UNIVERSITI MALAYSIA PERLIS

Manual for Writing Exam Paper Using LaTeX
[Manual Menulis Kertas Peperiksaan Menggunakan LaTeX]

by

Mohd Hanafi Mat Som
msmhanafi[at]gmail.com

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Please make sure that this manual has **TWENTY-SIX (26)** printed pages including this front page before you start reading.

*[Sila pastikan manual ini mengandungi **DUA PULUH ENAM (26)** muka surat yang bercetak termasuk muka hadapan sebelum anda membaca.]*

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1 Introduction

This section provide explanations of the important commands available in the `finalxm.sty` package with some examples. Put all files in a folder as LaTeX will generate a number of files.

1.1 Package Installation

The simplest installation require no technical knowledge. The `finalxm.sty` can be used inside a folder containing your `finalxm.tex` file. But as you will create a number of files very semester for mid-term & final examinations, this method seems not quite right.

Another method is to put your `finalxm.sty` in the custom TEXMF root directories that are in-compliant with the LaTeX tree directory system (TDS).

1.1.1 MiKTeX

(a) Create a directory, say **~/texmf**, which serves as the new TEXMF root directory. For example, **D:/Dropbox/texmf**.

(b) Create TDS-compliant subdirectories (ie. **D:/Dropbox/texmf/tex/latex/**)

(c) Start MiKTeX Console and open the **Settings** page.

(d) Click the **Directories** tab.

(e) Click the Add button and browse to **/texmf** created earlier in step (a).

(f) Copy/move `finalxm.sty` file to **~/texmf/tex/latex/**

1.1.2 MacTeX and TeX Live

(a) Create a directory **~/Library/texmf** in your home directory, if there is not one there already.

(b) Install the various package files into subdirectories of texmf as follows:

    (i)   All .bst and .bib files into **texmf/bibtex** (or subdirectories)

    (ii)   All font-related files into **texmf/fonts** (or subdirectories)

    (iii) All documentation files into **texmf/docs**

    (iv) All other files (.sty, .cls, .tex, etc.) should go into **texmf/tex**.

1.2 finalxm.sty Package

The `finalxm.sty` uses a number of packages. You need to install these packages to compile your tex file. If you have setup the MiKTeX to install the missing package on-the-fly, then you need not to worry. You can also opt to install these packages manually using the MiKTeX console.

```
\RequirePackage[T1]{fontenc}
\RequirePackage[utf8]{inputenc}
\RequirePackage{mathptmx}          % closest to times new roman
\RequirePackage{latexsym, amsmath, amssymb, textcomp} % typesetting
    mathematical symbols, formulae and equations.
\RequirePackage{siunitx}          % si unit
\RequirePackage[a4paper, top=2.54cm, left=2.54cm, right=2.54cm, bottom=3.17
    cm, footskip=0.6cm]{geometry}
\RequirePackage{fancyhdr}          % header
\RequirePackage{enumitem}          % enumerate questions
\RequirePackage{fmtcount, zref-lastpage} % for page number
\RequirePackage[dvipsnames]{xcolor}      % font color
\RequirePackage{graphicx, caption}       % figure table
\RequirePackage{float}  % for figure table float
\RequirePackage{booktabs}          % for table
\RequirePackage{tabularx}
\RequirePackage[bookmarksopen=true]{hyperref}
\RequirePackage[capitalize, nameinlink]{cleveref} %reference
\RequirePackage{framed}
\RequirePackage{xparse}
```

1.2.1   Options

The `finalxm.sty` has several options, `minutes`, `answers`, `ftquestionnum`, `ftquestionnumx`, `ppkas`, and `ppkb`.

The `minutes` option will show the duration of examination in both hours and minutes.

The `answers` option make all answer visible in the `.pdf` output.

The `ftquestionnum` option make the numbering for Figure and Table to include part/section and question number ie Figure A1.1, Table B1.1 etc.

The `ftquestionnumx` option make the numbering for Figure and Table to include question number ie Figure 1.1, Table B1.1 etc.

The `ppkas` option is specific to PPK Alam Sekitar style for Figure and Table caption.

The `ppkb` option is specific to PPK Bioproses style for Figure and Table caption.

