



**PAR-003-1015023** Seat No. \_\_\_\_\_

**B. Sc. (Sem. V) (CBCS) Examination**  
**October / November - 2018**  
**BS - IC - 503 : Heavy & Fine Chemicals**

**Faculty Code : 003**  
**Subject Code : 1015023**

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 labelled diagram wherever necessary.  
(4) Assume suitable data.

- 1 (a) Answer the following questions : 4
- (1) Write the raw materials required for production of nitric acid via Ostwald process.
  - (2) For manufacturing of phosphoric acid via wet process, high grade phosphate rock required. True / False?
  - (3) Write only reaction for manufacturing of silicon carbide.
  - (4) Give any two applications of carbon black.
- (b) Answer in brief : (Any **one** out of two) 2
- (1) Define the term 'Heavy Chemicals' with example.
  - (2) Give various properties of synthetic graphite.
- (c) Answer in detail : (Any **one** out of two) 3
- (1) Draw only diagram for production of phosphorous.
  - (2) Write short note on natural graphite.
- (d) Write note on. (Any **one** out of two) 5
- (1) Discuss manufacturing of ammonia by Bosch and Harber process.
  - (2) Explain mercury cathode cell with neat diagram.

- 2 (a) Answer the following questions : 4
- (1) Common salt is also known as \_\_\_\_\_
  - (2) Bromine can be used as anti-knocking agent .  
True / False?
  - (3) Raney nickel is also called as \_\_\_\_\_
  - (4) Which catalyst is used to produce maleic anhydride  
by catalytic oxidation of butane with air?
- (b) Answer in brief : (Any **one** out of two) 2
- (1) Give applications of titanium dioxide.
  - (2) Draw only diagram for manufacturing of bromine  
from seawater.
- (c) Answer in detail : (Any **one** out of two) 3
- (1) Write short note on sodium sulfite.
  - (2) Discuss side effects of Raney nickel on health.
- (d) Write note on : (any **one** out of two) 5
- (1) Explain manufacturing of boric acid with neat  
diagram.
  - (2) Write a detailed note on Palladium catalyst.
- 3 (a) Answer the following questions : 4
- (1) Which microorganism is most widely used for  
industrial fermentation?
  - (2) What is anti foaming agent?
  - (3) Give full form of HLV.
  - (4) The role of colouring agent is to impart colour to  
the food stuff. True / False?
- (b) Answer in brief : (Any **one** out of two) 2
- (1) Enlist classification of surfactants.
  - (2) Draw only block diagram for manufacturing of  
citric acid.

- (c) Answer in detail : (Any **one** out of two) **3**
- (1) Discuss various isomers of tartaric acid.
  - (2) Write note on industrial applications of surfactants
- (d) Write note on : (Any **one** out of two) **5**
- (1) Explain manufacturing of monosodium glutamate with diagram.
  - (2) Write a detailed note on emulsion.
- 4 (a) Answer the following questions : **4**
- (1) Triethyl phosphate can be used as ethylating agent. True / False?
  - (2) Dioxane can be produced from diethylene glycol at \_\_\_\_\_°C
  - (3) Give full form of DMSO.
  - (4) Which catalyst is used for manufacturing of THF from furan?
- (b) Answer in brief : (Any **one** out of two) **2**
- (1) Give properties of carbon tetrachloride.
  - (2) Enlist raw materials used for manufacturing of acetaldehyde.
- (c) Answer in detail : (Any **one** out of two) **3**
- (1) Write short note on THF.
  - (2) Explain manufacturing of Tributyl phosphate.
- (d) Write note on : (Any **one** out of two) **5**
- (1) Discuss production of various butylamines products with neat diagram.
  - (2) Explain manufacturing of chloroform with diagram.

- 5 (a) Answer the following questions : 4
- (1) Sorbitol is also known as \_\_\_\_\_
  - (2) 37% Formaldehyde solution is also called as \_\_\_\_\_
  - (3) Give any two uses of phthalic anhydride.
  - (4) Zeolite can be used as adsorbent. True / False?
- (b) Answer in brief : (Any **one** out of two) 2
- (1) Give properties of pyridine.
  - (2) Draw only diagram for manufacturing of vinyl acetate.
- (c) Answer in detail : (Any **one** out of two) 3
- (1) Write a brief note on Ninhydrine.
  - (2) Explain sodium methoxide in detail.
- (d) Write note on : (Any **one** out of two) 5
- (1) Explain Fischer and Tropsch process with diagram.
  - (2) Discuss manufacturing of glycerin via sweet water.
-