Code: 19A421T

I B.Tech. II Semester Supplementary Examinations August 2021

Electronic Devices and Circuits

(Common to EEE & ECE)

Max. Marks: 70   Time: 3 Hours

Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level

UNIT-I

| 1. | a) | Explain the importance of Stability factor in Amplifier circuits. | 7M | 1 | 2 |
| | b) | Discuss Heat Sinks with neat sketches. | 7M | 1 | 2 |

OR

| 2. | a) | Draw a fixed bias circuit and derive an expression for the stability factor 'S'. | 7M | 1 | 3 |
| | b) | With required equations explain how transistor acts as an Amplifier. | 7M | 1 | 2 |

UNIT-II

| 3. | a) | Explain construction, working principle and Characteristics of n-channel J-FET with neat sketches. | 14M | 2 | 2 |

OR

| 4. | a) | What do you mean by Trans conductance, Drain resistance and Amplification factor. | 7M | 2 | 1 |
| | b) | Find out Trans conductance of Common Source Configuration having its drain resistance r_d = 20 K Ohms and Amplification factor is 40. | 7M | 2 | 3 |

UNIT-III

| 5. | a) | Describe about the comparisons of transistor amplifier configurations | 7M | 3 | 2 |
| | b) | Explain in detail about the classification of amplifiers according to the different criterions | 7M | 3 | 2 |

OR

| 6. | a) | What is importance of an input impedance in the amplifier circuit? Explain. | 7M | 3 | 3 |
| | b) | Why ac load line is steeper than dc load line? | 7M | 3 | 1 |

UNIT-IV

| 7. | a) | Explain about JFET small signal modeling with necessary expressions. | 7M | 4 | 3 |
| | b) | Write a short note on AC Equivalent circuit for JFET. | 7M | 4 | 2 |

OR

| 8. | a) | Draw the circuit of a practical single stage transistor amplifier. Explain the function of each component? | 14M | 4 | 4 |

UNIT-V

| 9. | a) | Write short notes on Schottky Barrier Diode. | 7M | 5 | 2 |
| | b) | Outline the characteristics of Varactor Diode. | 7M | 5 | 2 |

OR

| 10. | a) | Draw the symbol of Tunnel diode. Explain the construction and tunneling phenomenon of Tunnel diode. Give its applications and explain in brief. | 14M | 5 | 5 |

END

Code: 19AC24T

I B.Tech. II Semester Supplementary Examinations August 2021
Engineering Chemistry
(Common to EEE & ECE)

Max. Marks: 70   Time: 3 Hours
Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)
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UNIT–I

1. a) What is glass electrode? How it is used to find pH of the solution?   7M
   b) What are the different types of electrodes or half cells?   7M
OR
2. a) Explain the construction and working principle of hydrogen electrode?   10M
   b) Describe the reactions involved in galvanic cell   4M

UNIT–II

3. a) What are the basic constituents of batteries   10M
   b) Define reserve battery with example.   4M
OR
4. a) Discuss the challenges in battery technology   7M
   b) Describe the applications of fuel cell   7M

UNIT–III

5. a) What are the advantages and disadvantages of solar cells?   8M
   b) What are the basic concepts of solar cell?   6M
OR
6. a) Describe the working principles of photovoltaic cell.   7M
   b) Discuss the Physical and Chemical properties of Silicon   7M

UNIT–IV

7. a) Write the preparation and properties of bakelite.   7M
   b) What is mean by functionality? Explain with suitable examples.   7M
OR
8. a) Explain the mechanism of cationic polymerization   10M
   b) Differentiate the chain growth and step growth polymerization   4M

UNIT–V

9. a) Write short notes on molecular machines & molecular switches   8M
   b) What are the various uses of nanomaterials?   6M
OR
10. a) Explain the mechanism of prototype motion of an acid-base molecular shuttle   10M
    b) Describe the Classification of nanomaterials   4M
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Code: 19AC25T

I B.Tech. II Semester Supplementary Examinations August 2021
Functional English and Life Skills
(Common to EEE & ECE)

Max. Marks: 70   Time: 3 Hours
Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)
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| | | Marks | CO | Blooms Level |

UNIT-I

1. What is author's attitude towards how one should behave with other people in "On the conduct of life"? Do you agree with his reasoning? Give reasons for your answer.   **14M   CO2   L2**

OR

2. a) **Identify the parts of speech of the underlined words in the following sentences**.
   i. Sudha sits **between** Saroj and Usman.
   ii. She **wen**t to the market and bought some eggs.
   iii. **Although** she is poor, she is happy.
   iv. The police man didn't run **fast** enough to catch the thief.
   v. I bought a **beautifu**l dress at the mall.
   vi. If we can finish work **quickly**, we can go to the movie.
   vii. What did **she** ask you to do?   **7M   CO3   L2**

   b) **Fill in the blanks with appropriate form of the verbs**
   i. These books _____ (belong/ belongs) to me.
   ii. She _____ (want/ wants) to go out there and play with friends.
   iii. We _____(visited/ have visited) him yesterday.
   iv. He _____ (recovered/ has recovered) completely.
   v. We _____ (will like/ would like) to visit the museum.
   vi. My brother _____ (enjoy/ enjoys) playing cricket.
   vii. Now he _____ (asks/ asking) questions to see if students have understood the lesson   **7M   CO3   L2**