Start the preamble codes as shown below in your `main.tex` file. In this case, the duration of examination will only take argument for `\@durationhr` that indicate total hours to answer the question. This is the standard for all PPK.

```
\documentclass[12pt]{article}
\usepackage{finalxm}
```

For PPKAS and PPKB, the preamble is declared,

```
% For PPKAS
\documentclass[12pt]{article}
\usepackage[ppkas, ftquestionnumx]{finalxm}
```

```
% For PPKB
\documentclass[12pt]{article}
\usepackage[ppkb, ftquestionnumx]{finalxm}
```

If you need minutes, indicate the option for `finalxm.sty` package as shown in the preamble code below. Then, please define `\durationmin` in your `main.tex`, just below the `\@durationhr`.

```
% Standard
\documentclass[12pt]{article}
\usepackage[minutes]{finalxm}
```

```
% For PPKAS
\documentclass[12pt]{article}
\usepackage[ppkas, ftquestionnumx, minutes]{finalxm}
```

```
% For PPKB
\documentclass[12pt]{article}
\usepackage[ppkb, ftquestionnumx, minutes]{finalxm}
```

You can write the answers to all questions in the documents and have the option of showing the answer by executing the `answers` option of the `finalxm.sty` package. The preamble codes is shown below. Refer to the 5 Section in page 22 for guideline on writing the answers scheme. The duration of exam will be replaced by **ANSWER SCHEME**.

```
% Standard
\documentclass[12pt]{article}
\usepackage[answers]{finalxm}
```

```
% For PPKAS
\documentclass[12pt]{article}
\usepackage[ppkas, ftquestionnumx, answers]{finalxm}
```

```
% For PPKB
\documentclass[12pt]{article}
\usepackage[ppkb, ftquestionnumx, answers]{finalxm}
```

Next, define the parameter of your exam in the codes below.

```
%%%%%%%%%%%%%%%%%%%%%%%
%%% SETUP TITLE PAGE %%%
%%%%%%%%%%%%%%%%%%%%%%%
\mtefe{Akhir}                    % Akhir, Pertengahan
\semester{Kedua}                 % Pertama, Kedua
\sidang{2017/2018}
\examMonthYear{Jun 2018}
\courseCode{ENT390}
\courseNameEn{Bioinstrumentation 1}
\courseNameBM{Bioinstrumentasi 1}
\pagesbm{TIGA PULUH SATU}               % used if the number of pages
    exceeds 30
\durationhr{2}            % duration of exam
\makeatletter
\if@minutes
        \durationmin{30 Minit}  % MUST be enabled using \usepackage[minutes
            ]{finalxm}
\fi
\makeatother
```

You need to modify \pagesbm **IF ONLY** the total number of pages of your document **exceeds** 30 pages.

2   List of important commands to note.

\makecover:	begin to make the cover page.
\makecoverend:	close the process of making cover page.
\setmainstyle:	setup the document style.
\parten:	declared as **Part**
\partbm:	declared as **Bahagian**
\newparten {text}:	start new part AND **reset** the question number ie **Part A**.
\newpartenx {text}:	start new part **without reseting** the question number.
\newpartbm {text}:	translation of current part.
\newpartbmx {text}:	PPKAS style. Translation of section without square bracket and no bold.
\figurebm:	declared as **Rajah**.
\figurecaption:	define the caption for **Figure** in bahasa
\tablecaption:	define the caption for **Table** in bahasa
\jadualbf:	bold label caption **Jadual 1**
\question {opt. text}[label]:	define question in English and Bahasa with label to refer.
\partQuestion {opt. text}[label]:	define question in English and Bahasa. Include Part number ie Question A1 with label to refer
\listbeginx:	start numbering WITHOUT space before the command. Refer to page 15.
\listbegin:	start numbering WITH space before the command. Refer to page 16.
\listclose:	close the \listbegin and \listbeginx commands.
\item:	start the question with proper numbering within \listbegin and \listbeginx.
\translation {text}:	format translation in the curly bracket.
\translationbf {text}:	format translation in **bold** in the curly bracket.
\qmarks {5}:	put 5 marks for the current question.
\answer:	open environment to write your answer in blue color, small font.
\label {label}:	put label to the current part of the question.
\ref {label}:	reference to \label {label}. Refer to example in page 15.
\cref {label}:	reference to Figure or Table with hyperlink.
\Cref {label}:	reference to Rajah or Jadual with hyperlink.
\cref *{label}:	reference to Figure or Table without hyperlink.
\Cref *{label}:	reference to Rajah or Jadual without hyperlink.

