



# **ROUTE TO PROFESSIONAL ENGINEER (P.Eng)**

**&**

# **PROFESSIONAL ASSESSMENT EXAMINATION (PAE)**

**Ir. Dr. MEGAT ZUHAIRY MEGAT TAJUDDIN**

**REGISTRAR**

**BOARD OF ENGINEERS MALAYSIA**



# Outline of Presentation

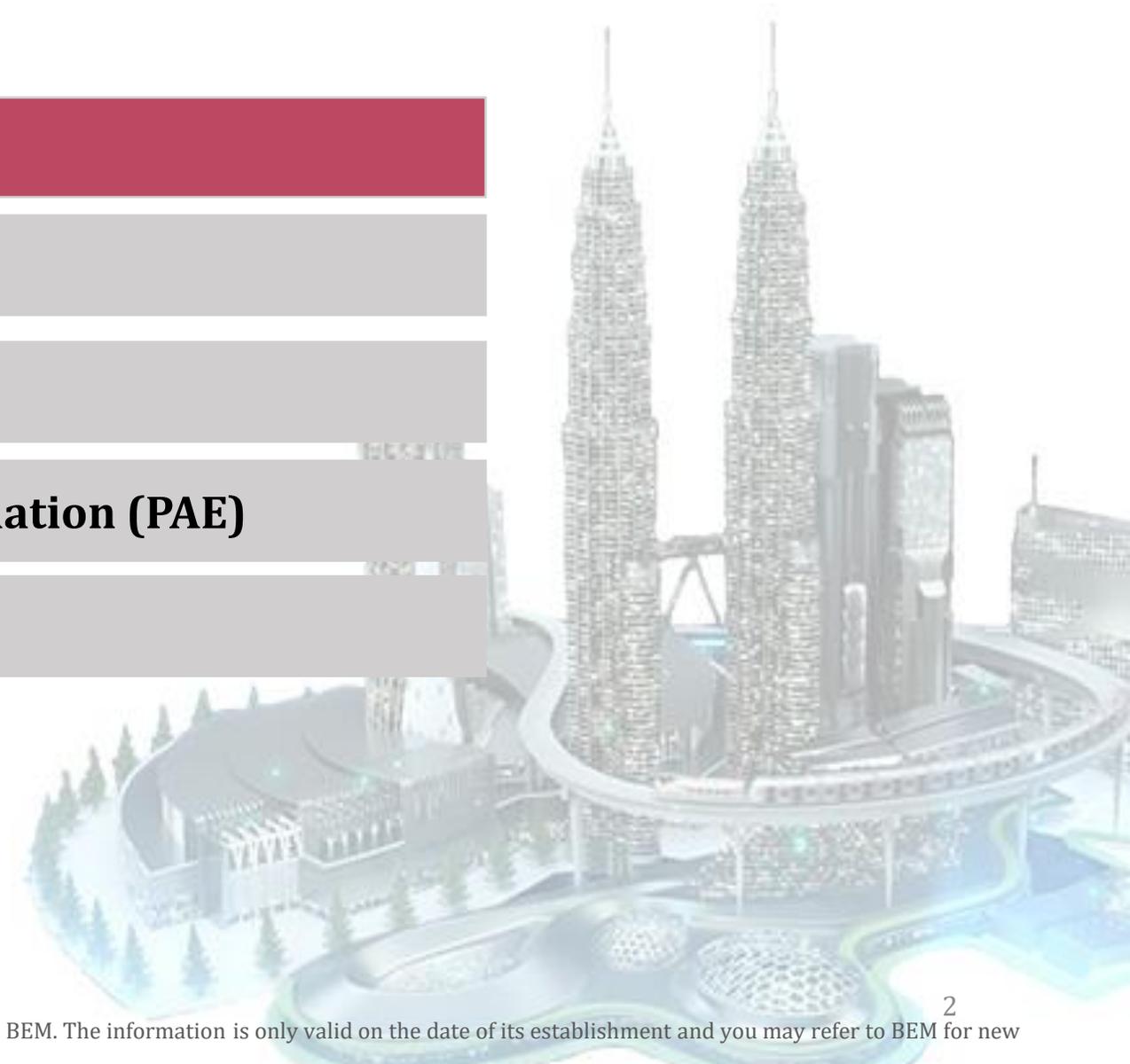
## Introduction

### Step 1: Graduate Engineer

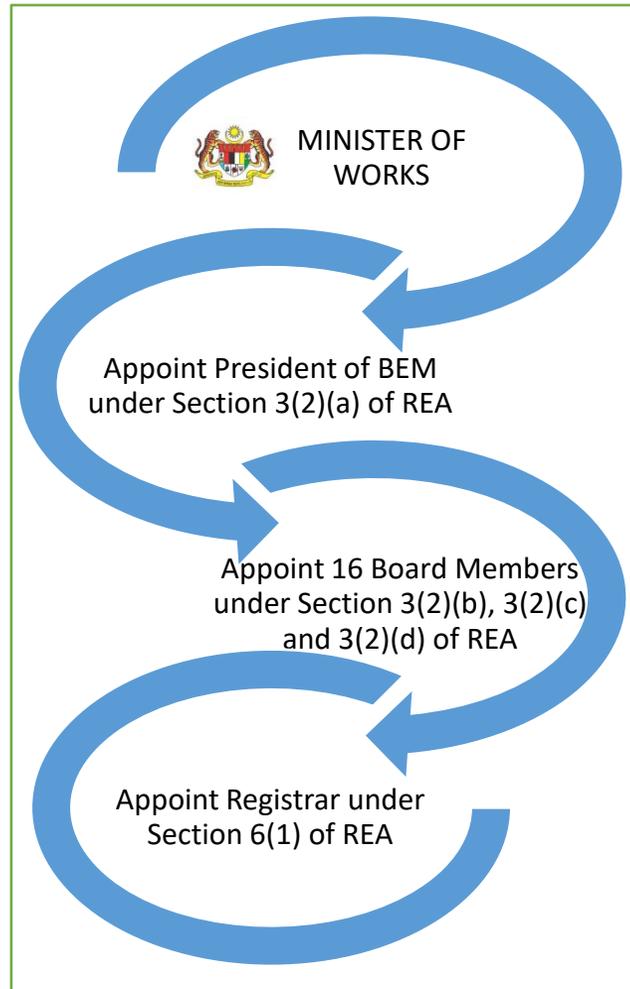
### Step 2: Practical Experience

### Step 3: Professional Assessment Examination (PAE)

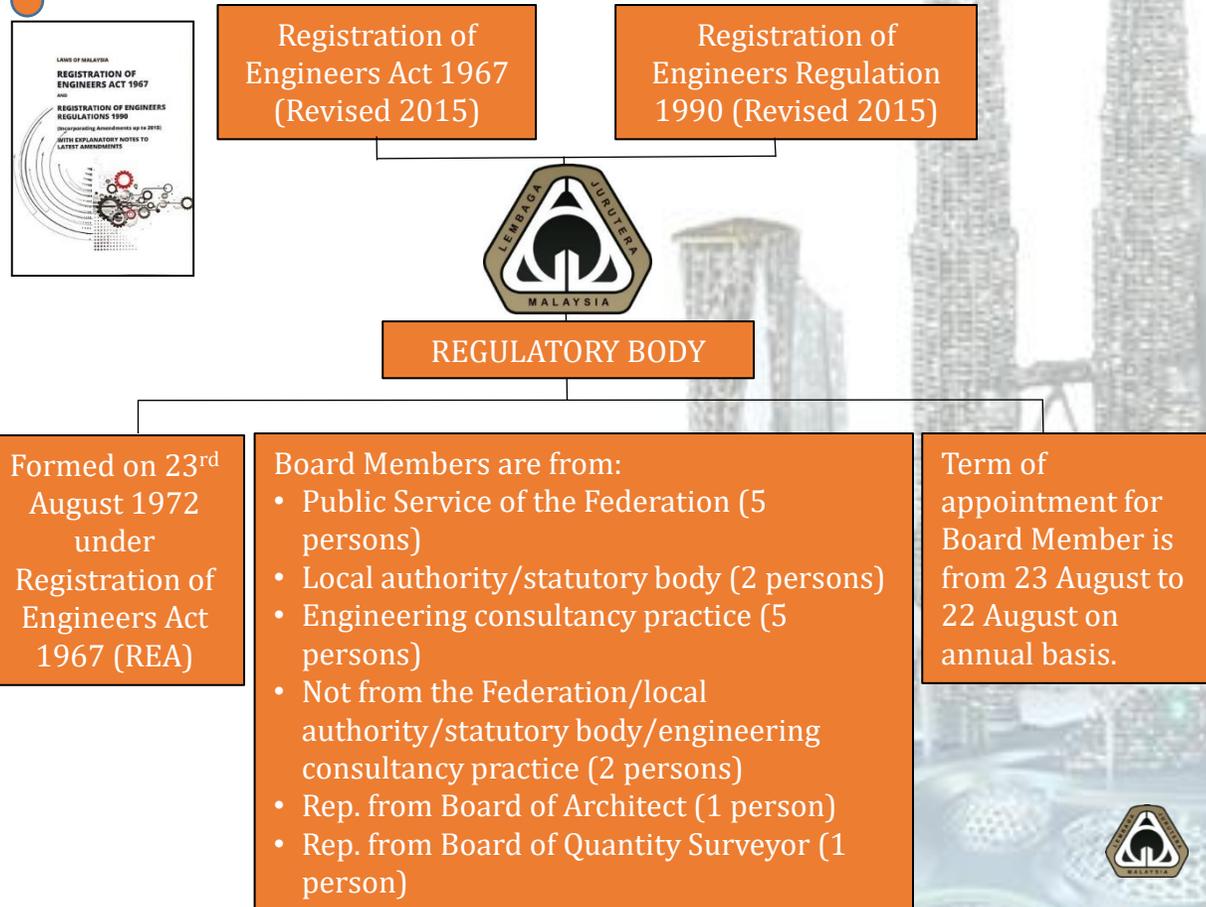
### Step 4: Professional Engineer (P.Eng)



