

R16

Code No: 132AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year II Semester Examinations, August - 2018

ENGINEERING CHEMISTRY

(Common to CE, ME, MCT, MMT, AE, MIE, PTM, CEE, MSNT)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A**(25 Marks)**

- 1.a) "Zeolites are used as softeners". Give the reason. [2]
- b) How scale is removed from boiler? [3]
- c) How galvanic series differ from electrochemical series? [2]
- d) Write anode and cathode reactions of Methanol-oxygen fuel cell. [3]
- e) What is copolymerization? [2]
- f) Define plastics. How are they be classified? [3]
- g) Give the composition of CNG. [2]
- h) What is the significance of proximate analysis? [3]
- i) Furnish applications of composite materials. [2]
- j) Classify the lubricants and give examples. [3]

PART-B**(50 Marks)**

- 2.a) Explain Zeolite process of softening water.
- b) What is reverse osmosis? Describe and write the advantages of reverse osmosis. [5+5]

OR

- 3.a) Write a note on Boiler corrosion.
- b) Explain EDTA complexometric method of determining temporary and permanent hardness of water. [5+5]
- 4.a) Explain construction and working principle of Quinhydrone electrode.
- b) What is electrochemical series? Give any two applications. [5+5]

OR

- 5.a) Explain electrochemical cell with example.
- b) Explain charging and discharging process of Lead acid storage cell with a neat diagram. [5+5]
- 6.a) What are biodegradable polymers? Write the preparation, properties and applications of polylactic acid.
- b) Differentiate between addition and condensed polymers. [5+5]

OR

- 7.a) Why vulcanized rubber is superior to non vulcanized rubber?
- b) Write preparation, properties and applications of Nylon-6, 6 and Dacron. [5+5]

- 8.a) Give an account of the analysis of coal by Proximate analysis.
b) Explain Fischer-Tropsch's process for synthesis of petrol. [5+5]

OR

- 9.a) Write an account on the Fractional distillation of petroleum.
b) What do you understand by knocking, octane and cetane rating? [5+5]
- 10.a) Write a note on cloud and pour point.
b) How composite materials are classified? What are their advantages? [5+5]

OR

- 11.a) Write a short note on porosity of refractory materials.
b) Explain the reactions involved in setting and hardening of Portland cement. [5+5]

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R16

Code No: 132AA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech I Year II Semester Examinations, August - 2018

ENGINEERING PHYSICS - II

(Common to EEE, ECE, CSE, EIE, IT, ETM)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A**(25 Marks)**

- 1.a) What is the physical significance of wave function? [2]
- b) What explains E- K curve? [3]
- c) What is the formation of extrinsic semiconductors? [2]
- d) Explain the working principle of PN junction. [3]
- e) Define Electric Susceptibility and Dielectric constant. [2]
- f) What is polarization? Mention types of polarizations in dielectrics. [3]
- g) Define Magnetic Susceptibility and magnetic field intensity. [2]
- h) What is levitation? [3]
- i) Why nonmaterial's exhibiting different properties? [2]
- j) Explain the influence of electromagnetic forces in nanoscience. [3]

PART-B**(50 Marks)**

- 2.a) Derive Schrodinger time independent wave equation.
 - b) Explain how Davission-Germer experiment is used to explain the existence of matter waves. [5+5]
- OR**
- 3.a) Derive an expression for energy levels of particle enclosed in one dimensional Potential box.
 - b) How band theory of solids leads to classification of solids in to conductors, semiconductors and insulators. [5+5]
- 4.a) Calculate the carrier concentration in intrinsic semiconductors.
 - b) Describe Solar cell with its I-V characteristics. [5+5]
- OR**
- 5.a) Explain the principle, construction, working of solar cell.
 - b) Sketch the energy level diagram of PN junction diode and explain open circuit PN junction. [5+5]

6.a) What is piezoelectricity effect? Describe the process to produce piezoelectric effect in quartz crystal.

b) Explain Ferroelectric effect. Describe the spontaneous polarization of BaTiO_3 . [5+5]

OR

7.a) Derive an expression for electronic polarizability in dielectrics.

b) Deduce the Clausius-Mosotti relation. [5+5]

8.a) Explain hysteresis curve with domain theory.

b) Explain superconductivity and discuss its applications. [5+5]

OR

9.a) Distinguish between Ferro, anti-ferro and Ferri magnetic materials.

b) Classify the magnetic materials as hard and soft on the basis of hysteresis loop. [5+5]

10.a) How do you synthesize the nonmaterial using Physical Vapor Deposition (PVD) method?

b) Explain surface to volume ratio and quantum confinement in nanomaterials. [5+5]

OR

11.a) Explain the working principle of Scanning Electron Microscope (SEM).

b) Mention the applications of nonmaterial's in Medicine and defence. [5+5]

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R15

Code No: 121AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B.Tech I Year Examinations, August – 2018****COMPUTER PROGRAMMING****(Common to CE, EEE, ME, ECE, CSE, EIE, IT, MCT, ETM, MMT, AE, AME, MIE, PTM, CEE, MSNT)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A**(25 Marks)**

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|------|--|-----|
| 1.a) | Define Type conversion and give an example. | [2] |
| b) | What is Operator Precedence in Expression Evaluation? | [3] |
| c) | List the applications of arrays. | [2] |
| d) | What are preprocessor commands? | [3] |
| e) | Explain array of strings. | [2] |
| f) | What is Pointer? Write down its applications. | [3] |
| g) | Write any two differences between structure and union. | [2] |
| h) | Explain file status functions. | [3] |
| i) | What are the drawbacks of linear search? | [2] |
| j) | List and explain the stack operations. | [3] |

PART-B**(50 Marks)**

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|-----------|---|-------|
| 2. | Explain the following operators:
a) Relational Operators
b) Bitwise Operators
c) Conditional Operator. | [10] |
| OR | | |
| 3.a) | Describe the procedure of creating and running a C program. | |
| b) | What is an Identifier? List the rules to declare and define an identifier. | [5+5] |
| 4. | What is meant by the scope of variables and explain the types of storage class in C? | [10] |
| OR | | |
| 5.a) | Write a C program to find the factorial of a given number using recursion. | |
| b) | What is an Array? Explain the representation and Indexing of Two-dimensional array. | [5+5] |

- 6.a) Explain briefly about the pointer arithmetic.
b) Write a C program to reverse a string without using `strrev()` function. [5+5]
OR
- 7.a) Describe briefly about the pointers to pointers with example.
b) Explain in detail about the String Input/output functions. [5+5]
8. Write a C program to create a marks sheet for students and calculate the average marks obtained by each student using Structures. [10]
OR
- 9.a) Explain in detail about the Enumerated types.
b) Differentiate between text and binary files in detail. [5+5]
10. Explain Binary Search method with an example. [10]
OR
11. What is Queue? Describe Enqueue and Dequeue operations of Queue. [10]

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