`\clearpage`:	start new page. Flush all float prior to command.
`\newpage`:	start new page. Do not flush the float prior to command.
`\smallskip`:	Inserts a small space in vertical mode (between two paragraphs).
`\medskip`:	Inserts a medium space in vertical mode (between two paragraphs).
`\bigskip`:	Inserts a big space in vertical mode (between two paragraphs).
`\vskip value`:	Inserts a vertical space specified by the somevalue ie. 4em.
`\arraystretch {value}`:	adjust the table row spacing. the standard value can be set `\arraystretch {1.2}`.

2.1   \question{} and \partQuestion{}

The command \question will generate output:

> **Question 1**
> *[Soalan 1]*

Each time you call the \question command, the question numbering is being increased by 1. For example,

```
\question{}
\question{}
\question{}
```

will generate output:

> **Question 1**
> *[Soalan 1]*
>
> **Question 2**
> *[Soalan 2]*
>
> **Question 3**
> *[Soalan 3]*

If you want the question is numbered such as **QUESTION A1** based on the parts of the question, you need to declare parts by calling the \newparten command. \newpartbm is used for the translation of \newparten command. The command:

```
\newparten{Answer all questions} \\
\newpartbm{Jawab semua soalan}

\partQuestion{}

\partQuestion{}

\newparten{Answer any THREE (3) questions} \\
\newpartbm{Jawab mana−mana TIGA (3) soalan}

\partQuestion{}

\partQuestion{}
```

will generate:

Part A: Answer all questions
[Bahagian A: Jawab semua soalan]

Question A1
[Soalan A1]

Question A2
[Soalan A2]

Part B: Answer any THREE (3) questions
[Bahagian B: Jawab mana-mana TIGA (3) soalan]

Question B1
[Soalan B1]

Question B2
[Soalan B2]

Note that the `\newparten` command will reset the question numbering. There is a special command to suppress the question number from being reset, `\newpartenx`. Note the difference between previous command.

```
\newparten{Answer all questions} \\
\newpartbm{Jawab semua soalan}

\partQuestion{}

\partQuestion{}

\newpartenx{Answer any THREE (3) questions} \\
\newpartbm{Jawab mana−mana TIGA (3) soalan}

\partQuestion{}

\partQuestion{}
```

Part A: Answer all questions
[Bahagian A: Jawab semua soalan]

Question A1
[Soalan A1]

Question A2
[Soalan A2]

Part B: Answer any THREE (3) questions
[Bahagian B: Jawab mana-mana TIGA (3) soalan]

Question B3
[Soalan B3]

Question B4
[Soalan B4]

`\newparten` command **MUST** be declared to enable the `\partQuestion{}` command, otherwise it will cause errors during compilation.

2.2 \parten, \partbm and \figurebm

To change the default setting **Part** to **Section**, `\renewcommand` must be called. The same goes for `\figurebm` that has default value of **Rajah**. For example,

```
\renewcommand{\parten}{Section}
\renewcommand{\partbm}{Seksyen}
\renewcommand{\figurebm}{Gambarajah}
```

will generate **Section**, **Seksyen**, and **Gambarajah**. However, option `ppkas` already incorporate the change from **Part** to **Section**.

2.3 Figure and Table

The `\figurecaption` and `\tablecaption` are used when the caption for figure and table are required such as for PPKAS and PPKB.

```
\begin{figure}[H] % H means, to put figure here after the code
        \centerin
        \includegraphics{diffamp}
        \caption{Differential Amplifier \\ \figurecaption{Penguat Pembeza}}
        \label{fig:diffamp}
\end{figure}
```

```
\renewcommand{\arraystretch}{1.2}          % to make better spacing between
    rows
\begin{table}[H]
\centering
\caption{Frequency vs Magnitude \\ \tablecaption[\jadualbf]{Frekuensi vs
    Magnitud}}        \begin{tabularx}{220pt}{c c}
        \hline
        \multicolumn{1}{|l|}{\textbf{Frequency}} & \multicolumn{1}{l|}{\
            textbf{Impedance (Magnitude) ($\Omega$)}} \\
        \hline
                5 Hz  & 20,000 \\
                \vdots      & \vdots \\
                40 kHz & 602 \\
        \hline
\end{tabularx}%
\label{table:freqmag}%
\end{table}%
```