# 1.1 General Overview

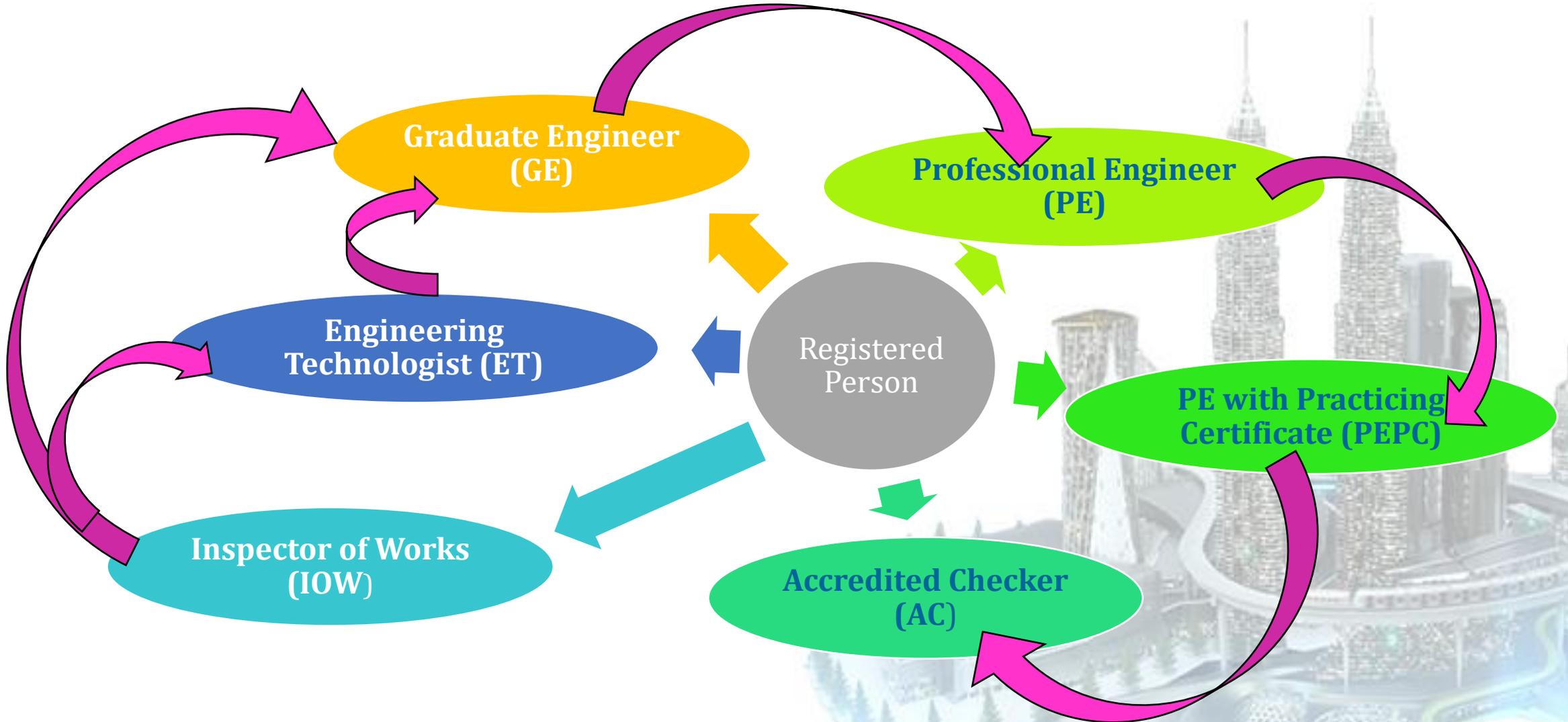


Purpose of Registration of Engineers Act 1967 is to protect the public by legislative control so that the practice of engineering, which has a bearing on **public safety, health and welfare**, can only be carried out by **licensed** professional engineers.





# TYPE OF REGISTERED PERSONS





# STATISTIC AS PER 2.9.2020

## Registered Persons

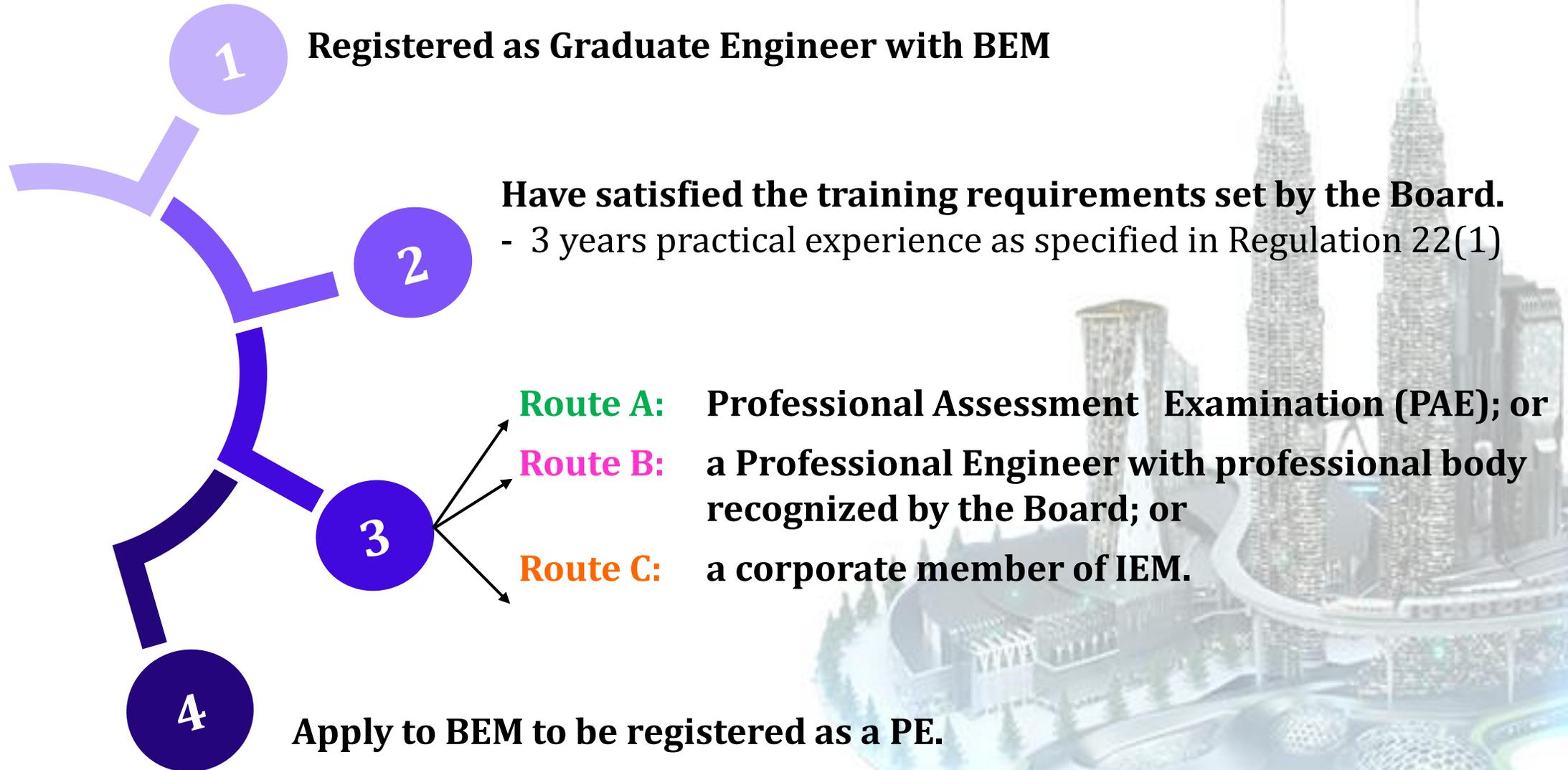
9,275	with Practicing Certificate (PEPC)
4,713	Professional Engineer (PE)
28	Accredited Checker (AC)
139,131	Graduate Engineer (GE)
5,849	Engineering Technologist (ET)
6,339	Inspector of Works (IOW)
165,335	<b>TOTAL REGISTERED PERSONS</b>

## Engineering Consultancy Practices

1,144	Body Corporate
222	Partnership
1,234	Sole Proprietorship
49	Multi Disciplinary



# ROUTE TO PROFESSIONAL ENGINEERS (P.Eng)





# INTRODUCTION – ROUTE TO PROFESSIONAL ENGINEER (PE)

## ROUTE A (Professional Assessment Examination)

- I. Graduate Engineer registered with BEM
- II. has obtained 3 years practical experience as specified in Regulation 22(1)
- III. has passed a Professional Assessment Examination (PAE) conducted by the Board
  - a. Interview
  - b. Written technical paper
  - c. Written code of professional conduct



