

ANNA UNIVERSITY - 2007
B.E/B.TECH MODEL EXAMINATION
COMPUTER APPLICATION IN CHEMICAL ENGINEERING
(CHEMICAL ENGINEERING)

TIME-3HOUR
MARK-100

ANSWER ALL QUESTIONS

PART A (10 X 2 = 20)

1. In BASIC, differentiate the executable statements and the non-executable statements. Give one example in each.
2. Write down the rules for the numeric variable in FORTRAN language.
3. Define heat of reaction.
4. What is rate of reaction?
5. Briefly explain an interpolation method.
6. Retrieval Database – Define.
7. With an example, write down the syntax of “scan–end scan” loop in dbaseIV.
8. Expand SQL.
9. What do you mean “standard form of an LPP”?
10. Give a mathematical formulation of an assignment problem.

PART B (5 X 16 = 80)

11. Discuss the design and development of simple data bases on chemical and physical properties of substances.
12. (a) Explain the application of spreadsheet in estimating the density, molecular weight and percentage composition of substances.

Or

- (b) Explain the uses of the spreadsheet in gas laws and chemical kinetics.

13. (a) (i) Differentiate : Branching and Looping.

(ii) In an air compressor 10m³ of air at the pressure (P₁) of 0.9 atm. is compressed adiabatically to 7.2 atm. Write down a BASIC program to find the new temperature for the initial temperature of 17 deg C, 20 deg C, 23 deg C, 26 deg C, 29 deg C & 32 deg C. Assume $\gamma = 1.4$. The equation of the adiabatic expansion as .

Or

(b) (i) For a given material the value of Young’s modulus (E) is N/mm² and Modulus of rigidity (G) is N/mm². Write a FORTRAN program to find the Poisson’s ratio and Bulk modulus (k) if .

- (ii) Explain the specific uses of

- (1) Function sub program (in FORTRAN)
- (2) Subroutine sub program (in FORTRAN)

14. (a) Briefly explain the application of spreadsheet in analysis of variance, interpolation and data processing.

Or

(b) Write the necessary steps to fit the slope for the given data and find the slope and intersection of the line using spread sheet.

X 0.5 1.0 1.5 2.0 2.5 3.0 3.5
Y 9 11 13 15 17 19 21

15. (a) Use simplex method to solve the following LPP Max Subject to .

Or

(b) Solve the following Assignment problem :

	I	II	III	IV	V
A	6	5	8	11	16
B	1	13	16	1	10
C	16	11	8	8	8
D	9	14	12	10	10
E	10	13	11	8	16

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