You can however mix caption style between standard and PPK specific. The command below must be invoke prior to beginning of figure and table. Then, the next figure/table will follow the new caption style.

```
% For PPKAS
\documentclass[12pt]{article}
\usepackage[ppkas, ftquestionnumx]{finalxm}

\begin{document}
        %invoke new caption style
        \captionsetup[figure]{labelsep=newline, font=bf}
        \begin{figure}[H] % H means, to put figure here after the code
                \centering
                \includegraphics{diffamp}
                \caption{\rajah}
                \label{fig:diffamp}
        \end{figure}

        %invoke new caption style
        \captionsetup[table]{labelsep=newline, font=bf}
        \begin{table}[H]
                \centering
                \caption{\jadual}
                \begin{tabularx}{220pt}{c c}
                        \hline
                        \multicolumn{1}{|l|}{\textbf{Frequency}} & \
                            multicolumn{1}{l|}{\textbf{Impedance (Magnitude)
                            ($\Omega$)}} \\
                        \hline
                        5 Hz  & 20,000 \\ \vdots & \vdots \\ 40 kHz & 602
                            \\
                        \hline
                \end{tabularx}%
                \label{table:freqmag}%
        \end{table}%
\end{document}
```

There are a number of parameters for `\captionsetup`. Important parameters to use for `finalxm.sty` are,

| font, labelfont, textfont | which can be set to either `bf, normalfont`.

`font` affect all captions, `labelfont` will only affect ie Figure 1, Table 1. Finally `textfont` will only affect caption description ie *Differential Amplifier*.

| labelsep | which can be set to either `newline, colon`

```
\captionsetup[figure]{labelsep=newline, font=bf}
\captionsetup[figure]{labelsep=colon, labelfont=bf, textfont=normalfont}

\captionsetup[table]{labelsep=newline, font=normalfont}
\captionsetup[table]{labelsep=colon, labelfont=bf}
```

3   Write Questions in a Single File

You can make a whole question from a single tex file. It is pretty straight forward.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%% MAIN BODY START HERE %%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% setting for header style
\setmainstyle

% PART A
\newparten{Answer all questions} \\
\newpartbm{Jawab semua soalan}\\
\bigskip

% QUESTION 1
\question{}[\label{qlabel:chem}]
\listbeginx     % start 1st level question
        \item \label{chemical} What chemical reactions you expect to see at
            these electrodes?

        \translation{Apakah tindak balas kimia yang anda jangka dapat
            dilihat pada kedua-dua elektrod}

        \qmarks{4}      % define marks

        \listbeginx     % start 2nd level question
                \item Based on \ref{chemical}, explain what will happen if
                    the electrodes were shorted together. Explain what will
                    happen if the electrodes were shorted together.

                \translation{Terangkan apakah yang akan berlaku apabila
                    kedua-kedua elektrod disambung?. Terangkan apakah yang
                    akan berlaku apabila kedua-kedua elektrod disambung?}

                \qmarks{2} % define marks
        \listclose % close 2nd level question

        \item Explain what will happen if both electrodes is shorted as
            described in Q\ref{qlabel:chem}\ref{chemical}

        \translation{Terangkan apakah yang akan berlaku apabila kedua-kedua
            elektrod disambung?}

        \qmarks{3} % define marks
\listclose % close 1st level question
```

```
% QUESTION 2
\clearpage        % start new page
\question{[CO1,PO1]}

% question without enumerate list
Silver/silver chloride (Ag/AgCl) electrodes are commonly used in biological
    measurement.\\
\translation{Elektrod Argentum/Argentum chloride (Ag/AgCl) digunakan secara
    meluas didalam pengukuran biologi}  \\
\qmarks{5}

\listbegin       % start 1st level question
       \item \label{halfmembrane} State the definition of half-membrane \\
       \translation{Nyatakan definisi separuh-membran}\\
       \qmarks{2}

       \item \label{itm:net} Elaborate the basic mechanisms that
           contribute to condition in \ref{halfmembrane}, and write its net
            potential.\\ % use label to reference to the list item
       \translation{Kembangkan mekanisma asas yang menyumbang kepada
           keadaan di \ref{halfmembrane}, dan tuliskan upaya bersih.}\\
       \qmarks{4}

       \listbegin % start 2nd level question
              \item \label{itm:ref2nd} Second level item that refer to \
                  ref{itm:net}. Use 10~\si{\mega\ohm} here. But noted on
                  the use of \si in translation.