UNIT-II

3. a) What are the various words the poet uses to describe the sound of the brook? How does it contribute to the effect of the poem?   **7M   CO1   L3**

   b) How did Shaw succeed in outwitting his opponents in St. James' Hall?   **7M   CO2   L3**

OR

4. a) **Fill in the blanks with suitable prepositions**
   i. He lives _____ 19 Tower Road.
   ii. Most are not very fond _____ going to wedding parties.
   iii. Because we have no car, we go everywhere _____ foot.
   iv. What is this called _____ English?
   v. I have known her _____ last year.
   vi. We had a picnic _____ the weekend.
   vii. The purse is _____ the pillow.   **7M   CO3   L2**

b) **Fill in the blanks with suitable transitional words**

   i. Promise me that you will phone me _____ you get to the airport.
   ii. He was so tired _____ he had stayed late to watch the football match.
   iii. He decided to buy a new car _____ having lost his job in the previous month.
   iv. I have to get this assignment in _____ the end of the day.
   v. _____ you stop eating so much chocolate you won't be able to fit in your suit.
   vi. _____ television can be educational; I think it's better to read books.
   vii. John promised to look after Sam's cat _____ she was on holiday.   7M   CO3   L2

<center>UNIT-III</center>

5. Describe the significance of "Time" in one's life in accordance with Seneca's letter" On Saving Time"   14M   CO2   L2

<center>**OR**</center>

6. a) **Fill in the blanks using the correct form of the verb given in brackets.**

   Besides encountering the strange aborigines, the first English settlers ……………1…………. (Find) themselves in the presence of new and wide variations of climate. In their old home, they …………………2……. (Accustom) to a moderate temperature. Now they ………………3………. (Have) before them a great range of climate from the cold coasts of Maine to the hot savannahs of Georgia, with all the gradations from the far North to the deep South. To the exigencies of these variations, all the immigrants, from the British Isles as well as the Continent …4……… (Have) to adapt themselves. Wherever the colonists set to work, they ………5……… (Brave) hostile weather conditions.   7M   CO3   L2

   b) **Fill in the blanks with the correct form of the verbs.**

   i. I __ (never come) across such a big snake in my life. What about you?
   ii. By Saturday next week, I __ (work) on this painting for exactly one month
   iii. By the year 2020, the population of London _____ (grow) substantially.
   iv. They were very tired in the evening because they ___ (help) on the farm all day.
   v. Do you know what time the 10:45 plane ___ (arrive) in Chicago?
   Change the following sentences into Indirect speech
   vi. John said, "I love this town."
   vii. "Don't waste your money" she said.
   viii. "I can't drive a lorry," he said.
   ix. Mike said, 'I will bring my piano.'   7M   CO3   L2
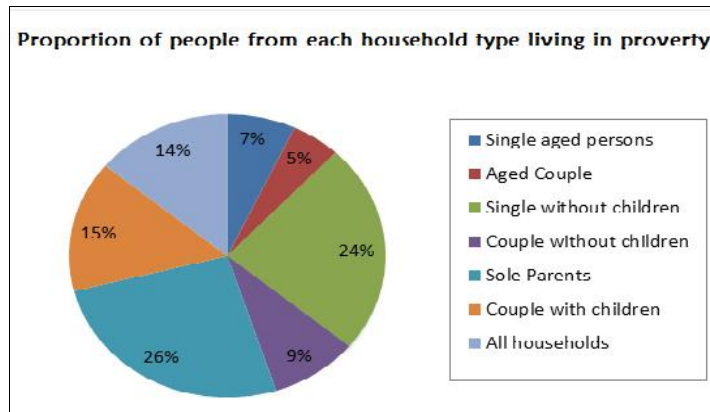
<center>UNIT-IV</center>

7. Bring out the instances which made Muhammad Yunus to use Micro-finance and Micro-credit to fight against poverty in Bangladesh?   14M   CO1   L2

<center>**OR**</center>

8. a) **The Pie-chart gives details on "Proportion of people from each household type living in Poverty". Summarize the information in at least 150 words**.

8M CO4 L4

b) **Complete the following sentences using the appropriate form of the adjective.**

    i. She is ………………… than her sister.(Pretty)
    ii. Supriya is the …………………… girl in the class.(Intelligent)
    iii. I am …………………. than you.(smart)
    iv. Take the ………………….. of the two routes.(short)
    v. This is the ………………… book I have ever read.(Interest)
    vi. She was ……………………… than I thought.(short)

6M CO3 L2

UNIT-V

9. What do you think of the rules George Orwell has given to improve language in the lesson "Politics and the English Language"? Would these help in making language simpler and easier to understand?

