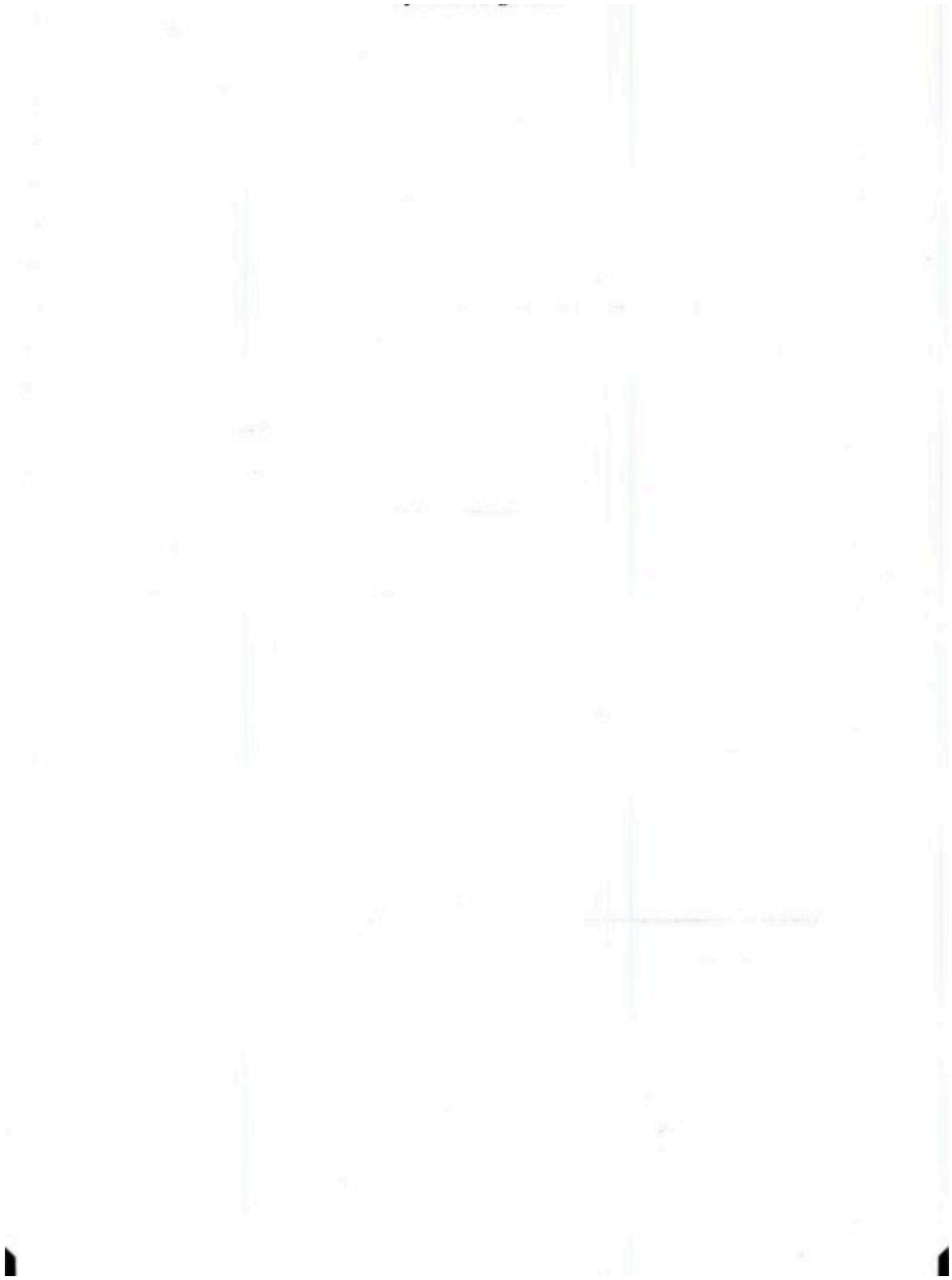




Use for rough work

Q. No. 2 Part (i)

DATA SCIENCE

intro:- It is combination of science, mathematics and statics to do better decision include structured and unstructured data.