## ROUTE B (Professional Qualification Equivalent to PAE) -Foreign-

- I. Registered Professional Engineer (in good standing) from recognized Professional Bodies with substantially equivalent assessment
- II. Graduate Engineer registered with BEM
- III. has obtained 3 years practical experience as specified in Regulation 22(1)
- IV. has passed Code of Professional Conduct Assessment;



## ROUTE C (Corporate Member of IEM)

- I. A Corporate Member of the Institution of Engineers Malaysia (IEM)
- II. has obtained 3 years practical experience as specified in Regulation 22(1)



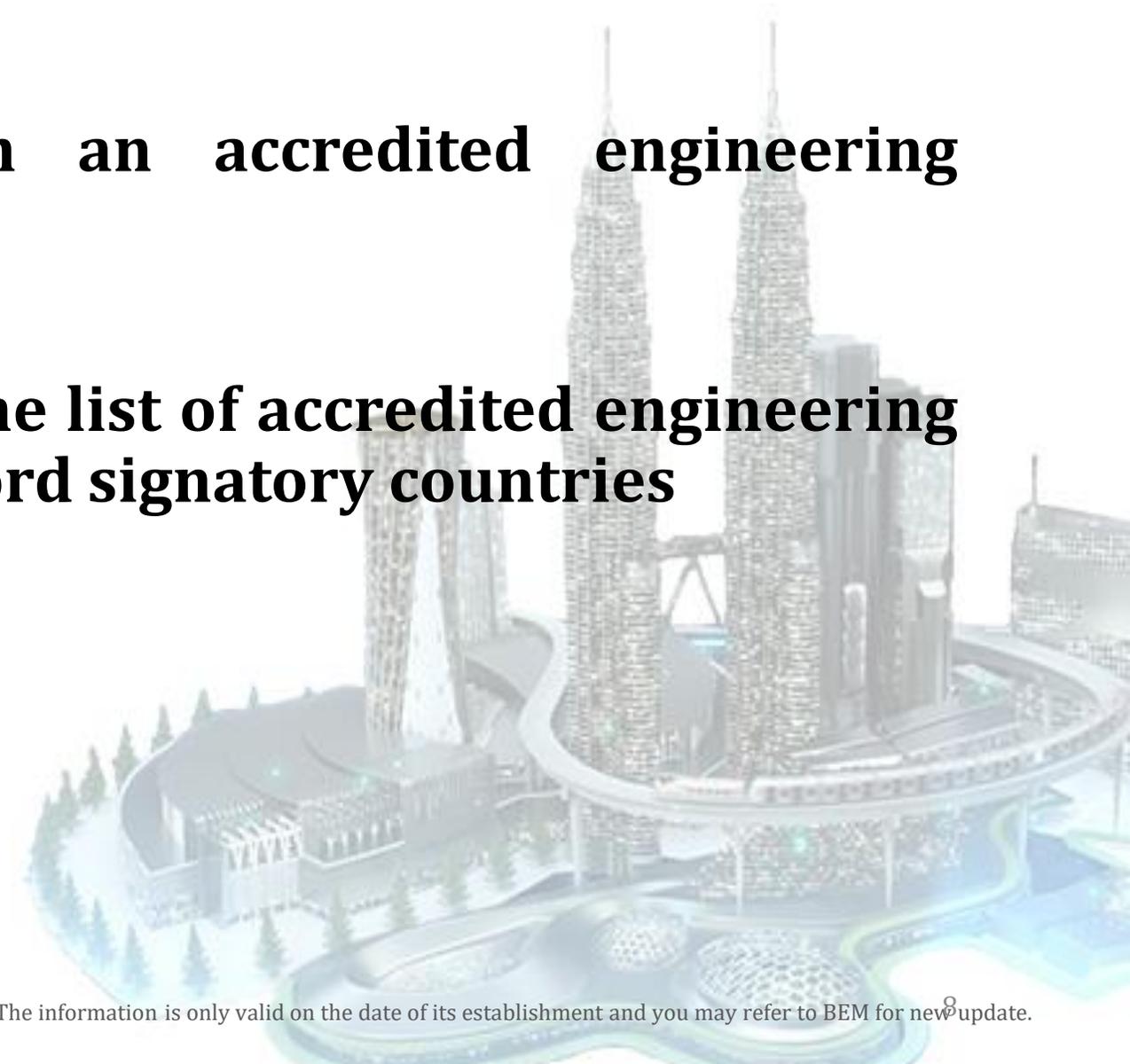


# STEP 1 : GRADUATE ENGINEER

- ***Engineering Graduate*** from an accredited engineering program by BEM

or

- ***Engineering Graduate*** from the list of accredited engineering programs in Washington Accord signatory countries

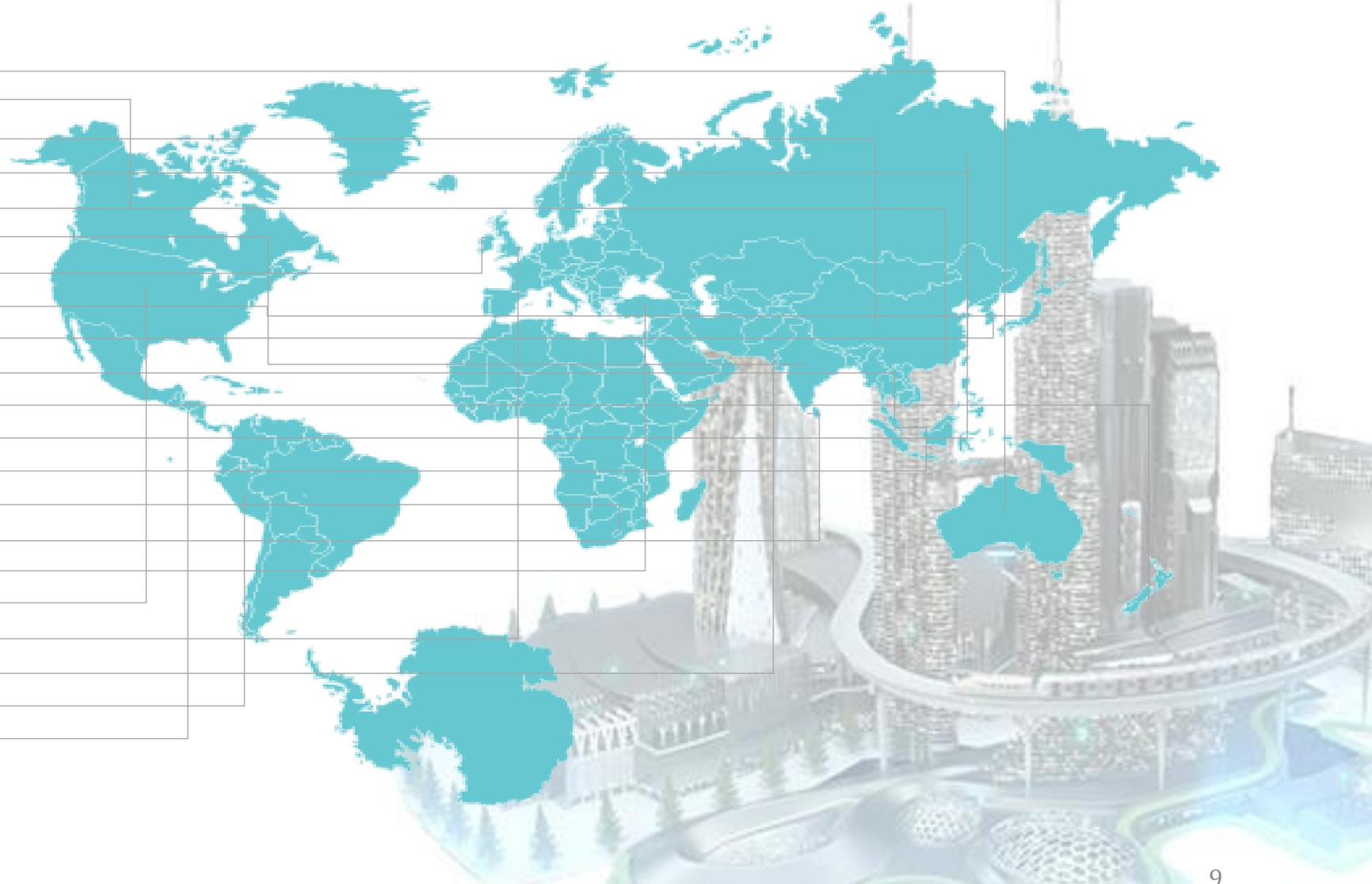




# STEP 1 : GRADUATE ENGINEER

## WASHINGTON ACCORD FULL SIGNATORIES

1. Australia
2. Canada
3. China
4. Chinese Taipei - Taiwan
5. Hong Kong China
6. India
7. Ireland
8. Japan
9. Korea
10. Malaysia
11. New Zealand
12. Russia
13. Singapore
14. South Africa
15. Sri Lanka
16. Turkey
17. United States
18. United Kingdom
19. Pakistan
20. Peru
21. Costa Rica





# PROCEDURE FOR REGISTRATION

Submit via MyBEM online at [www.engineer.org.my](http://www.engineer.org.my) accompanied by:

- a non-refundable processing fee of RM 50.00
- Copy of degree certificate
- Copy of full official transcript
- Copy of IC/MyKad

