 marks

(c) Organism that infest crop

(i) Weevil/D

1 mark

(ii) Name of crops infested by D/Weevil

- maize/corn
- sorghum
- millet
- rice
- beans

etc.

Any 2 x 1 = 2 marks
[Correct spelling to score]

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(iii) Organism that infest farm animals

Tapeworm

1 mark

(iv) Name of farm animals infested by C/tapeworm

- Cattle
- Sheep
- Goat
- Pig
- Poultry/any named poultry bird

etc.

Any 2 x 1 = 2 marks
[Correct spelling to score]

(d) (C) Damage caused by Tapeworm / C to its host

Feeds on food nutrients in the host causing
- nutritional deficiency
- anaemia
- diarrhoea
- weakness
- fatigue
- malnutrition
- weight loss / growing lean / emaciation
- abdominal pain
- constipation
- damage to internal organs (e.g. lungs, liver, heart, brain etc). / stomach inflamm
- blockage/obstruction of intestinal movement of substances / ~~stomach inflam~~
- reduction in yields
- ~~vomiting~~ vomiting
- ulcer

Any 1 x 1 = 1 mark

(D) Damage caused by D / Weevil to crops

- bore hole into the grain
- destroy endosperm of cereals/legumes
- reduce quality of grains/stored food products

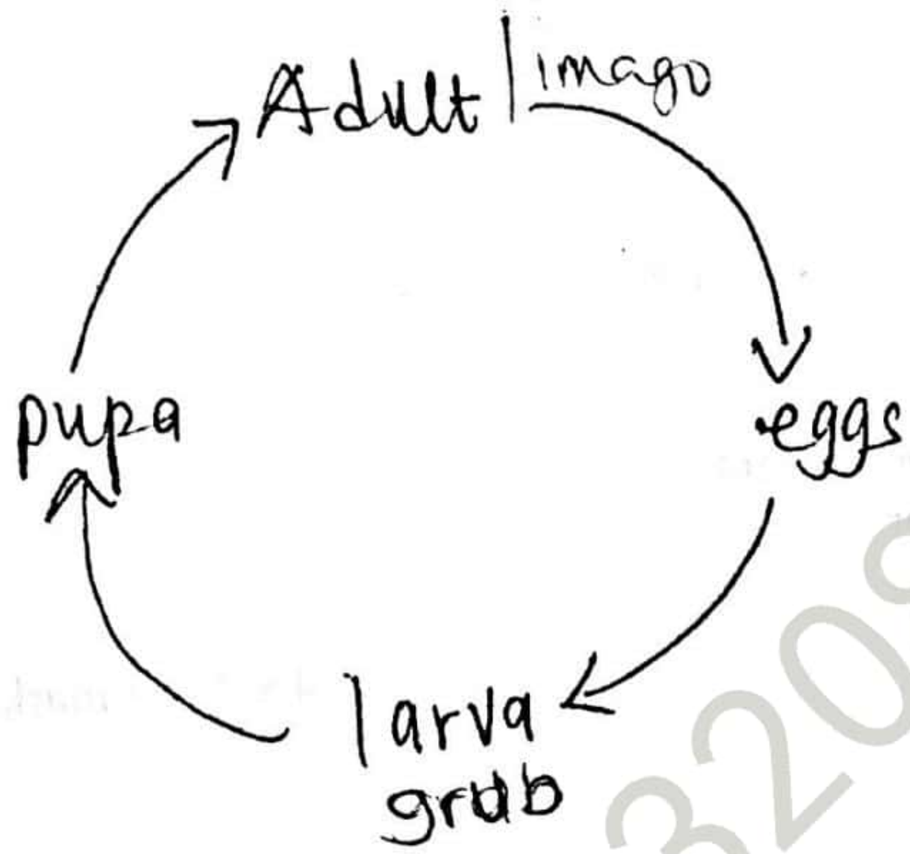
Any 1 x 1 = 1 mark

(e) Life cycle of D / Weevil

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Correct Sequence



4 x ½ = 2 marks

Diagram must be correct to score (i.e. correct sequencing of stages linked with arrows)

(f) Method of controlling tapeworm / C

- regular deworming/drenching
- avoid early morning grazing
- practicing proper farm hygiene/protocol/rules/procedures
- provision of clean/safe water and food
- rotational grazing

Any 1 x 1 = 1 mark

Method of controlling Weevil / D

- early harvesting
- regular drying / exposure to sunlight/heating
- treat grains with recommended chemical before storage/fumigation/dusting
- cultural practices (i.e. regular cleaning, aeration of storage areas etc)
- store grains/cereals/flour, etc in sealed containers
- freezing infested stored grains/cereal/flour to kill them
- using baits/bait bags
- use of diatomaceous earth (food-grade natural and non-toxic substance which damage the exoskeleton of the weevils, leading to dehydration and death
- using bay leaves (weevils are repelled by the strong smell of bay leaves). /neem tree leav
- using wood ash/sprinkle wood ash in the storage environment.
- ~~rotational grazing~~