1. **Predictions:-** It help us extract meaningful

2. **Sports:-** It used to find match result on basis of student previous performance,

3. **Education:-** used to find student result and performance on basis of past.

Q. No. 2 Part (ii)

SYSTEM SOFTWARE

1. Manages Hardware & system resources.
2. Control overall system operation and provide a platform for all the **hardware applications** to run.
3. Essiential for computer overall working that why it connects all the Hardware component and give an environment so that they can **communicate with each other.**

E.g:- Operating System, Mac OS, iOS, Android

Q. No. 2 Part (iii)

SEARCHING ALGORITHM

intro:-

A searching algorithm is step-by-step method used to find a specific item in a list or array/database.

Example:- Linear search

1) Check each element one by one from start to end.
2) Simple but slower for larger data

Importance:-

- Help quickly locate require data
- Used in apps, database and search engines.

Q. No. 2 Part (iv)

FRONT END TECHNOLOGY —:

intro.

Front end development focuses on what user see on a website.

technology:-

HTML:- Create structure (headings, paragraph)

CSS:- Adds style (colors, layout)

Javascript:- Add interactivity (buttons, animations)

These technologies work together to create user freendly interfaces

Q. No. 2 Part (v)

SYSTEM SOFTWARE

System Software is a type of Computer Software that has most **significant function such as:-**

1. Manges hardware and system resources
2. Controls overall system operation and provide a platform for application software to run
3. Essential for **compuler overall working.**

Example:-

4. Operating System, iOS, Android, MacOS etc

Q. No. 2 Part (vi) **DATA SCIENE SCOPE**

•) Data Science is **interdisciplinary** feild of Mathematics, Statistic, Science to make the beller deasions

•) It combines both structured (organized) and unstructured (unorganized) data that's why it has its scope in almost all feild of life such as

1) Healthcare 3) Sports 5) Energy & Utilities
2) Education 4) Transportation 6) Finance
7) Automation Industry 8) Media & Communication

As it do proper analysis and give results

Q. No. 2 Part (vi) **CONDITION OF BINARY SEARCH**

intro: Binary search is an efficient method used on **sorted data**

1. The first and foremost condition of binary search is that data must be **sorted**
2. We **randomly** approach all **data** or **numbers**
3. We divide the data into **2 equal parts/halves**

.....

Q. No. 2 Part (viii) **ABSTRACTION IN PROGRAMMING**

intro:-
Abstraction means showing only important features and hiding unnecessary details.

importance:-
- Reduces program complexity
- Makes coder easier to understand and maintain.
- Helps developers focus on logic instead of details.

Example:-
Using functions without knowing their internal code.

Q. No. 2 Part (ix) **CYBER BULLYING**

2 negative impacts on human

1) Psychological impact
It leads towards anxiety, social isolation, depression & stress to duc to trolling and getting harassed.

2) Academic and Professional impact:-
It takes focus and concentration of student so he can't focus on studies It down reputition of person if he entered professional life.

Q. No. 2 Part (x) **CHURN PREDICTION**

intro:-

As we know churn prediction is to check data analysis of people who likely stopped purchasing your product

working:-

It helps the businesses to attain all those potential customers who were your customer but recently stop purchase your product by **discounts, customer service etc**

E.g:- If anyone was your permanent customer & left recently your product you will attain him by personal messages etc

Q. No. 2 Part (xi) **INFORMATION SECURITY**

Information security is necessary in this **digital era** as it

1. Protects Personal & Business data
   It secures your privacy and all your hidden insights in business

2. Prevent ~~to~~ cybercrimes:-
   It protect us from cybercrimes such as identity theft, fraud and hacking.

Q. No. 3 (Page 1)

DATA VISUALIZATION

Intro:- They can use data visualization to display data on screen & digital sheets as it can help them

- Understand complex data
- Save their time
- Give correct and quick answers

By:- Methods:-

1. Quantitative Visualization

- It is method of data visualization to display numerical data on display screens.
- Compare the values that can be counted or measured
- **E.g:-** Bar chart tell marks of class or monthly sales in business

2. Categorical Visualization:-

- It is method to display data divided into groups and categories on digital screens.
- **Example:-** Pie Chart is used to tell market shares of different companies.
- Find trends and patterns of categorized data

3. Temporal Visualization:-

It is method to display data that changes over time on digital

Q. No. 3 (Page 2)

screen.
- It often uses timing axis
- **Example:-** Scatter plot used to have relation of height and weight.

