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Reg. No. :

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### Question Paper Code: 53901

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Third Semester

Chemical Engineering

15UCH301 - INTRODUCTION TO CHEMICAL ENGINEERING

(Regulation 2015)

Duration: Three hours                                    Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Who is regarded as Father of Modern Chemistry?                          CO1- R

    (a) Rutherford          (b) Einstein          (c) Lavoisier          (d) C.V.Raman

2. Boiling point of petrol is                                              CO1- R

    (a) Below 20°C                              (b) Between 35°C to 70°C

    (c) Between 70°C to 120°C                   (d) Between 120°C to 270°C

3. The gas constant (R) is equal to the _____ of two specific        CO2-U
   heats.

    (a) Product          (b) Difference          (c) Sum          (d) Ratio

4. Which of the following is not the triple point of water?               CO2- U

    (a) 32°R          (b) 32°F          (c) 492°R          (d) 273K

5. Statement 1: Evaporation is considered a mass and heat transfer        CO3- U
   operation.
   Statement 2: After evaporation, solids are left behind.

    (a) True, False          (b) True, True          (c) False, False          (d) False, True

6. Sulfuric acid is manufactured with help of                                    CO3- R

   (a)Haber process      (b)Contact Process      (c) Complex reaction      (d) Redox Reaction

7.
   The software CFD stands for                                                   CO4- R

   (a) Computational Fluid Dynamics              (b) Chemical Fluid Design

   (c) Chemical Fluid Dynamics                   (d) None of the above

8. The science which deals with the path of the food                            CO4- R

   (a) Food Science      (b) Nutrition      (c) Food Processing      (d) Food Technology

9. Methanol decomposes to form hydrogen and which is the other                  CO5- R
   product?

   (a) Carbon monoxide    (b) Carbondioxide    (c) Carbon          (d) All the above

10. Oxidation of natural gas produce what?                                       CO5- R

   (a) Formaldehyde      (b) Acetaldehyde      (c) Methanol         (d) All of the above

## PART – B (5 x 2= 10Marks)

11. List out few achievements of Chemical Engineering                            CO1- R

12. Differentiate Unit operations and Unit Processes.                            CO2- R

13. Write the units of (i) Pressure and (ii) Dynamic viscosity                   CO3- R

14. Define the term Simulator. List out any two.                                 CO4- R

15. Differentiate Traditional Vs modern Chemical Engineering                     CO5- R

## PART – C (5 x 16= 80Marks)

16. (a)  Discuss the role of chemical engineers in process industries .    CO1- U    (16)

                              Or

   (b)  Explain in detail about block diagrams and flow charts for various   CO1- U    (16)
        operations.

17. (a)  Write the components of chemical engg & explain its   CO2- U    (16)
         applications.

                              Or

**53901**

(b) (i) What is meant by dimensional analysis? State and explain Buckingham PI theorem.     CO2-U     (8)

(ii) Differentiate between Newtonian and non Newtonian fluids.     CO2-U     (8)

18. (a) Explain the principal, construction and working of a venturi meter.     CO3 U     (16)

Or

(b) Explain in detail about the manufacture of Soda Ash.     CO3- U     (16)

19. (a) Elaborate the Role of Computer and Software in Chemical Engineering.     CO4- U     (16)

Or

(b) What are Chemical reactors? Explain in detail about different types of reactors used in chemical industry.     CO4- U     (16)

20. (a) Elaborate in detail about Paradigm Shift in Chemical Engineering.     CO5- U     (16)

Or

(b) Explain in detail about Future Scope of Chemical Engineers and Chemical Engineering.     CO5- U     (16)

**53901**

53901