**duly certified by an active  
Professional Engineer**



# STEP 1 : GRADUATE ENGINEER

## Submission

MyBEM Online Reg. System  
[www.engineer.org.my](http://www.engineer.org.my)



Processing fee of RM 50.00

Copy of degree scroll full official transcript  
& IC/MyKad  
**(duly certified by an active PE)**

## Approval Stage

**Approval within 1 - 4 months**

BEM  
Application  
Committee

## Output

**Download, print & save e-certificate.**





# STEP 1 : GRADUATE ENGINEER

## BEM ENGINEERING BRANCH / DISCIPLINES



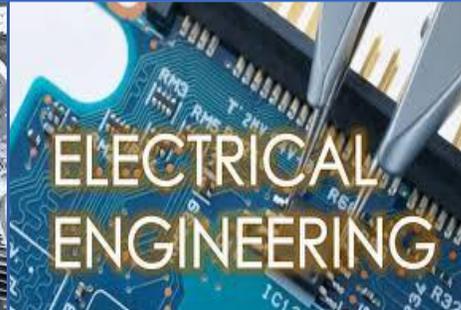
### Civil

- Building
- Construction
- Environment
- Geotechnical
- Mining
- Structural
- Transportation



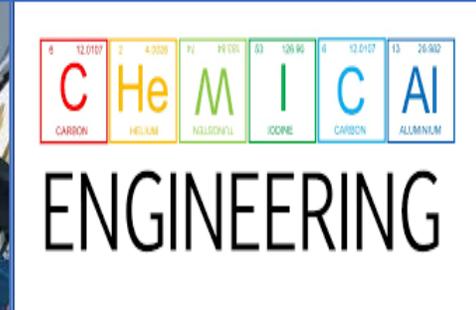
### Mechanical

- Aerospace
- Agricultural
- Automotive
- Building Services
- Manufacturing
- Marine
- Material
- Mechatronic
- Metallurgy
- Mining
- Naval Architectural
- Nuclear



### Electrical

- Computer
- Electronics
- Communication



### Chemical

- Environmental
- Nuclear
- Petroleum
- Process (Polymer, Pharmaceutical, Food)



# STEP 2 : PRACTICAL EXPERIENCE

## PRACTICAL EXPERIENCE

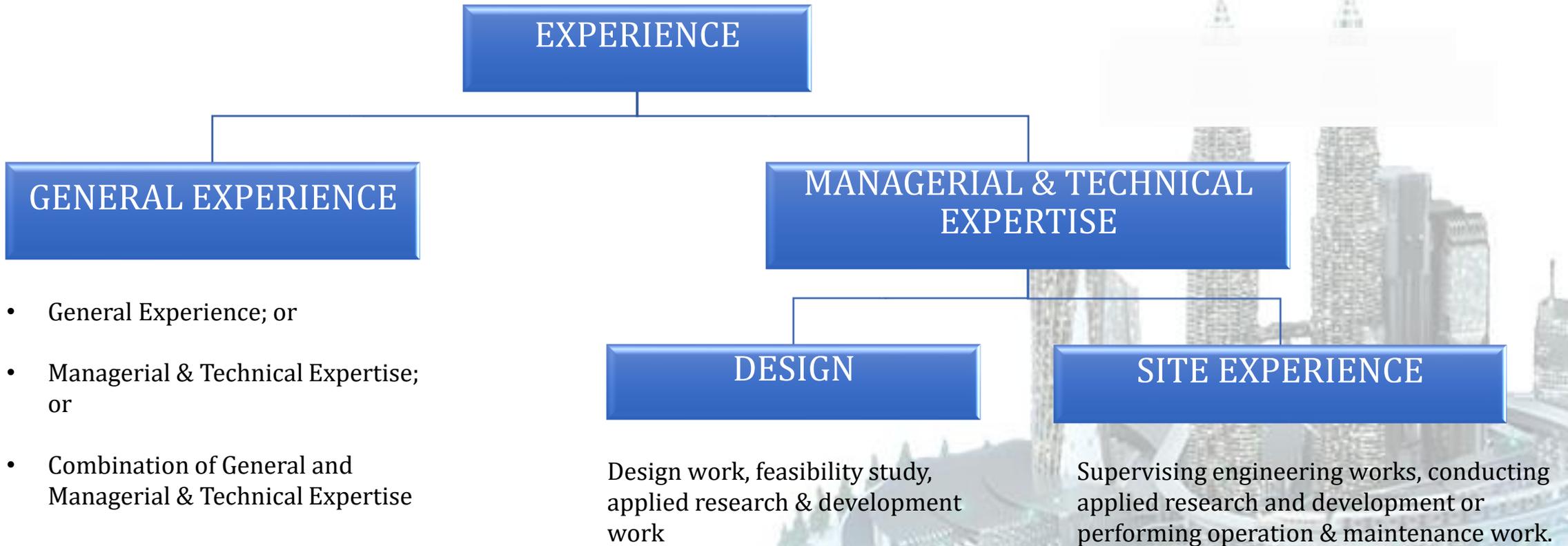
### Regulation 22(1)(a), Registration of Engineers Regulation 1990 (Revised 2015)

- The Graduate Engineer must undergo:
  - at least two years of general training** that will provide a sound basis for professional development; and
  - at least one year of professional career development and training** providing wide exposure to the various managerial and technical expertise in engineering practice
- Where **at least one year of the training must be obtained in Malaysia** under the supervision of a Professional Engineer in the same branch of engineering.



# STEP 2 : PRACTICAL EXPERIENCE

## Professional Career Development And Training





# ROUTE A: Professional Assessment Examination (PAE)





# PART 1: Filling in PAE Form

## Filling in PAE Form

- ❑ The **application form** can be downloaded from BEM website and need to be completed in full with correct details of contact addresses and tel. no.;
- ❑ The signatures on the declaration form needs to be original;

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# PART 1: Filling in PAE Form



## SENARAI SEMAKAN PROFESSIONAL ASSESSMENT EXAMINATION (PAE)

- A. Kelayakan untuk menduduki Professional Assessment Examination (PAE):
- Berdaftar sebagai Jurutera Siswazah dengan Lembaga Jurutera Malaysia tidak kurang dari **3 tahun**.
  - Memperolehi pengalaman praktikal sebagaimana yang dikehendaki di bawah Peraturan 22, Peraturan Pendaftaran Jurutera 1990.
- B. Borang PAE yang telah lengkap diisi hendaklah disertakan bersama dengan:

	Dokumen yang perlu dikemukakan	Senarai semakan	
		PAE	CEng
1.	Keterangan pengalaman praktikal (menggunakan LAMPIRAN PAE-1 yang disediakan).		
2.	Akuan di LAMPIRAN PAE-2.		
3.	Salinan surat pendaftaran sebagai Jurutera Siswazah (disahkan oleh Jurutera Profesional sama bidang).		
4.	Salinan ijazah kejuruteraan dan transkrip lengkap (disahkan oleh Jurutera Profesional sama bidang).		
5.	Cek / bank draft / kiriman wang / wang pos / kiriman atas talian atas nama Lembaga Jurutera Malaysia / kad debit / kad kredit. i) Yuran proses RM100.00 ii) Yuran peperiksaan RM500.00		
6.	Keterangan pengalaman praktikal di Malaysia <b>tidak kurang dari 1 tahun</b> menggunakan <b>kepala surat syarikat</b> dan disahkan oleh Jurutera Profesional sama bidang.		
7.	i) Laporan Pengalaman Kerja ii) Laporan Projek  <b>Dua (2) salinan</b> setiap satu laporan yang disahkan oleh Jurutera Profesional sama bidang. Borang <b>BEM/Form/PAE02</b> yang lengkap perlu dilampirkan bersama-sama (i) dan (ii).  Salinan <i>softcopy</i> laporan perlu diemel kepada <a href="mailto:pce@bem.org.my">pce@bem.org.my</a>		X
8.	Salinan sijil CEng / PEng (disahkan oleh Jurutera Profesional sama bidang).		
9.	Salinan borang permohonan, borang penilaian dan laporan penilaian CEng / PEng (disahkan oleh Jurutera Profesional sama bidang).		
10.	Salinan terkini resit pembaharuan CEng / PEng (disahkan oleh Jurutera Profesional sama bidang).		



## FORM PAE REGISTRATION OF ENGINEERS ACT 1967 REGISTRATION OF ENGINEERS REGULATIONS 1990 (Regulation 37)

### APPLICATION FOR THE PROFESSIONAL ASSESSMENT EXAMINATION

(To be completed in BLOCK LETTERS)

Name : .....

Address : .....

.....

Tel. No : ..... Fax No. : ..... E-mail : .....

Identification Card No / Passport No : ..... Expiry Date : .....

Date of Birth : ..... Graduate Engineer Registration No. : .....

Date of Graduate Engineer Registration : .....

Branch of Engineering : .....

Professional Qualification by Oversea Regulatory Body (e.g.: CEng from ECUK) : .....

Academic Qualifications : .....

.....

I have ..... years of practical experience in engineering and have complied with section

10(1)(b) of the Registration of Engineers Act 1967.

.....

I enclose herewith \* money order/bank draft/ cheque No/ online payment : ..... for the amount of

RM500.00 (Examination fee) + RM100.00 (Processing fee).

\* delete whichever is not applicable

.....

Date of previous Examination : ..... (Write NIL if not applicable)

.....

