



PA-003-1016027 Seat No. _____

B. Sc. (Sem. VI) (CBCS) Examination

March / April - 2020

IC - 602 : Petrochemicals & Industrial Management

Faculty Code : 003

Subject Code : 1016027

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

- Instructions :**
- (1) Question paper carries total 5 questions.
 - (2) All the questions are compulsory and carry 14 marks each.
 - (3) Draw labeled diagram wherever necessary.
 - (4) Assume suitable data.

1 (A) Answer the following questions : 4

- (1) $CH_4 + 2S_2 \rightarrow$ _____ + $2H_2S$
- (2) $CH_4 + \frac{1}{2}O_2 \rightarrow$ _____.
- (3) _____ is used as catalyst for direct oxidation of ethylene to manufacture ethylene oxide.
- (4) Enlist uses of acetic acid.

(B) Answer in brief : (Any One out of two) 2

- (1) Give synthetic routes of manufacturing of ethanol and enlist uses of it.
- (2) Give synthetic routes of manufacturing of ethylene oxide and enlist uses of it.

(C) Answer in detail : (Any One out of two) 3

- (1) Explain manufacturing of ethylene glycol in brief.
- (2) Draw only diagram of acetylene manufacturing process.

- (D) Write a note on : (Any **One** out of **two**) 5
- (1) Write a detailed note on ethylene production with diagram, description and applications.
 - (2) Explain production of HCN in detail with diagram, description and applications.
- 2** (A) Answer the following questions : 4
- (1) Write structure of isopropyl sulphonic acid.
 - (2) Write structure of acrylonitrile.
 - (3) Write uses of glycerol.
 - (4) For manufacturing of ethyl benzene from benzene _____ catalyst can be used.
- (B) Answer in brief : (Any **One** out of **two**) 2
- (1) Write chemical reaction of n-butene.
 - (2) Write routes for manufacturing of propylene oxide, give uses.
- (C) Answer in detail : (Any **One** out of **two**) 3
- (1) Draw only diagram for separation of C4 fraction.
 - (2) Draw only diagram for separation of methacrylic acid.
- (D) Write a note on : (Any **One** out of **two**) 5
- (1) Explain manufacturing of isopropyl alcohol in detail.
 - (2) Explain manufacturing of styrene in detail.
- 3** (A) Answer the following questions : 4
- (1) Temperature range for manufacturing of naphtha is _____.
 - (2) Give full form of HDS.
 - (3) "Nylon-6,6 can be manufactured from adipic acid". True/False.
 - (4) Bisphenol A is monomer for manufacturing of _____.

- (B) Answer in brief : (Any **One** out of **two**) 2
- (1) Write a brief note on adipic acid without diagram.
 - (2) Write structure and uses of Caprolactum.
- (C) Answer in detail : (Any **One** out of **two**) 3
- (1) Explain SNG production from naphtha.
 - (2) Explain SNG production via partial oxidation.
- (D) Write a note on : (Any **One** out of **two**) 5
- (1) Explain BTX production in detail with diagram.
 - (2) Explain natural gas steam reforming in detail with diagram.
- 4** (A) Answer the following questions : 4
- (1) Enlist functions of director in industries.
 - (2) Give full form of SWOC analysis.
 - (3) Enlist skills of successful manager in chemical industries.
 - (4) Define: Management.
- (B) Answer in brief : (Any **One** out of **two**) 2
- (1) What is inventory control? Draw graphs of inventory management.
 - (2) What is job satisfaction? Enlist criteria for job satisfaction.
- (C) Answer in detail : (Any **One** out of **two**) 3
- (1) Explain Maslow's hierarchy of need in detail.
 - (2) Write features of decision making with examples.
- (D) Write a note on : (Any **One** out of **two**) 5
- (1) Write a detailed note on different functions of management with examples.
 - (2) Explain types, features and examples of planning in chemical industries.

- 5 (A) Answer the following questions : 4
- (1) Total capital investment = _____ + Working capital.
 - (2) Give example of product mix and product width.
 - (3) Enlist any four product classification with example.
 - (4) Draw only diagram of economic order quantity.
- (B) Answer in brief : (Any **One** out of **two**) 2
- (1) What is time value of money?
 - (2) Explain capital formation in brief.
- (C) Answer in detail : (Any **One** out of **two**) 3
- (1) Write factors involved in product cost estimation with example of any one chemical product.
 - (2) Enlist and explain product development stages.
- (D) Write a note on : (Any **One** out of **two**) 5
- (1) Explain plant location, plant layout and plant maintenance in detail.
 - (2) Explain product life cycle in detail with diagram.
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