Any 1 x 1 = 1 mark

QUESTION 2 TOTAL = 2 + 2 + 2 + 2 + 2 + 2 + 2 + 1 + 1 = 16 MARKS

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Question 3

(a) Identification Correct Spelling Score

IV - inductor/coil
V - p – n junction diode/diode
VII - n – p – n transistor
VIII - a.c. source/voltage

4 x 1 = 4 marks

(b) Functions of components

II - stores electric charges
III - opposes/limits the flow of electric charges/current in a circuit
VI - converts electric current to light/indicates flow of current in a circuit
VIII - source of alternating current/causing current to flow

4 x 1 = 4 marks

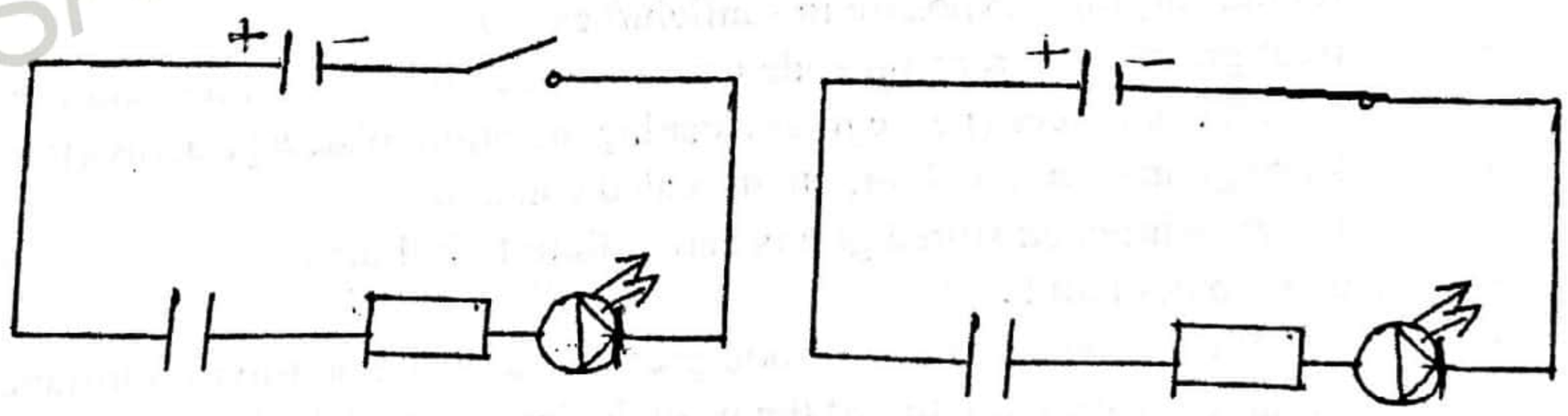
(c) Components which when connected to VI will cause it to light up but goes off immediately

I, II and III

3 x 1 = 3 marks

accept cell/battery, resistor, Capacitor

(d) Circuit diagram of set of component used



Correct diagram arrangement (all components in series) - 1 mark
Forward bias -1 mark
Resistor in circuit - 1 mark

(cd. all the component and be there respective + Positive) **3 marks**

QUESTION 3 TOTAL = 4 + 4 + 3 + 3 = 14 MARKS

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Question 4

(a) Graph (Attached)

Mass of NaOH (M/g)	8	30	50	70	80
Volume of solution (V/cm^3)	40	150	250	350	400

Correct axes (A) 2 x ½ = 1 mark
Choice of correct scales (S) 2 x ½ = 1 mark
Precision / 4 points clearly plotted (P) = 4 x ½ = 2 marks
Line of best fit / straight = 1 mark

5 marks

[NB: Line of best fit/straight line (L) must pass through at least 3 correctly plotted points]

(b) (i) Slope of Graph (S)

Score the slop if triangle is drawn/dy/dy is indicated

$$S = dy/dx/\frac{M_2 - M_1}{V_2 - V_1}/\text{drawn triangle}$$ 1 mark

$$\frac{80 - 30}{400 - 150}$$ 1 mark

0.20g/cm^3 / density ($\pm$ 0.20) 1 mark

[Minus ½ for wrong or no unit]

(ii) Significance of the slope

Mass concentration of the solution / density 1 mark

(c) Mass of solute in 200 cm^3 = 40g (should be indicated on the graph) 1 mark

(d) **Calculation of molar concentration**

From graph, 200cm^3 of solution contains 40g of solute

1000 cm^3 of solution = $\frac{1000 \times 40}{200g}$ 1 mark

$= 200g/dm^3$

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Molar concentration = $\frac{\text{mass concentration (m)}}{\text{Molar mass (M)}}$ 1 mark