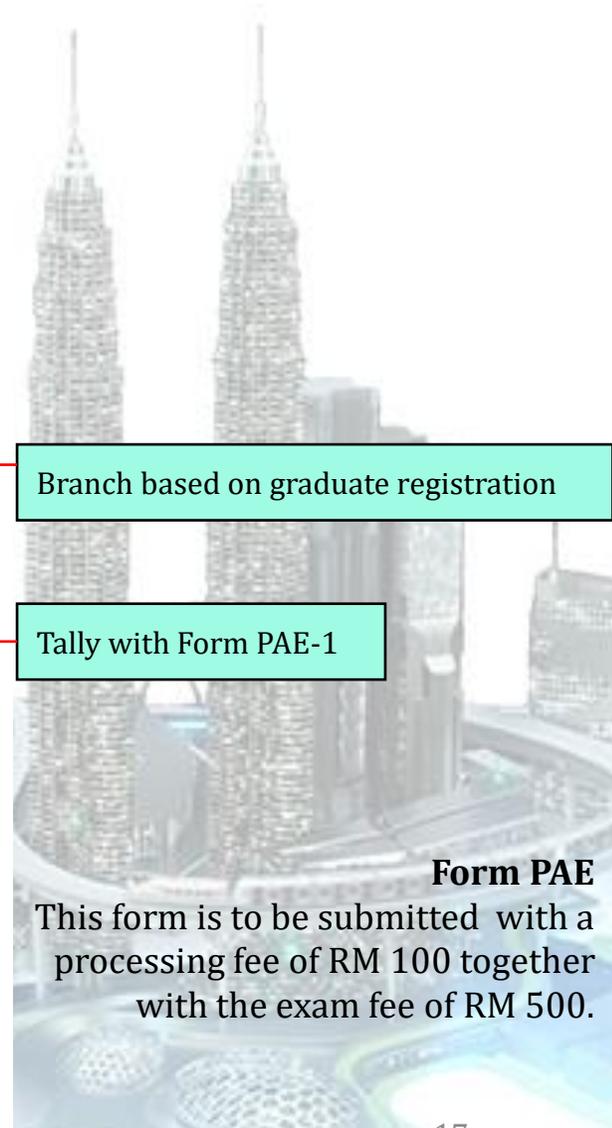
Date : .....

.....

..... (Signature)

### PENALTY

Section 24(a) of the Registration of Engineers Act 1967: "Any person, sole proprietorship, partnership or body corporate who procures or attempts to procure registration or a certificate of registration under this Act by knowingly making or producing or causing to be made or produced any false or fraudulent declaration, certificate, application or representation whether in writing or otherwise, shall be guilty of an offence and shall, on conviction, be liable to a fine not exceeding ten thousand ringgit in the case of an individual, or fifty thousand ringgit in the case of a sole proprietorship, partnership or body corporate, or to imprisonment for a term not exceeding three years, or to both."



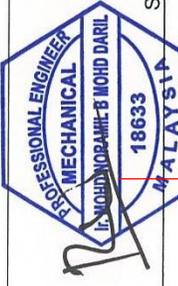
Branch based on graduate registration

Tally with Form PAE-1

**Form PAE**  
This form is to be submitted with a processing fee of RM 100 together with the exam fee of RM 500.



# PART 1: Filling in PAE Form

PROFESSIONAL EXPERIENCE									
A	B STATEMENT OF TRAINING & EXPERIENCE (SINCE REGISTRATION AS GRADUATE ENGINEER)	C	Experience area (in months)					E	
			Total	D1 Design/Office	D2 Site/field	D3 Planning/Management	D4 Other Engineering works		D5 Masters/Post graduate / study/ research/teaching
Date (month & year) relating to each appointment <i>Example: July 90 to May 95</i>	State concisely Title of Position held, Name of Employer, Location and Description of each work (Make statement brief and concise, designating each work upon which engaged with or change of position separately: include some indication of magnitude and complexity of work in which engaged, your duties and degree of responsibility) If necessary additional sheets may be attached. <b>NOTE: STATEMENT MUST BE AFTER REGISTERED AS GRADUATE ENGINEER</b>	Name, Position and Address of Professional Engineer under whom served							Signatures of any Professional Engineers (same discipline) who has personal knowledge of Applicant's training or experience in the period mentioned
Sept 17 to July 18	<b>Project Engineer</b> XYZ Company  Worksopce 1) To provide technical support & manage the operation of maintenance term contract	Ir. Mohd Noramil bin Mohd Daril  Manager XYZ Company	11	1	1	9			 Signature
		Total Month	36	2	13	21			

Name, position & address of PE/PEPC or Superior (non Engineer) under whom served

Signature of supervising Engineer or has personal knowledge of applicant training & experience

Minimum Total of 36 Month including  $\geq 2$  years of general training +  $\geq 1$  year of various managerial and technical expertise



# PART 1: Filling in PAE Form



LAMPIRAN PAE-2

AKUAN PEMOHON  
PEPERIKSAAN PENILAIAN PROFESIONAL

**Sila tandakan (✓) di kotak yang berkenaan.**

Saya mengaku bahawa saya:

	YA	TIDAK
Tidak pernah menduduki Peperiksaan Penilaian Profesional di Lembaga Jurutera Malaysia.	<input type="checkbox"/>	<input type="checkbox"/>
Pernah gagal Peperiksaan Penilaian Profesional di Lembaga Jurutera Malaysia pada * .....	<input type="checkbox"/>	<input type="checkbox"/>
Telah memohon/ menduduki Temuduga Profesional di Institusi Jurutera Malaysia (IEM) / MySET pada * .....	<input type="checkbox"/>	<input type="checkbox"/>
Pernah gagal Temuduga Profesional di Institusi Jurutera Malaysia (IEM) / MySET pada * .....	<input type="checkbox"/>	<input type="checkbox"/>

Lain-lain kenyataan:

.....

.....

.....

Yang benar,

\_\_\_\_\_

Nama Penuh :

No. Kad Pengenalan / Pasport :

No. Pendaftaran Jurutera Siswazah :

**PERHATIAN:** \* *Sila nyatakan tarikh*





# PART 1: Filling in PAE Form

(Typewritten applications are to be submitted in duplicate and forwarded to the Professional Interviewer).

BOARD OF ENGINEERS MALAYSIA

## CERTIFICATION OF DRAWINGS/DOCUMENTS FOR PROFESSIONAL ASSESSMENT EXAMINATION

Important note: The Professional Engineer signing this Form is reminded that he is responsible for confirming that the drawings/documents submitted have been executed by the candidate in the ordinary course of his employment.

- \* Please delete whichever is not applicable.
- \*\* If any drawing is a photo print or a tracing of an original drawing, then the Professional Engineer must also sign the Second Certification.

Name in full : **ALI BIN BABA** who is a candidate for the Professional Assessment Examination is/has been \* employed under me in the capacity of **PROJECT ENGINEER** from **SEPTEMBER 2017** to **JULY 2018**.

I have inspected and signed the drawings \*\* and/or \* documents described below which he proposes to submit for the Examination.

### DESCRIPTION OF DRAWINGS \*\* and/or \* DOCUMENTS.

1) **Installation Drawing - Subframe VLT 14027T3**

### CERTIFICATION OF THE ORIGINAL DRAWINGS/DOCUMENTS BY THE PROFESSIONAL ENGINEER.

I hereby certify that these drawings \*\* and/or \* documents have been executed by the candidate in the ordinary course of his employment under my general supervision.

Signature :  Date : **1/8/2020**  
 Name of Professional Engineer : **Ir. MOHD NORAMIL BIN MOHD DARIL**  
 Branch of registration : **MECHANICAL**  
 Official of other position : .....  
 Professional Engineer no : **P118633**

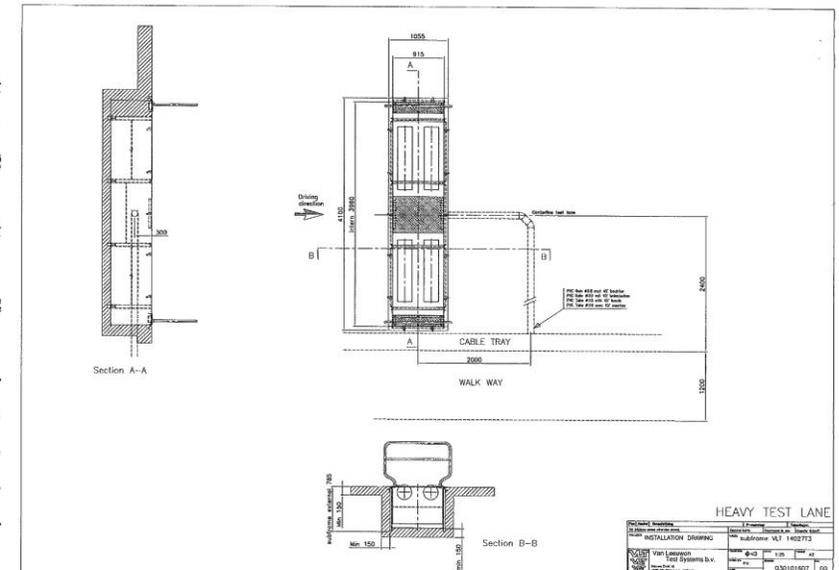


### CERTIFICATION OF THE TRACING/PHOTO PRINT BY THE PROFESSIONAL ENGINEER.

I hereby certify that the tracing/photoprint \* referred to the

- \* (a) a photo print from a tracing, made by drawing also made by him.
- \* (b) a photo print from a drawing made by the candidate.
- \* (c) a tracing made by the candidate of a drawing

Signature : ..... Date : .....  
 Name of Professional Engineer : .....  
 Branch of registration : .....  
 Official or other position : .....  
 Professional Engineer no : .....  
 and stamp





## Part 2 : Preparation of Reports

-There are 2 types of reports;

- ❑ Training & Experience Report
- ❑ Technical /Project Report





# PART 2: Preparation of Reports

Training and Experience Report of XXXXXXXXXXXXXXXXXXXX

## TRAINING AND EXPERIENCE REPORT

BY

XXXXXXXXXXXXXXXXXXXX

This report is made for Board of Engineers, Malaysia in partial fulfilment of the requirement for the Professional Assessment Examination

BEM Graduate Engineer  
Engineering Discipline: XXXXXXXXXXXX

Training and Experience Report of XXXXXXXXXXXXXXXXXXXX

### CONTENT

	PAGE
1.0 DECLARATION	x
2.0 INTRODUCTION	x
3.0 PERSONAL INFORMATION	x
3.0 PERSONAL TRAINING AND EXPERIENCE	x
4.0 COURSE AND SEMINAR	x
5.0 CONCLUSION	x

Training and Experience Report of XXXXXXXXXXXXXXXXXXXX

### DECLARATION (CANDIDATE)

I hereby declare that this report is my own except for reference to publication which has prior duly acknowledgement.