4. Spatial Visualization:-
- It is method to display data that varies upon different places and geography.
- It shows and extracts trends about the location
- It tells how data spread over different places.
- **Example:-** Heat Map show weather forecast over different countries.

5. Multivariate Visualization:-
- It is methode to display whether 2 or more variables at same time to better understand data
- It help find more and more connections and trends.
- **Example:-** Scatter plot given comparison of 2 or more variable such as sales, prices, spending in scientific research

It will help organization find all the patterns, trends and relationships in data.

Q. No. 4 (Page 1)

SOFTWARE METHODS

There are **computer software methods** to protect your devices from unauthorized access, cyber crimes such as identity theft, frauds, scams, spams, phishing and hacking.

1-Antivirous or Antimalware Software :-

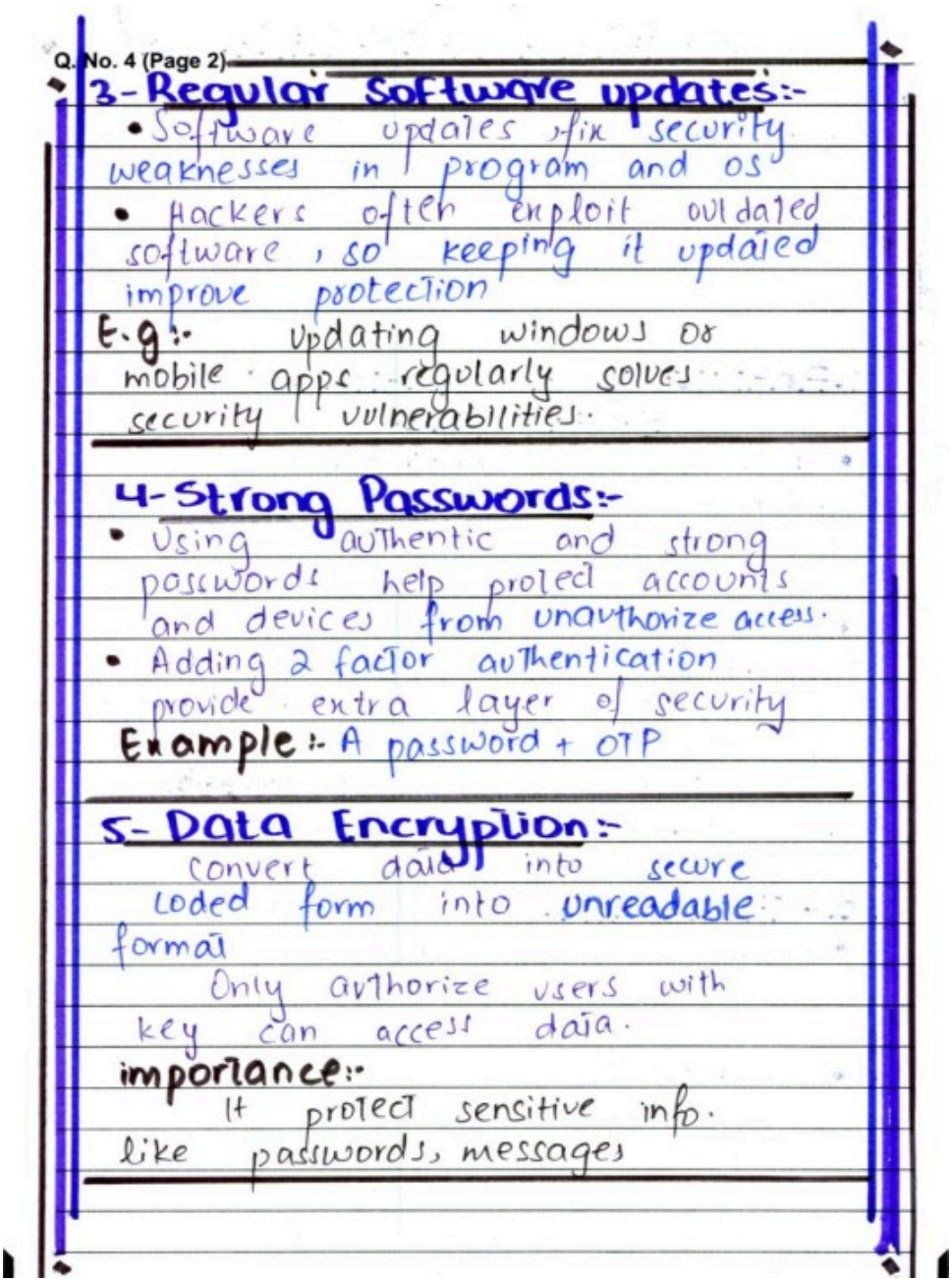
- Antivirous or Antimalware software is used to detect, prevent and remove viruses (malware) from your device and keep it safe.
- It scans files, programs & downloads to find harmful content and removes it before it can damage the system.