Molar mass of NaOH = 23 + 16 + 1 = 40g/mol

Mass concentration of NaOH = 200g/dm3

$= \frac{200 g/dm^3}{40 g/mol}$

$= 5.0 \text{ mol} / dm^3$ 1 mark

(Minus ½ for wrong or no unit)

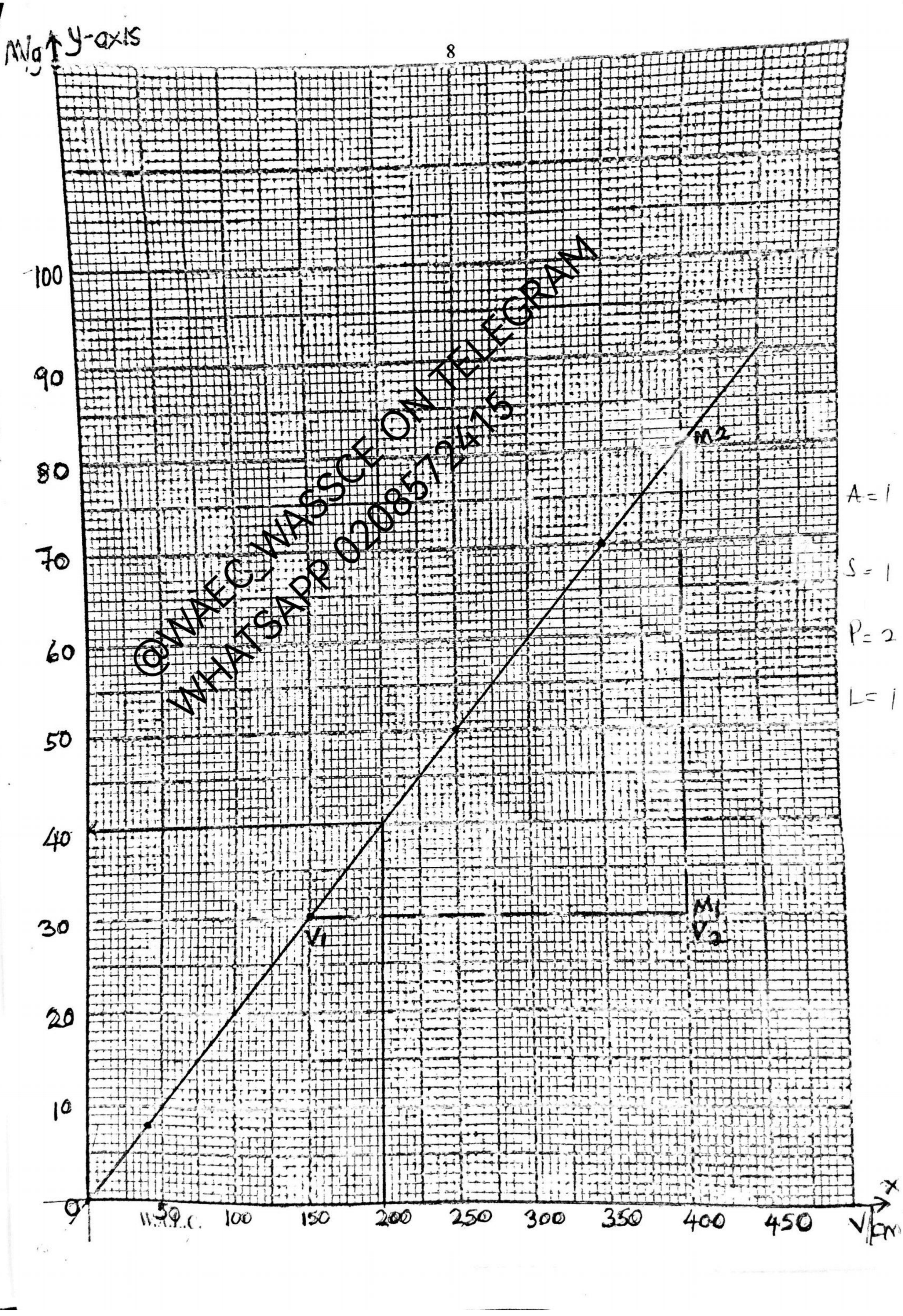
(e) Precautions

- Weigh accurately the mass of NaOH needed
- Dissolved solute prepared should be transferred into a volumetric flask carefully to avoid spillage
- Wash the equipment using distilled water to avoid contaminant
- Add distilled water to the salt to dissolve and shake thoroughly to ensure uniform solution
- Wear protective equipment to avoid getting hurt from the chemicals/salt
- Addition of solvent to the solution should be such that the lowest meniscus of the solvent must be on the mark of the measuring flask.

Any 2 x 1 = 2 marks

QUESTION 4 TOTAL = 5 + 3 + 1 + 3 + 1 + 2 = 15 MARKS

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Mg ↑ y-axis
8
100
90
80
70
60
50
40
30
20
10
0
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M2
A=1
S=1
P=2
L=1
M1
V1
V2
50
100
150
200
250
300
350
400
450
x
√fm