Signature: .....  
Name: XXXXXXXXXXXXXXXXXXXX  
BEM Graduate Engineer No.: GEXXXXXX  
Date: XXXXXXXXXXXX  
Address: XXXXXXXXXXXX

Training and Experience Report of XXXXXXXXXXXXXXXXXXXX

### 1.0 INTRODUCTION

This report describes the working experience in general training for professional development and professional career development to the various managerial and technical expertise in engineering practice of XXXXXXXXXXXX has earned since registered as Graduate Engineer in XXXX.

In general, the working experiences gain were from XXXXXXXXXXX (e.g. manufacturing, research & development, maintenance and planning). In this report, I will elaborate all the training and experience involved during my service as XXXXXX Engineer in chronological order.

### 2.0 PERSONAL INFORMATION

Name:  
I.C No.:  
BEM Reg. No.:  
Date of Birth:  
Nationality:  
Engineering Discipline:  
Current Employment:  
Current Position:  
Email:  
Academic Qualification:

### 3.0 PROFESSIONAL TRAINING AND EXPERIENCE

Duration	Professional Experience Description	Experience Field
XXXX to YYYY	Position: Company: Nature of Works: (E.g Manufacturing & Maintenance  Works and Experiences: a) XXXXXXXXXXX b) XXXXXXXXXXX c) XXXXXXXXXXX	E.g. • Engineering Works • Site Works • Planning & Management
AAAA to BBBB	Position: Company: Nature of Works: (E.g Manufacturing & Maintenance  Works and Experiences: d) XXXXXXXXXXX e) XXXXXXXXXXX f) XXXXXXXXXXX	E.g. • Design, • Supervision • Project management

## Sample Format Training & Experience Report



# PART 2: Preparation of Reports

Technical and Project Report of XXXXXXXXXXXXXXX

## TECHNICAL AND PROJECT REPORT

BY

XXXXXXXXXXXXXXXXXXXX

This report is made for Board of Engineers, Malaysia in partial fulfilment of the requirement for the Professional Assessment Examination

BEM Graduate Engineer  
Engineering Discipline: XXXXXXXXXXX

Technical and Project Report of XXXXXXXXXXXXXXX

CONTENT		PAGE
	DECLARATION	X
1.0	INTRODUCTION	X
2.0	PERSONAL INFORMATION	X
3.0	TECHNICAL AND PROJECT REPORT	X
4.0	CONCLUSION	X

Technical and Project Report of XXXXXXXXXXXXXXX

### DECLARATION (CANDIDATE)

I hereby declare that this report is my own except for reference to publication which has prior duly acknowledgement.

Signature: .....  
Name: I  
BEM Graduate Engineer No.:  
Date:

Technical and Project Report of XXXXXXXXXXXXXXX

### 1.0 INTRODUCTION

This report describes the technical and project experience gained during my career at XXXXXXXXXXXXXXX from AAAA to BBBB and YYYYYYYYYY from CCCC to DDDD after registration as Graduate Engineer in FFFF with BEM.

The technical and project experience was supervised by Professional Engineer in the same branch of engineering with relevant documents and references for assessors.

### 2.0 PERSONAL INFORMATION

Name:  
I.C No.:  
BEM Reg. No.:  
Date of Birth:  
Nationality:  
Engineering Discipline:  
Current Employment:  
Current Position:  
Email:  
Academic Qualification:

### TECHNICAL AND PROJECT REPORT

#### 3.1 FFFFFF Sdn Bhd

Project:  
Field: (e.g. Design, supervision, site works and engineering works.)  
Supervisory by: Ir. VVVVVVVV (PE NO.)  
Problem Description:  
Engineering Solution:

#### 3.2 GGGGGG Sdn Bhd

Project:  
Field: (e.g. Design, supervision, project management and engineering works.)  
Supervisory by: Ir. ZZZZZZZZ (PE NO.)

Architect:  
C&S Consultant:  
M&E Consultant:  
Project Cost: RM XXXXXXXX.00  
Project Name:  
Lesson Learned:  
References:

- Submission drawing of Pelan Tapak
- Construction drawing:

### 4.0 CONCLUSION

The above technical and project experiences enabled me to gain confidence and empower my knowledge in serving my duties professionally. With these, I hope that my application as a Professional Engineer at Board of Engineers Malaysia will be considered and accepted accordingly.

## Sample Format Technical & Project Report



# PART 2: Preparation of Reports

## GENERAL EXPERIENCE: TRAINING & EXPERIENCE REPORT

- 2 copies of report printed on A4 paper.
- Provide a **detailed description of the Candidate's engineering training and experience** throughout his career. Typically, it has **1,500 to 2,000 words**.
- Summarise in chronological order, the **employment records** inclusive of the dates of each position held.
- Explain precisely the positions that the Candidate has occupied and the **roles and responsibilities** assigned.
- Deal fully with the **tasks on which he has been employed** -- design, construction, site, operations and maintenance, manufacturing, teaching or research.
- Elaborate on any **subject/expertise area** in which the candidate has specialized, or obtained exceptionally good experience.
- Elaborate on any special **problems the candidate had encountered**, explaining how they were dealt with.
- Indicate the **size and cost of the works**; not an inventory of works.



# PART 2: Preparation of Reports

## TECHNICAL REPORT

- Two (2) copies of the Technical Report printed on A4 paper shall be submitted with supporting sheets, calculations, tables, charts, diagrams and/or drawings duly certified.
- This Report shall include one or more of the following :
  - Design Work
  - Feasibility Study
  - Operations and Maintenance Work
  - Other Engineering Work

## CERTIFICATION OF DOCUMENT

- Every drawing and document (supporting sheet, calculation, table, chart, and diagram) wherever relevant is to be signed by the **Supervising Professional Engineer** who must also certify that these are the works of the Candidate. If only a portion of the Documents has been prepared by the Candidate, this must be clearly indicated and certified.
- It is essential that the drawings and document submitted shall be the work of the Candidate in the ordinary course of his **permanent or long-term contractual employment.**



# PART 2: Preparation of Reports

## Technical Report – Design Work

At least two (2) but not more than four (4) **working drawings** of candidate's own work:

- **Detailed design calculations** relating to one or more of the candidate's own submitted drawings;
- **Specifications** which candidate has contributed to or executed in the course of design or filed work; and
- One set of **Bill of Quantities (BQ)**, comprising abstract and take-off sheets relating to one or more of the submitted drawings, whether or not prepared by the Candidate.