14M CO2 L2

OR

10. **Correct the following sentences**

    i. I have seen him yesterday.
    ii. We had gone to the movies last night.
    iii. I had spoken to them about my holiday.
    iv. You must attend your teacher's instructions.
    v. The hen has lain six eggs.
    vi. I have seen him a moment ago.
    vii. They discussed about the whole matter.
    viii. We are playing tennis every day.
    ix. He is sleeping for two hours.
    x. Neither of the boys have returned.
    xi. It is raining for two days.
    xii. I will call you when the dinner will be ready.
    xiii. He has returned from London last week.
    xiv. We had gone to the pictures last night.

14M CO3 L2

END

Code: 19A522T

R-19

I B.Tech. II Semester Supplementary Examinations August 2021
Programming through Python
(Common to EEE & ECE)

Max. Marks: 70   Time: 3 Hours
Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)
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			Marks	CO	Blooms Level

UNIT-I

1.	a)	Who invented python? Write what you know about python programming.	7M	CO1	L2
	b)	List out arithmetic operators in python and illustrate them with examples	7M	CO1	L2

OR

2.	a)	Write a program using while statements in Python	7M	CO1	L3
	b)	Explain about membership operators	7M	CO1	L2

UNIT-II

3.		What is a list in python? Explain about list in detail.	14M	CO2	L2

OR

4.	a)	Write a Python program using programmer-defined functions	7M	CO2	L3
	b)	Explain the concept of parameter passing for functions	7M	CO2	L3

UNIT-III

5.	a)	What is exception handling?	4M	CO3	L2
	b)	How to Catch and handle exceptions in Python	10M	CO3	L2

OR

6.	a)	Relate local, global, and built-in namespaces in python.	7M	CO3	L4
	b)	List some string methods and explain them	7M	CO3	L3

UNIT-IV

7.	a)	What is object oriented programming? Explain about object oriented concepts.	7M	CO4	L2
	b)	Define class and explain it with suitable example	7M	CO4	L2

OR

8.		Write a Python class named Student with two attributes student_id, student_name. Add a new attribute student_class and display the entire attribute and their values of the class	14M	CO4	L5

UNIT-V

9.		What is stack? Demonstrate stack operations with the example.	14M	CO5	L3

OR

10.		Explain in detail about the built in types for queue in python.	14M	CO5	L3

Code: 19AC21T

I B.Tech. II Semester Supplementary Examinations August 2021
Differential Equations and Vector Calculus
(Common to All Branches)

Max. Marks: 70   Time: 3 Hours

Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)
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		Marks	CO	Blooms Level

UNIT-I

			Marks	CO	Blooms Level
1.	a)	Solve $(D^2 + 5D + 6)y = e^x$	7M	CO1	L3
	b)	Solve $(D^2 + 4)y = \cos x$	7M	CO1	L3

OR

			Marks	CO	Blooms Level
2.		Solve $\dfrac{d^2 y}{dx^2} + 4y = \tan 2x$ by using method of variation of parameters.	14M	CO1	L3

UNIT-II

			Marks	CO	Blooms Level
3.		Solve $(2x-1)^2 \dfrac{d^2 y}{dx^2} + (2x-1)\dfrac{dy}{dx} - 2y = 8x^2 - 2x + 3$	14M	CO2	L3

OR

			Marks	CO	Blooms Level
4.		Solve $(1+x)^2 \dfrac{d^2 y}{dx^2} + (1+x)\dfrac{dy}{dx} + y = 2\sin[\log(1+x)]$	14M	CO2	L3

UNIT-III

			Marks	CO	Blooms Level
5.	a)	Form the partial differential equations by eliminating arbitrary functions from $z = f(x + at) + g(x - at)$	7M	CO3	L3
	b)	Solve $pyz + qzx = xy$	7M	CO3	L3

OR

			Marks	CO	Blooms Level
6.		Using the method of separation of variables, solve $\dfrac{\partial u}{\partial x} = 4\dfrac{\partial u}{\partial y} \; where \; u(0, y) = 8e^{-3y}$	14M	CO3	L3

UNIT-IV

			Marks	CO	Blooms Level
7.	a)	Find $grad \; f$ where $f = x^3 + y^3 + 3xyz$	7M	CO4	L2
	b)	Find the directional derivative of $w = x^2 - 2y^2 + 4z^2$ at (1,1,-1) in the direction of $2\bar{i} + \bar{j} - \bar{k}$.	7M	CO4	L2

OR

			Marks	CO	Blooms Level
8.		Prove that $\nabla^2(r^n) = n(n+1)r^{n-2}$	14M	CO4	L2

UNIT-V

			Marks	CO	Blooms Level
9.		Using Green's theorem evaluate $\oint_C (2xy - x^2)dx + (x^2 + y^2)dy$, where C is the closed curve of the region bounded by $y = x^2 \; and \; y^2 = x.$	14M	CO5	L3

OR

			Marks	CO	Blooms Level
10.		Use Stoke's theorem to evaluate $\int_C [(x + y)dx + (2x - z)dy + (y + z)dz]$ where C is the boundary of the triangle with vertices (2, 0, 0), (0, 3, 0) and (0,0,6).	14M	CO5	L3

****END***