              \translation{ini adalah level kedua. Gunakan \emph{10~\si{\
                  mega\ohm}} disini. Perhatikan perbezaan penggunaan \si
                  disini dan diatas.}

              \listbeginx % start 3rd level question
                     \item Another level. This is third level. This is
                         third level. This is third level. This is third
                         level.

                     \translation{Ini adalah level ketiga. Ini adalah
                         level ketiga. Ini adalah level ketiga. Ini
                         adalah level ketiga. Ini adalah level ketiga.
                         Ini adalah level ketiga}

                     \listbeginx  % start 4th level question
                            \item Another level. This is fourth level.
                                This is fourth level. This is fourth
                                level. This is fourth level.\\
                            \translation{Ini adalah level keempat. Ini
                                adalah level keempat. Ini adalah level
                                keempat. Ini adalah level keempat.}
                     \listclose % close 4th level question
              \listclose % close 3rd level question
       \listclose % close 2nd level question
\listclose        % close 1st level question
\paperend
```

Part A: Answer all questions
[Bahagian A: Jawab semua soalan]

Question 1
[Soalan 1]

(a) What chemical reactions you expect to see at these electrodes?

[Apakah tindak balas kimia yang anda jangka dapat dilihat pada kedua –dua elektrod]

(4 Marks /*Markah*)

    (i) Based on (a), explain what will happen if the electrodes were shorted together. Explain what will happen if the electrodes were shorted together.

    [Terangkan apakah yang akan berlaku apabila kedua – kedua elektrod disambung?. Terangkan apakah yang akan berlaku apabila kedua – kedua elektrod disambung?]

(2 Marks /*Markah*)

(b) Explain what will happen if both electrodes is shorted as described in Q1(a)

[Terangkan apakah yang akan berlaku apabila kedua – kedua elektrod disambung?]

(3 Marks /*Markah*)

(LᴬTₑX101)

Question 2 [CO1,PO1]
[Soalan 2]

Silver/silver chloride (Ag/AgCl) electrodes are commonly used in biological measurement.
[Elektrod Argentum/Argentum chloride (Ag/AgCl) digunakan secara meluas didalam pengukuran biologi]

(5 Marks /*Markah*)

(a) State the definition of half-membrane
   [Nyatakan definisi separuh-membran]

(2 Marks /*Markah*)

(b) Elaborate the basic mechanisms that contribute to condition in (a), and write its net potential.
   [Kembangkan mekanisma asas yang menyumbang kepada keadaan di (a), dan tuliskan upaya bersih.]

(4 Marks /*Markah*)

   (i)   Second level item that refer to (b). Use 10 MΩ here. But noted on the use of in translation.
        [ini adalah level kedua. Gunakan 10 MΩ disini. Perhatikan perbezaan penggunaan disini dan diatas.]
        (A)   Another level. This is third level. This is third level. This is third level. This is third level
             [Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga]
             (I)   Another level. This is fourth level. This is fourth level. This is fourth level. This is fourth level.
                  [Ini adalah level keempat. Ini adalah level keempat. Ini adalah level keempat. Ini adalah level keempat.]

-oooOooo-

The complete code to generate an exam paper using this method is shown.

```
\documentclass[12pt]{article}
\usepackage{finalxm}


%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%% SETUP TITLE PAGE %%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%
\mtefe{Akhir}                    % Akhir, Pertengahan
\semester{Kedua}                 % Pertama, Kedua
\sidang{2017/2018}
\examMonthYear{Jun 2018}
\courseCode{ENT390}
\courseNameEn{Bioinstrumentation 1}
\courseNameBM{Bioinstrumentasi 1}
\pagesbm{TIGA PULUH SATU}        % used if the number of pages exceeds 30
\durationhr{1 Jam}               % duration of exam
\makeatletter
\if@minutes
\durationmin{30 Minit}  % MUST be enabled using \usepackage[minutes]{
    finalxm}
\fi
\makeatother


