INSTRUCTION:

This section consists of **FOUR (4)** structured questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi **EMPAT (4)** soalan berstruktur. Jawab **SEMUA** soalan.*

QUESTION 1

SOALAN 1

CLO1 (a) List **FIVE (5)** by-products produced from acetic acid plant operations in Chiyoda Acetics process.

*Senaraikan **LIMA (5)** hasil sampingan yang dihasilkan dari operasi loji acetic acid dalam proses 'Chiyoda Acetica'.*

[5 marks]

[*5 markah*]

CLO1 (b) Explain the process that happened in the Iodide-Removal Unit.

Terangkan proses yang berlaku dalam Unit Penyingkiran Iodin.

[5 marks]

[*5 markah*]

CLO1 (c) Draw the simplified Process Flow Diagram (PFD) of EB*One* in the production of ethylbenzene.

Lukiskan satu Lukisan Aliran Proses (PFD) yang ringkas bagi EBOne di dalam penghasilan etilbenzena. .

[15 marks]

[*15 markah*]

QUESTION 2

SOALAN 2

CLO2

(a) List **FIVE (5)** advantages of operation units in Lurgi MegaMethanol process.
*Senaraikan **LIMA (5)** kelebihan unit operasi di dalam proses 'Lurgi MegaMethanol'.*

[5 marks]
[*5 markah*]

CLO2

(b) Explain the process that happened in the Desulfurization unit in Lurgi Mega Methanol process.
Terangkan proses yang berlaku di dalam unit Penyahsulfuran di dalm proses 'Lurgi MegaMethanol'.

[5 marks]
[*5 markah*]

CLO2

(c) Draw a Block Flow Diagram of conversion steps involved for the natural gas to liquids and polyolefins.
Lukiskan Lukisan Aliran Blok (BFD) bagi langkah-langkap penukaran yang terlibat untuk gas asli kepada cecair dan poliolefin.

[15 marks]
[*15 markah*]

QUESTION 3

SOALAN 3

CLO1 (a) Explain the process chemistry of major reaction for classic styrene.
Terangkan proses kimia bagi tindakbalas utama untuk stirena klasik.

[10 marks]
[*10 markah*]

CLO1 (b) Draw the Classic Styrene reactor system with complete label.
Lukiskan sistem reaktor stirena klasik dengan label yang lengkap.

[10 marks]
[*10 markah*]

CLO1 (c) Write the importance of selectivity of the PxMax catalyst in comparison with conventional toluene disproportionation technology.
Analisa kepentingan kepilihan mangkin PxMax berbanding teknologi tidak kadaran toluene yang konvensional.

[5 marks]
[*5 markah*]

QUESTION 4

SOALAN 4

CLO2 (a) Draw the Process Flow Diagram (PFD) of Basell Spherilene technology for LLDPE and HDPE production.

Lukiskan satu Lukisan Aliran Proses (PFD) bagi teknologi Basell Spherilene untuk penghasilan LLDPE dan HDPE.

[15 marks]

[*15 markah*]

CLO2 (b) Provide **FIVE (5)** process control variables that manipulate the reaction system in the operation of Unipol Polypropylene process technology

*Berikan **LIMA (5)** pembolehubah kawalan proses yang memanipulasikan sistem tindakbalas dalam teknologi proses Unipol Polipropilena*

[10 marks]

[*10 markah*]

SOALAN TAMAT