Example:- It protect your compilers from infected USBs or download files.

2- Firewall :-

- A firewall acts as a security barrier blw your device and internet.
- It monitors incoming & outgoing network traffic and blocks **unauthorize access.**

Imporiance:- It prevent hackers and malicious programs from entering your system.



Q. No. 4 (Page 2)

3- Regular Software updates:-

- Software updates fix security weaknesses in program and os
- Hackers often exploit outdated software, so keeping it updated improve protection

E.g:- Updating windows or mobile apps regularly solves security vulnerabilities.

4- Strong Passwords:-

- Using authentic and strong passwords help protect accounts and devices from unauthorize access.
- Adding 2 factor authentication provide extra layer of security

Example:- A password + OTP

5- Data Encryption:-

Convert data into secure coded form into unreadable formal

Only authorize users with key can access data.

importance:-

It protect sensitive info. like passwords, messages

Q. No. 5 (Page 1) **IOT WORKS :-:**

Internet of things is a system in which **physical devices** (smart watches, home appliances & vehicles) are connected to the internet and collect, share and act on data automatically.

1. Sensors :- (Data collection)

Devices that detect and collect data from surrounding environment.

Role :-

Measure physical conditions such as.

1. Temperature
2. Humidity
3. Motion
4. Light

Convert real world signals into digital data

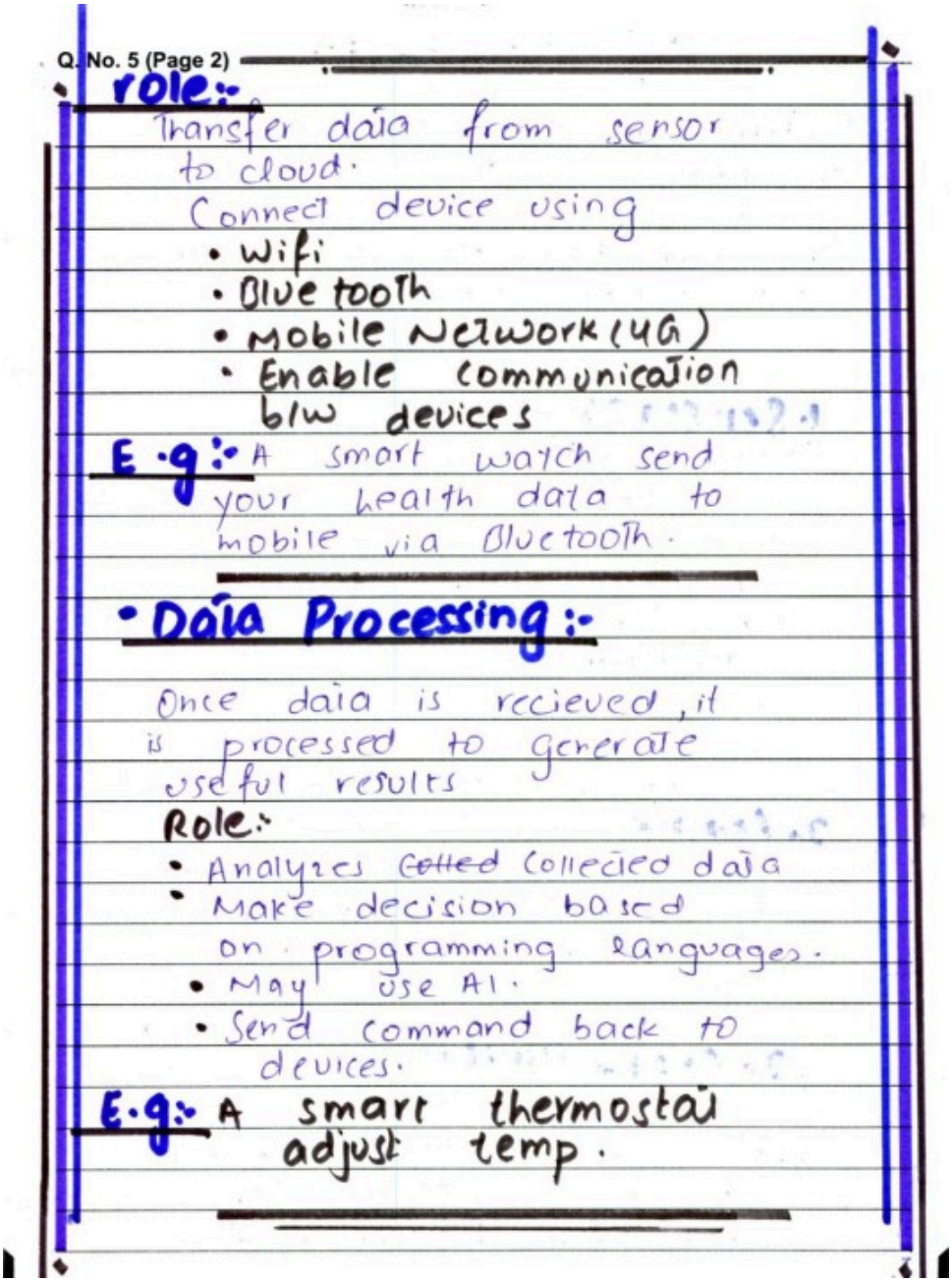
Example

A temp. sensor in smart AC detect from temp. Sensor are first step in IOT.

2. Connectivity

(Data Transmission)

After data collected it is sent to other devices or server through connectivity.



Q. No. 5 (Page 2)

role:-

Transfer data from sensor to cloud.

Connect device using

- Wifi
- Blue tooth
- Mobile Network (4G)
- Enable communication b/w devices

E.g:- A smart watch send your health data to mobile via Bluetooth.