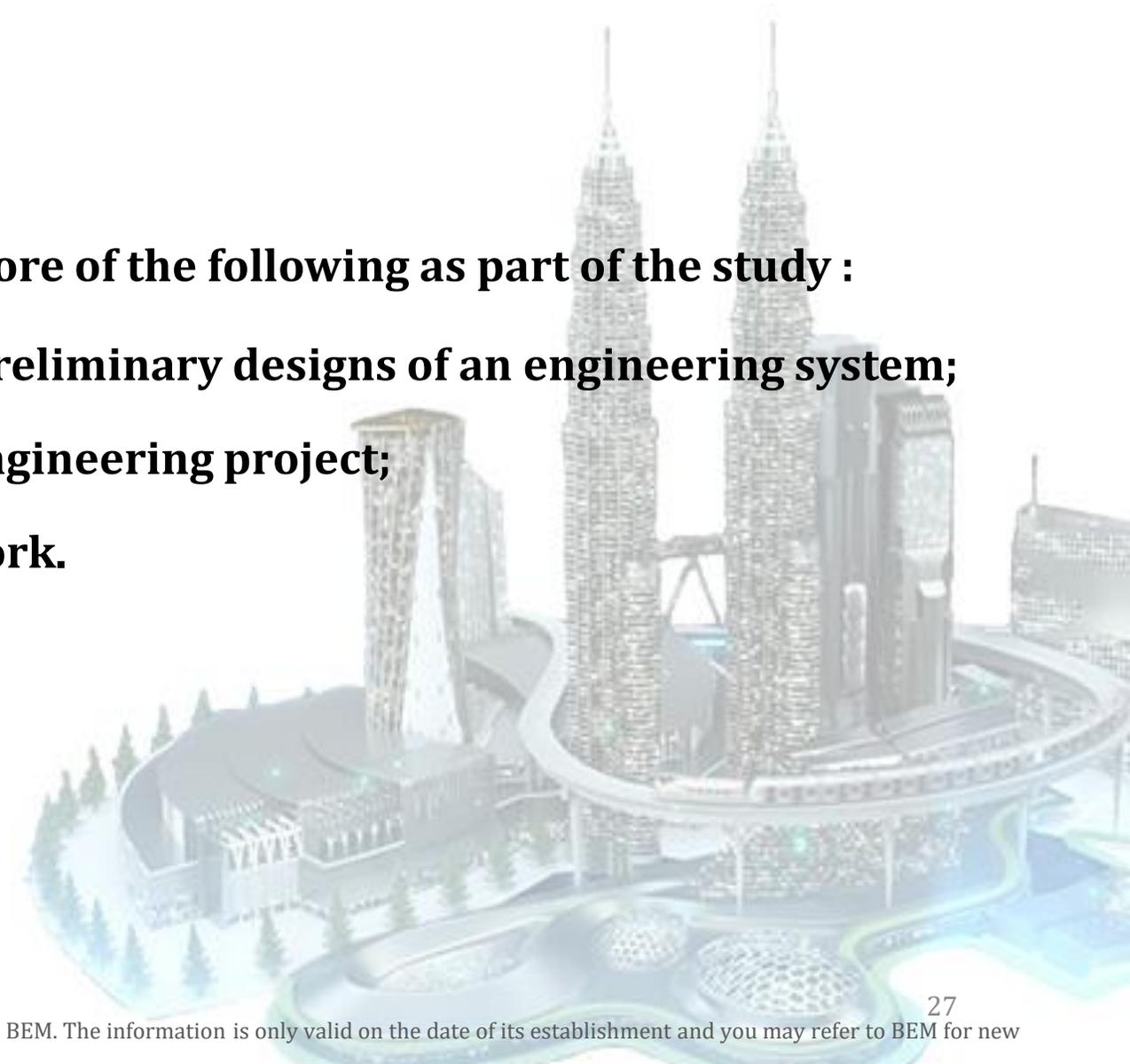


# PART 2: Preparation of Reports

## Technical Report – Feasibility Study

**The feasibility study should involve one or more of the following as part of the study :**

- **Functional and economic comparison of preliminary designs of an engineering system;**
- **A comprehensive report of a major engineering project;**
- **A system design of a major engineering work.**



# PART 2: Preparation of Reports

## Technical Report – Feasibility Study

Document should include the following:

- At least one relevant **drawing** that conveys essential features and details of a structure or system;
- At least three **sketches** that contain sufficient details to enable a draughts person to work them up into conceptual tender drawings without further guidance;
- Preliminary **stress, system or other pertinent analysis**;
- Bill of Quantities, cost /economic analysis as appropriate;
- **Specifications** to which candidate has contributed for subsequent design and field execution.



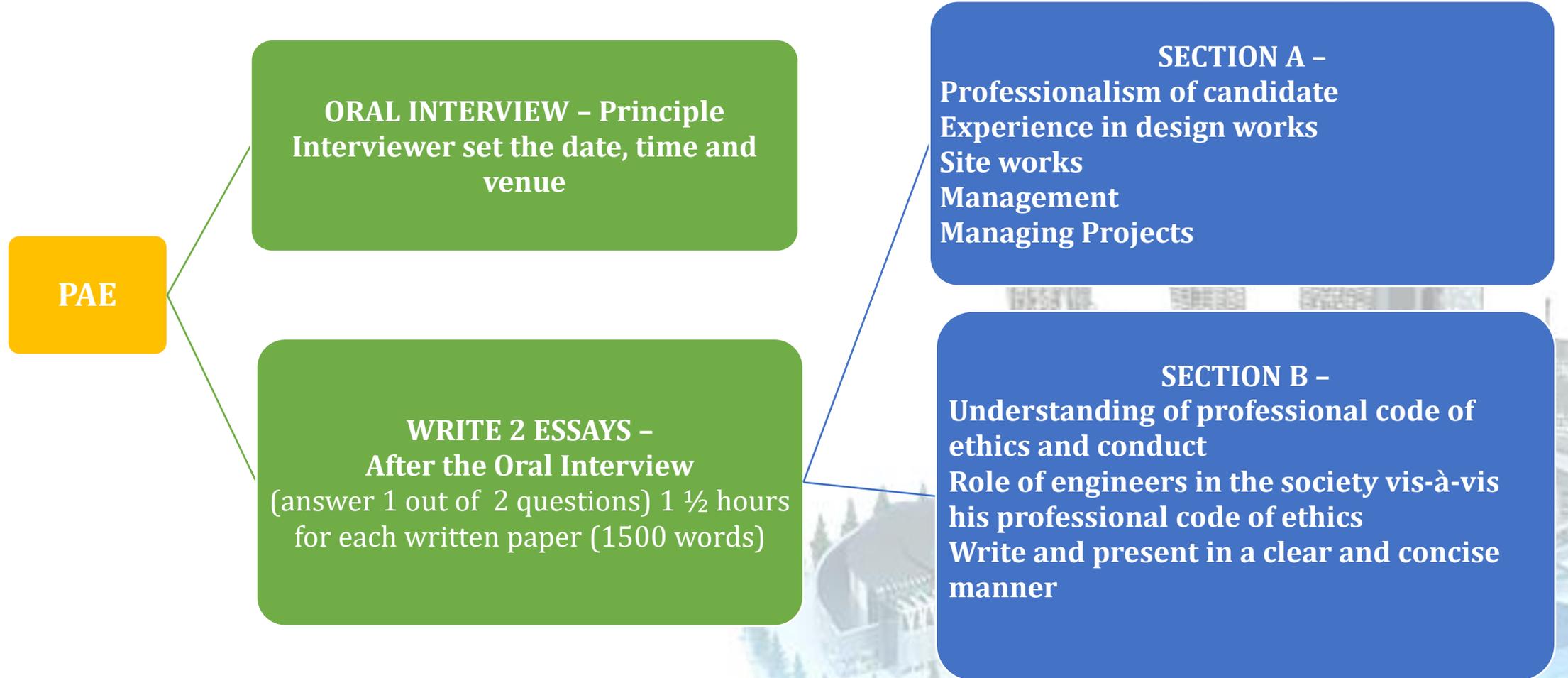
# PART 2: Preparation of Reports

## Technical Report – Installation/Operation/Maintenance

- A detailed description of installation/operation/maintenance of the plant or system together with the appropriate schedule which candidate has **formulated or designed**;
- In the submission, the Candidate should clearly indicate his contribution which would demonstrate a sound **understanding of the engineering principles and application**.
- A **critical appraisal of the design** of the engineering system which may or may not be the work of the Candidate should be included.
- Details of **modifications made** to the existing system which are the work of the Candidate may also be submitted.



# PART 3: Professional Assessment Examination (PAE)





# PART 3: Professional Assessment Examination (PAE)

## PAE Essay Question

### SECTION A – 1 ½ HOUR (choose 1 out of 2 questions)

- typically related to the **technical aspects** related to candidate's submitted Reports/Drawings
- Points put forth by the Candidate should **show sound engineering basics and professionalism.**

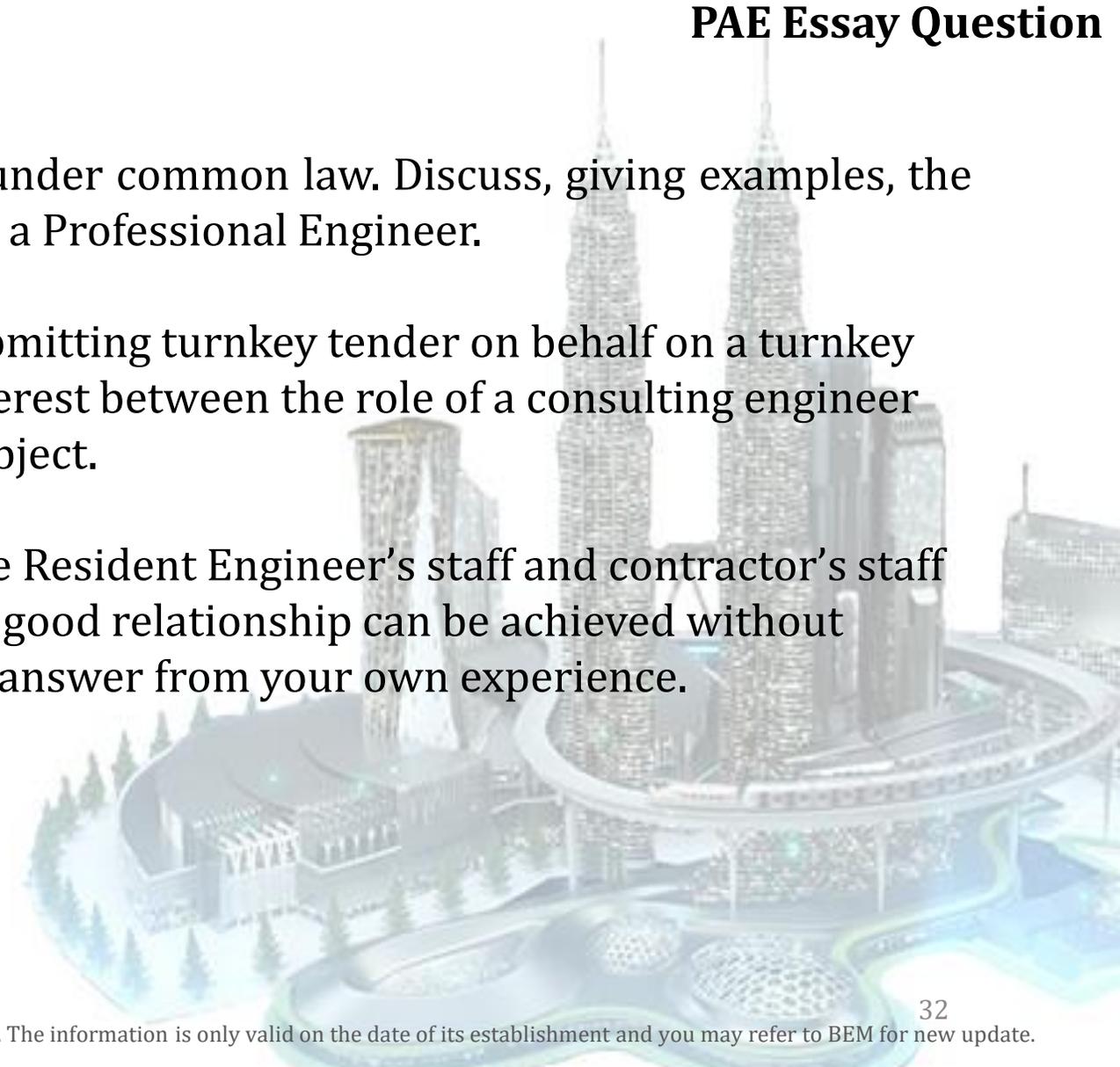
### SECTION B – 1 ½ HOUR (choose 1 out of 2 questions) BEM 8 IEM 13