\begin{document}
% cover page

%\begin{titlepage}
\makecover
\instructionen{
This question paper has \textbf{TWO (2)} parts. Answer \textbf{all}
    questions in \mbox{\textbf{Part A}} and \mbox{\textbf{THREE (3)}}
    question in \mbox{\textbf{Part B}}. Each question contributes 25 marks.%
}
\instructionbm{%
Kertas soalan ini mengandungi \textbf{DUA (2)} bahagian. Jawab \textbf{
    semua} soalan di \mbox{\textbf{Bahagian A}} dan \mbox{\textbf{TIGA (3)}}
     soalan di \mbox{\textbf{Bahagian B}}. Setiap soalan menyumbang 25
    markah.%
}

\makecoverend
%\end{titlepage}
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%% MAIN BODY START HERE %%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\setmainstyle

% PART A
\newparten{Answer all questions}

\newpartbm{Jawab semua soalan}

\bigskip
\question{}[\label{qlabel:yourlabel}]

put question 1 here...

% PART B
\clearpage       % start new page
\newpartenx{Answer any THREE (3) questions}

\newpartbm{Jawab mana−mana TIGA (3) soalan}

\bigskip
\question{[CO1,PO1]}

put question 2 here...

\clearpage       % start new page
\question

put final question 3 here....

\paperend

\end{document}
```

4 Write Question in a Separate File

The result in page 15 and 16 can be achieve alternatively using `main.tex` file and separate file for `question1.tex` and `question2.tex`.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%% MAIN BODY START HERE %%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\setmainstyle

% PART A
\newparten{Answer all questions}

\newpartbm{Jawab semua soalan}

\bigskip
\input{question1}
\input{question2}

% PART B
\newparten{Answer any THREE (3) questions}

\newpartbm{Jawab mana-mana TIGA (3) soalan}
\bigskip

\input{question3}

\paperend
```

Additional command below generate:

```
% PART B
\newparten{Answer any THREE (3) questions}

\newpartbm{Jawab mana-mana TIGA (3) soalan}

\bigkip
\input{question3}
```

Part B: Answer any THREE (3) questions
[Bahagian B: Jawab mana-mana TIGA (3) soalan]

Question 3
[Soalan 3]

The complete code to generate an exam paper using the method separating the question from the `main.tex` is shown.

```
\documentclass[12pt]{article}
\usepackage{finalxm}


%%%%%%%%%%%%%%%%%%%%%%%%%%
%%% SETUP TITLE PAGE %%%
%%%%%%%%%%%%%%%%%%%%%%%%%%
\mtefe{Akhir}                   % Akhir, Pertengahan
\semester{Kedua}                % Pertama, Kedua
\sidang{2017/2018}
\examMonthYear{Jun 2018}
\courseCode{ENT390}
\courseNameEn{Bioinstrumentation 1}
\courseNameBM{Bioinstrumentasi 1}
\pagesbm{TIGA PULUH SATU}        % used if the number of pages exceeds 30
\durationhr{1 Jam}               % duration of exam
\makeatletter
\if@minutes
\durationmin{30 Minit}  % MUST be enabled using \usepackage[minutes]{
    finalxm}
\fi
\makeatother

\begin{document}
% cover page
\makecover

\instructionen{
This question paper has \textbf{TWO (2)} parts. Answer \textbf{all}
    questions in \mbox{\textbf{Part A}} and \mbox{\textbf{THREE (3)}}
    question in \mbox{\textbf{Part B}}. Each question contributes 25 marks.%
}
\instructionbm{%
Kertas soalan ini mengandungi \textbf{DUA (2)} bahagian. Jawab \textbf{
    semua} soalan di \mbox{\textbf{Bahagian A}} dan \mbox{\textbf{TIGA (3)}}
     soalan di \mbox{\textbf{Bahagian B}}. Setiap soalan menyumbang 25
    markah.%
}

\makecoverend
% end cover page

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%% MAIN BODY START HERE %%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\setmainstyle

% PART A
\newpartenx{Answer all questions}

\newpartbm{Jawab semua soalan}
\bigskip

\input{question1}
```

```
% PART B
\newpartenx{Answer any THREE (3) questions}

\newpartbm{Jawab mana-mana TIGA (3) soalan}
\bigskip

\input{question2}
\input{question3}
\input{question4}
\input{question5}

\paperend

\end{document}
```