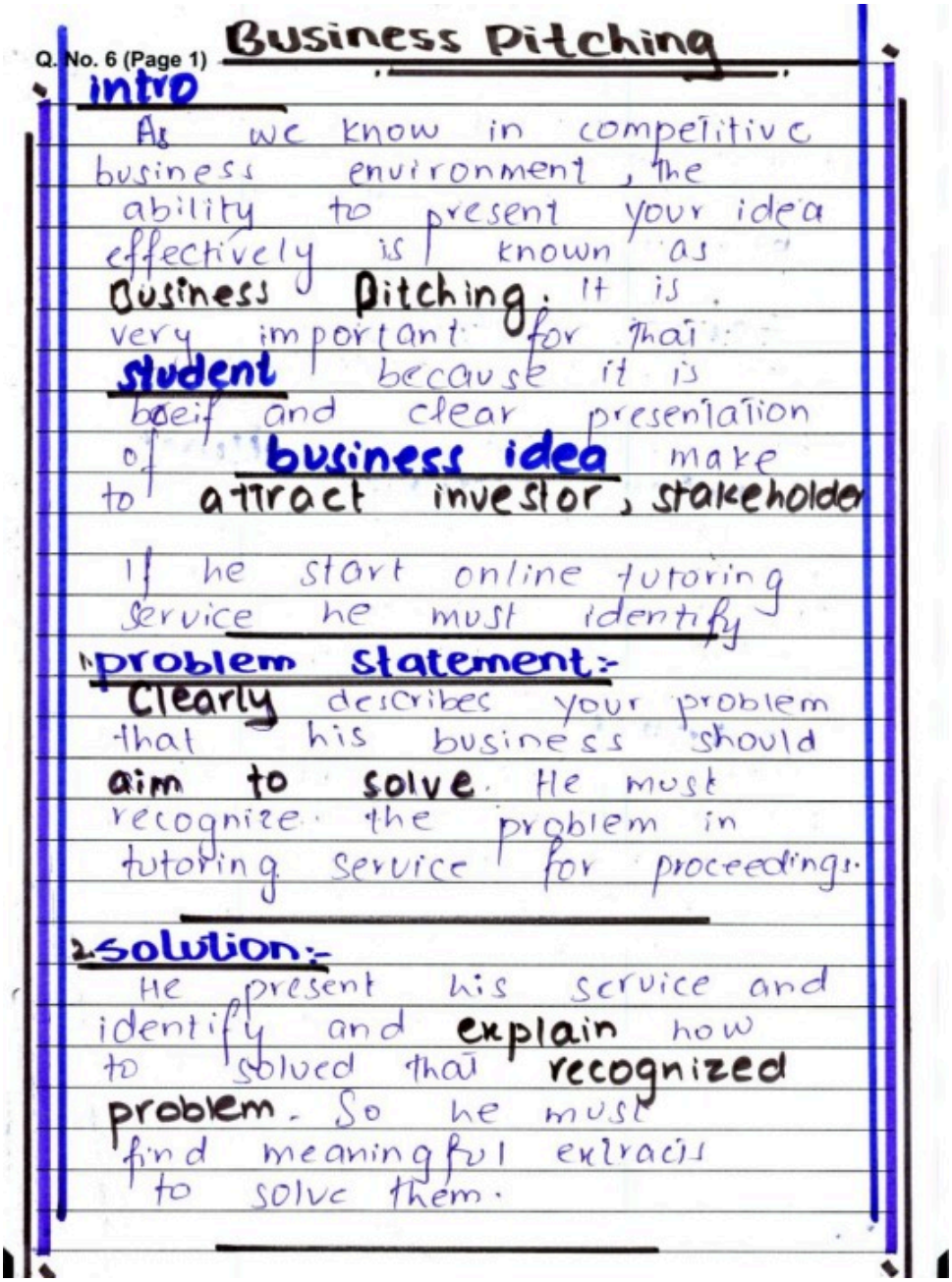
• Data Processing:-

Once data is recieved, it is processed to generate useful results

Role:-

- Analyzes ~~Getted~~ Collected data
- Make decision based on programming languages.
- May use AI.
- Send command back to devices.

E.g:- A smart thermostat adjust temp.



Q. No. 6 (Page 1)

Business Pitching

intro

As we know in competitive business environment, the ability to present your idea effectively is known as **Business Pitching**. It is very important for thai **student** because it is beif and clear presentation of **business idea** make to attract investor, stakeholder