- questions on the **Regulations Code of Conduct**
- **role of engineer in society** vis-à-vis the Regulations of Professional Conduct
- Ethical judgments put forth by the Candidate should be supported by sound and cogent arguments.



## PAE Essay Question

1. The engineer has a duty of care to the public under common law. Discuss, giving examples, the obligations that his duty imposes on himself as a Professional Engineer.
2. If you were a consulting engineer and were submitting turnkey tender on behalf on a turnkey contractor, would you consider a conflict of interest between the role of a consulting engineer and contractor? Enlarge on the ethics of the subject.
3. Identify the areas in which conflict between the Resident Engineer's staff and contractor's staff can develop and give your views as to whether good relationship can be achieved without infringing on the code of ethics. Illustrate your answer from your own experience.





## PAE Essay Question

5. It is clear to you that an Engineer engaged in a particular project (implement at the taxpayer's account) is not maintaining professional standards, i.e. professional competence and integrity are lacking. What would be your reaction? Will you report the above incident to the Board of Engineers, Malaysia or bring this to the attention of the client, or will you maintain silence and watch substandard work being completed?
6. Every Engineer shall at all times so order his conduct as to uphold the dignity and reputation of his profession, and to safeguard the public interest in matters of safety and herein and others. He shall exercise his professional skill and the judgment to the best of his abilities in discharging his professional responsibilities. He shall also act with firmness and integrity towards all person with whom his work is connected. Discuss your responsibilities and obligations in the event that, due to building operations under charge, adjacent building have been damaged beyond repair.
7. "Professional Engineer should be allowed to practice as consultants and as contractor at the same time". Do you agree with this statement? If so, give your reason objectively for supporting it; If not, also give reasons for appealing it.



## PAE Essay Question

7. Under normal circumstances, a consulting engineer should not supplant the work of another consulting engineer after knowing that the 1st consulting engineer has already been entrusted with the work. If he has been asked by the same client to take over the work of that 1st consulting engineer, what do you think should be the proper procedure in effecting this change of consultants? How should the matter be dealt with if the 1st engineer refuses to agree to this change because he has not been paid his fees by the client?
8. A consulting Engineer has submitted structural design plans to the local authority for a certain building. The client terminates his services after the plans are approved by the local authority. You are then engaged to take over this work and complete the project including supervision of construction. What are your professional responsibilities and those of the previous engineer who has submitted the plans? If you have make changes to the structural drawings, what do you think should be the proper procedure in dealing with this matter and also how you assign professional liability?



# PART 3: Professional Assessment Examination (PAE)

**INSTITUSI JURUTERA MALAYSIA**  
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## ANSWER BOOK

NAME OF CANDIDATE: \_\_\_\_\_

DISCIPLINE: MECHANICAL ENGINEERING

SECTION:  A  B

QUESTION: QUESTION NO. 6 ✓

### INSTRUCTIONS TO CANDIDATES

1. Write legibly
2. Write in block letters your name clearly
3. Write answers on one side of the paper only
4. Begin each answer on a fresh page
5. Write the number of each question at the top of each
6. Use left hand pages for rough work and for planning
7. Do not tear any pages from this book.
8. Fasten all extra sheets used inside the cover of this book
9. Do not remove answer books and extra sheets used

### Interviewers' Comments

- Able to write good essay and able elaborate the manner.

Question No. 6: "Professional Engineer should be allowed to practice as architect and as contractor at the same time."

Engineers have an important role in today's society, spreading across various industries including automotive, oil & gas, energy, food & beverage transportation, etc. Engineers strive to improve standards of living & social living by importance and priority of safety, health and public interest. Engineers may participate within these industries as consultants, client or contractors, depending on their specialities.

Consultants are professionals hired to provide engineering solutions to clients while observing the requirements from local authority and international codes & standards. Engineers working as consultants should be familiar with local law and regulations and with internationally recognized standards in order to ensure compliance and increased confidence in the safety level of the given solution.

Contractors are companies which provide resources (i.e. material, machinery, equipment) to clients to execute the solutions provided by the consultants (i.e. with approval from the client). The focus for contractors are the tasks of the project to be executed within a specified time frame. It is uncommon that at some point, contractors may use different materials during execution of works than the material specified by consultants.

From project management point of view, by combining the scope for consultation and execution (i.e. by contractor), this will create a single point of responsibility. Misunderstanding of information and specification between consultants and contractor can also be reduced significantly, thus resulting in timely delivery of the project.

However, the risk on the Code of Ethics do exist in this approach and elaborated in the following paragraphs:



MALAYSIAN SOCIETY FOR ENGINEERING AND TECHNOLOGY

## ANSWER SCRIPT

### PROFESSIONAL ASSESSMENT EXAMINATION

DATE: 31/10/2012  
TITLE: PART B.

NAME: \_\_\_\_\_

Scenario 4: No concrete evidence that the vibration from my building caused the adjacent building to face severe damage. Evidence showed the adjacent building started to show signs of damage before time.

Activity from my building only contribute partial damage.

Recommendation: Any accusation shall justify such claims. In the event of a claim caused coming from my building, it is the burden proof of evidence. As a professional, I should conduct myself honorably, so thus for the adjacent building owner manner.

One again, professional Accredited member expert in determining the root defect prior activities from my building. Based on the above scenarios and in toward the end, everyone should take the party who suffered the last site the responsible party. If it involves multiple parties, it should be distributed accordingly based on the facts. On the other hand, the adjoining building discussing the matter with me, thus

No. \_\_\_\_\_ Date \_\_\_\_\_



### Section A

No. \_\_\_\_\_ Date \_\_\_\_\_

Q. Preventive maintenance is a step to reduce or avoid sudden and severe breakdown. Explain steps to be taken to achieve the best out of preventive maintenance. Answer:

A. Prevention is better than cure, as the phrase phrase goes, and for industry, this means avoiding costly unplanned shutdowns or breakdown and unscheduled maintenance activities.

Investment in a strong engineering maintenance strategy will pay dividends, allowing for the optimization of production and increased efficiency, ultimately leading to improve competitiveness and a healthier bottom line (profit).

With these benefits in mind, more companies are switching from a strategy of reactive maintenance to predictive maintenance, by measuring the performance of equipment to determine when maintenance should be performed - both ensuring unnecessary work is not undertaken and parts do not fail without any warning.

Building a strong predictive maintenance strategy requires companies to lay the foundations from an early stage. A system must be put in place, accompanied by clear documentation, for the monitoring and tracking of equipment, comprising both human assessment and condition monitoring using technology.

The more invested in the system, the greater the benefits are likely to be. Industry estimates suggest as much as 5% of production capacity is lost each year as a result of unplanned shutdown, which are often related to equipment failure.

I would like to refer to my working experience in PUPATRON, where I was given the responsibility to lead the maintenance department. Since PUPATRON rely its activities on equipment especially for inspecting vehicle roadworthiness, the mean time to repair (MTTR) is essentially crucial in order to avoid public outcry and opportunity loss in revenue.



# STEP 4 : APPLICATION FOR REGISTRATION AS PROFESSIONAL ENGINEER

Application online  
via [engineer.org.my](http://engineer.org.my)

Processing fee:  
RM50.00  
Registration fee:  
RM300.00

On approval,  
certificate of  
registration will  
be issued

REGISTRATION AS  
PROFESSIONAL ENGINEER  
(PE)

# THANK YOU



*“Committed To Engineering Excellence”*

**BOARD OF ENGINEERS MALAYSIA**

Tingkat 11 & 17, Blok F Ibu Pejabat JKR

Jalan Sultan Salahuddin, 50580 Kuala Lumpur

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