In the `question1.tex`, put you question for example,

```
\partQuestion
%\question{}

Silver/silver chloride (Ag/AgCl) electrodes are commonly used in biological
    measurement.

\translation{Elektrod Argentum/Argentum chloride (Ag/AgCl) digunakan secara
    meluas didalam pengukuran biologi}

\qmarks{5}

\listbeginx      % start 1st level question
        \item \label{halfmembrane} State the definition of half-membrane

        \translation{Nyatakan definisi separuh-membran}

        \qmarks{2}

        \item \label{itm:net} Elaborate the basic mechanisms that
            contribute to condition in \ref{halfmembrane}, and write its net
             potential. % use label to reference to the list item

        \translation{Kembangkan mekanisma asas yang menyumbang kepada
            keadaan di \ref{halfmembrane}, dan tuliskan upaya bersih.}

        \qmarks{4}

        \listbeginx % start 2nd level question
                \item \label{itm:ref2nd} Second level item that refer to \
                    ref{itm:net}. Second level item. second level item.

                \translation{ini adalah level kedua. ini adalah level kedua
                    . ini adalah level kedua.}

        \listclose % close 2nd level question
\listclose       % close 1st level question
```

5 Answer Scheme

You can also put your answer script here using answer command. Note that the answers will only be visible when answers option is called (refer to section 1.2 in page 3).

```
\question{}

Silver/silver chloride (Ag/AgCl) electrodes are commonly used in biological
    measurement.

\translation{Elektrod Argentum/Argentum chloride (Ag/AgCl) digunakan secara
    meluas didalam pengukuran biologi}\\
\listbegin      % start 1st level question
        \item \label{halfmembrane} State the definition of half-membrane

        \translation{some translation here}

        \qmarks{2}

        \answer{Put answer to this question here
        }

        \item \label{itm:net} Elaborate the basic mechanisms that
            contribute to condition in \ref{halfmembrane}, and write its net
             potential. % use label to reference to the list item

        \translation{some translation here}

        \qmarks{2}

        \answer{Put answer to this question here
        }

        \listbegin % start 2nd level question
                \item \label{itm:ref2nd} Second level item that refer to \
                    ref{itm:net}. Second level item. second level item.

                \translation{ini adalah level kedua. ini adalah level kedua
                    . ini adalah level kedua.}

                \qmarks{3}

                \answer{Put answer to this question here}\\
                \listbegin % start 3rd level question
                        \item Another level. This is third level. This is
                            third level. This is third level. This is third
                            level.\\
                        \translation{Ini adalah level ketiga. Ini adalah
                            level ketiga. Ini adalah level ketiga. Ini
                            adalah level ketiga. Ini adalah level ketiga.
                            Ini adalah level ketiga.}
                \listclose % close 3rd level question
        \listclose      % close 2nd level question
\listclose      % close 1st level question
\clearpage
```

Question 4
[Soalan 4]

Silver/silver chloride (Ag/AgCl) electrodes are commonly used in biological measurement.
[Elektrod Argentum/Argentum chloride (Ag/AgCl) digunakan secara meluas didalam pengukuran biologi]

(a) State the definition of half-membrane
   [some translation here]

(2 Marks /*Markah*)

   [ANSWER]
   Put answer to this question here

(b) Elaborate the basic mechanisms that contribute to condition in (a), and write its net potential.
   [some translation here]

(2 Marks /*Markah*)

   [ANSWER]
   Put answer to this question here

   (i) Second level item that refer to (b). Second level item. second level item.
      [ini adalah level kedua. ini adalah level kedua. ini adalah level kedua.]