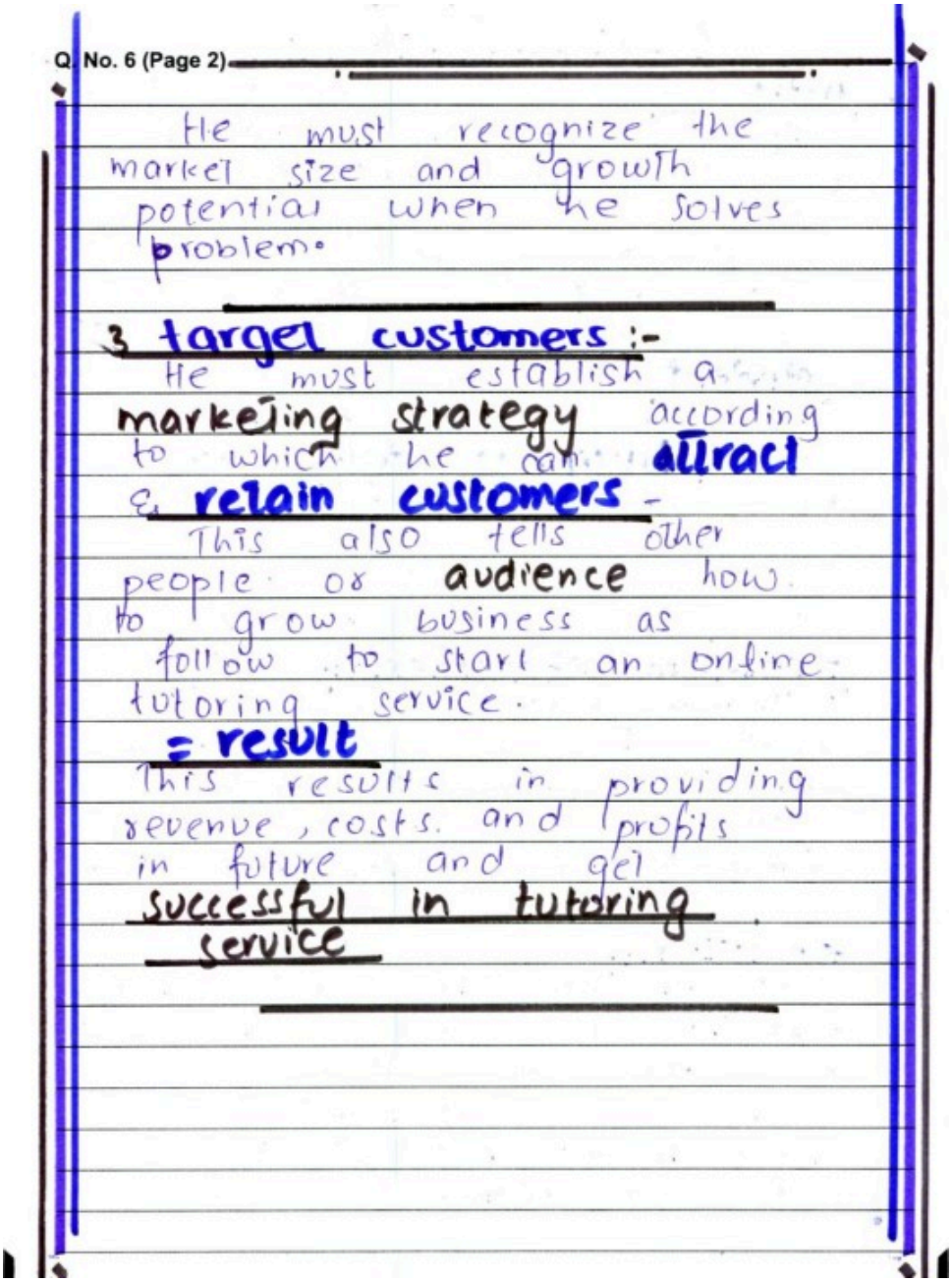
If he start online tutoring service he must identify

1. problem statement:-

Clearly describes your problem that his business should **aim to solve**. He must recognize the problem in tutoring service for proceedings.

2. solution:-

He present his service and identify and **explain** how to solved thai **recognized problem**. So he must find meaningful extracts to solve them.



Q. No. 6 (Page 2)

He must recognize the market size and growth potential when he solves problem.

3 target customers :-

He must establish a **marketing strategy** according to which he can **attract & retain customers** -

This also tells other people or **audience** how to grow business as follow to start an online tutoring service.

= result

This results in providing revenue, costs and profits in future and get **successful in tutoring service**