



RP-003-1015023

Seat No. _____

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

February - 2019

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 labeled diagram wherever necessary.
 - (4) Assume suitable data.

- 1 (A) Answer the following questions : 4
- (1) Write the raw materials required for production of ammonia.
 - (2) Give properties of ammonium sulphate.
 - (3) Write the raw materials required for manufacturing of calcium carbide.
 - (4) Write only reaction for manufacturing of silicon carbide.
- (B) Answer in brief : (Any **One** out of two) 2
- (1) Give applications of nitric acid.
 - (2) Give various properties of synthetic graphite.
- (C) Answer in detail : (Any **One** out of two) 3
- (1) Draw only diagram for production of ammonium phosphate.
 - (2) Write a short note on natural graphite.

- (D) Write a note on : (Any **One** out of two) **5**
- (1) Discuss manufacturing of nitric acid by Ostwald process.
 - (2) Explain Nelson cell with neat diagram.
- 2** (A) Answer the following questions : **4**
- (1) Molecular formula of Fluorspar is _____
 - (2) Fluorine can be used as anti-knocking agent. True/False?
 - (3) Palladium is an excellent electrocatalyst for oxidation of _____ alcohol in alkaline media.
 - (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 Vanadium dioxide.
 - (2) Draw only diagram for manufacturing of borax.
- (C) Answer in detail : (Any **One** out of two) **3**
- (1) Write a short note on sodium thiosulfate.
 - (2) Explain Palladium catalyst in brief.
- (D) Write a note on : (Any **One** out of two) **5**
- (1) Explain manufacturing of bromine from seawater.
 - (2) Write a detailed note on Raney Nickel catalyst.
- 3** (A) Answer the following questions : **4**
- (1) Enlist classification of food additives.
 - (2) Give IUPAC name of Vanillin.
 - (3) Give full form of HLV.
 - (4) Give any two uses of surfactants.

- (B) Answer in brief : (Any **One** out of two) **2**
- (1) Write a note on Cinnamal.
 - (2) Explain types of emulsion.
- (C) Answer in detail : (Any **One** out of two) **3**
- (1) Discuss various industrial applications of food additives.
 - (2) Write a note on composition of essential oils.
- (D) Write a note on : (Any **One** out of two) **5**
- (1) Explain manufacturing of monosodium glutamate with diagram.
 - (2) Discuss production of essential oils by distillation method.
- 4 (A) Answer the following questions : **4**
- (1) Triphenyl phosphine can be used as polymerization inhibitor. True/False?
 - (2) Give full form of DMF.
 - (3) Which catalyst is used for manufacturing of THF from furan?
 - (4) Give any two applications of ketenes.
- (B) Answer in brief : (Any **One** out of two) **2**
- (1) Give properties of chloroform.
 - (2) Enlist raw materials used for manufacturing of acetaldehyde.
- (C) Answer in detail : (Any **One** out of two) **3**
- (1) Write a short note on Sulfolane.
 - (2) Explain manufacturing of Tributyl phosphate.

- (D) Write a note on : (Any **One** out of two) **5**
- (1) Discuss production of amino ethanol with neat diagram.
 - (2) Explain manufacturing of chloroform with diagram.
- 5** (A) Answer the following questions : **4**
- (1) Catalytic dehydrogenation of IPA gives _____ product.
 - (2) Enlist any two properties of melamine.
 - (3) Acetylene can be manufactured from _____
 - (4) Pyridine is _____ in nature.
- (B) Answer in brief : (Any **One** out of two) **2**
- (1) Give properties of formaldehyde.
 - (2) Draw only diagram for manufacturing of vinyl chloride from acetylene.
- (C) Answer in detail : (Any **One** out of two) **3**
- (1) Write a brief note on Ninhydrine.
 - (2) Explain perchloric acid in detail.
- (D) Write a note on : (Any **One** out of two) **5**
- (1) Explain cumene process for manufacturing of phenol with diagram.
 - (2) Discuss manufacturing of glycerin via spent lye.
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