



**DB-003-001648**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. - VI) (C.B.C.S.) Examination**

**April / May - 2015**

**IC. P - 603 : Pharm - 2 & Fundamental of  
Chemical Engineering**

**Faculty Code : 003**

**Subject Code : 001648**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :**
- (1) All the questions are compulsory.
  - (2) Figures to the right indicate maximum marks.
  - (3) Draw labelled diagram wherever necessary.
  - (4) Assume suitable data.
  - (5) Question-1 carries 20 marks MCQ & should be written in the same answer sheet.
  - (6) Question-2 & 3 carries 25 marks each.

**1** Answer the following MCQ **20**

- (1) The process variable which is main objective of controller is known as \_\_\_\_\_ variable.  
(A) Manipulated (C) Desired  
(B) Measured (D) Offset
- (2) The device used to increase the strength of the signal is called \_\_\_\_\_.  
(A) Controller (C) Amplifier  
(B) Damper (D) Tuner
- (3) The measure of maximum amount of energy or material that a system can handle without failure is known as \_\_\_\_\_.  
(A) Controlling (C) Capacity  
(B) Amplification (D) Range

- (4) Which of the following is a step in evolution of a process?  
 (A) Pilot Plant (C) Commercial plant  
 (B) Research evaluation (D) All of these
- (5) Which of the following is a time schedule followed in a chemical industry ?  
 (A) Around the clock operation (C) Six days a week  
 (B) Five days a week (D) All of these
- (6) Which of the following is not a physical property of an engineering material used in chemical plant?  
 (A) Luster (C) Specific gravity  
 (B) Color (D) Tensile strength
- (7) The property of a material by which resistance offered by a material to abrasion is \_\_\_\_\_.  
 (A) Luster (C) Wear resistance  
 (B) Color (D) Hardness
- (8) The property by which it regains its original shape and dimension after the deforming force is removed is \_\_\_\_\_.  
 (A) Elasticity (C) Ductility  
 (B) Plasticity (D) None of these
- (9) \_\_\_\_\_ is the property due to which a material can be hammered or pressed or rolled into sheets or plates.  
 (A) Malleability (C) Toughness  
 (B) Ductility (D) All of these
- (10) Which of the following is used as a reaction vessel for a chemical plant?  
 (A) CSTR (C) Fixed Bed Reactor  
 (B) Bubble Phase Reactor (D) All of these
- (11) The non-sugar residues in glycosides are known as \_\_\_\_\_.  
 (A) Glycone (C) Aglycone  
 (B) Genin (D) Both (B) & (C)
- (12) An enzyme which converts Triglyceride to Glycerol and Fatty acid is called \_\_\_\_\_.  
 (A) Protease (C) Lipase  
 (B) Peptidase (D) Reductase
- (13) Pyrogen is \_\_\_\_\_.  
 (A) Fever producing microorganism  
 (B) Affecting hypothalamus thermostat  
 (C) Both (A) & (B)  
 (D) None of these

- (14) Chemical constituent of plant which is medicinally active referred as \_\_\_\_\_
- (A) Carbohydrate (C) Saponin  
(B) Phytochemical (D) Steroid
- (15) Which of the following is not a hypnotic and sedative drug?
- (A) Barbital (C) Methyldopa  
(B) Talbutal (D) Butobarbital
- (16) Therapeutic Index stands for \_\_\_\_\_
- (A) A ratio of  $ED_{50}$  to  $LD_{50}$  (C) A ratio of  $LD_{50}$  to  $ED_{50}$   
(B) A ratio of  $ED_{60}$  to  $LD_{40}$  (D) A ratio of  $LD_{60}$  to  $ED_{40}$
- (17) Which of the following is a fermentation product generated by micro-organism?
- (A) Vinegar (C) Lactic acid  
(B) Penicillin (D) All of these
- (18) According to W.H.O. hypertension is \_\_\_\_\_
- (A) Systolic pressure is 150 mm of Hg & diastolic pressure is 95 mm of Hg  
(B) Systolic pressure is 95 mm of Hg & diastolic pressure is 150 mm of Hg  
(C) Systolic pressure is 145 mm of Hg & diastolic pressure is 95 mm of Hg  
(D) Systolic pressure is 170 mm of Hg diastolic pressure is 100 mm of Hg
- (19) Chemically isoprene is?
- (A) 2-Methyl-1,3-butadiene (C) Methyl butadiene  
(B) 3-Methyl-1,3-butadiene (D) 2-Methyl-but-2-ene
- (20) Menthol is a \_\_\_\_\_
- (A) Acyclic terpenoid (C) Monocyclic terpenoid  
(B) Bicyclic terpenoid (D) None of these

2 (a) Answer **any Three** Questions.

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- (1) Define : (a) Error and (b) Offset.
- (2) Write a short note on principles of industrial safety.
- (3) Give three reasons for development of a project.
- (4) Classify: Micro-organism in brief.
- (5) Define: (i) Fermentation and (ii) Glycoside.
- (6) Define: (i) Hypnotics and sedatives (ii) Chemotherapy.

- 2 (b) Answer **any Three** Questions. 9
- (1) What do you mean by transfer function? Explain with the help of diagram.
  - (2) Write a short note on explosivity of chemicals.
  - (3) Enlist seven steps for evolution of process.
  - (4) Explain: Structure of bacteria.
  - (5) Explain the factors affecting enzyme substrate activity (any two) .
  - (6) Give synthesis of: Butabarbital.
- 2 (c) Answer **any Two** Questions. 10
- (1) Explain PI and PID controller.
  - (2) Write in detail control of diseases due to chemicals in chemical industries.
  - (3) Give comparison between standard equipment and specially designed equipment.
  - (4) Explain carbohydrates in detail.
  - (5) Describe Lactic acid production in detail.
- 3 (a) Answer **any Three** Questions. 6
- (1) Define : (a) Signal and (b) Gain.
  - (2) Write a short note on personal protective devices.
  - (3) Write a short note on various types of utilities used in chemical industries.
  - (4) Give synthesis of Paracetamol.
  - (5) Define: (i) Antihypertensive agent and (ii) Pyrogen.
  - (6) Explain Flavanoid in brief.
- 3 (b) Answer **any Three** Questions. 9
- (1) Explain with the help of diagram manual control system.
  - (2) Write a short note on color codes of safety.
  - (3) Give advantages and disadvantages of a continuous operation in a chemical plant.
  - (4) Give synthesis of Phenopufen.
  - (5) Give synthesis of Ibuprofen.
  - (6) Give synthesis of Sulfamethoxazole.
- 3 (c) Answer any Two Questions. 10
- (1) Derive an equation for unsteady state equation for control system.
  - (2) Explain in detail storage, handling and transportation of chemicals in industries.
  - (3) Explain protein in detail.
  - (4) Explain Penicillin G production in detail.
  - (5) Explain Cardiovascular drug substance in detail.