(3 Marks /*Markah*)

      [ANSWER]
      Put answer to this question here

      (A) Another level. This is third level. This is third level. This is third level. This is third level.
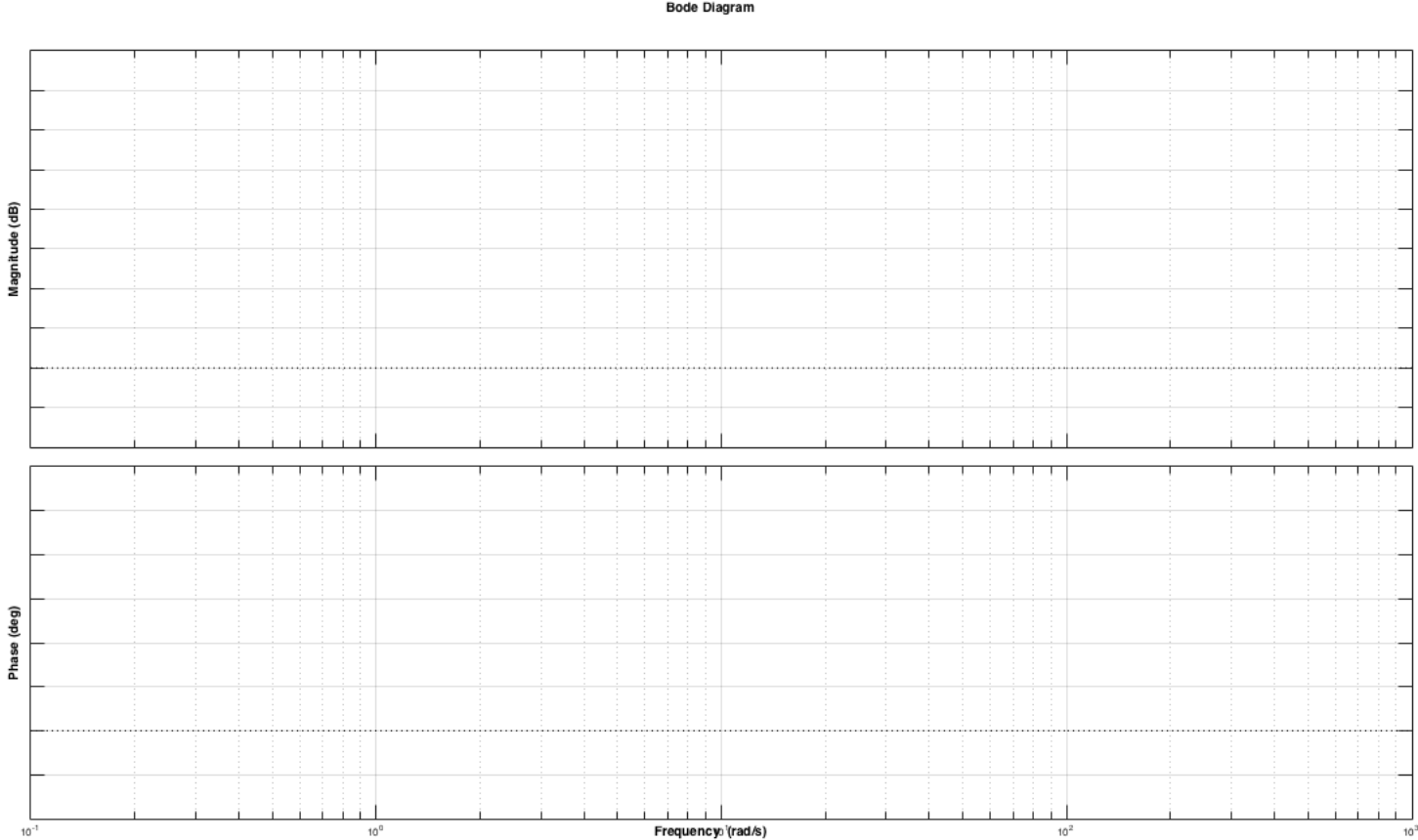   *[Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga. Ini adalah level ketiga.]*

6 Landscape on Specific Page

`pdflscape.sty` can make the pdf page on landscape orientation. However, this package and other package such as `typearea`, can't rotate the header and footer correctly. As a workaround, we need to disable the header and footer. This is the best solution for the time being.

```
\begin{landscape}
        \thispagestyle{empty}
        \begin{figure} % H means, to put figure here after the code
                \includegraphics[scale=0.68]{bodeplot_appendix}
                \label{fig:bode}
        \end{figure}
\end{landscape}
```

Bode Diagram

Magnitude (dB)

Phase (deg)

Frequency (rad/s)

10^{-1} 10^0 10^2 10^3

7 New section after landscape