Hall Ticket Number :										

R-17

Code: 7GC13

I B.Tech. I Semester Supplementary Examinations December 2020

Engineering Physics

(Common to EEE & ECE)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1.	a)	Discuss the working of He-Ne laser	7M
	b)	Summarize the applications of LASER	7M
		OR	
2.	a)	Differentiate Step-Index and Graded-Index optical fibers	7M
	b)	Brief the working principle of optical fiber	7M

UNIT–II

3.	a)	Differentiate SC with BCC	7M
	b)	Discuss the rules to find Miller Indices and find Miller Indices of a plane (2a,3b,2c)	7M
		OR	
4.	a)	Define ultrasonics and write its properties	7M
	b)	Describe the production of ultrasonics by Inverse Peizo electric effect	7M

UNIT–III

5.	a)	Describe Fermi-Dirac distribution function	7M
	b)	Write the sources of electrical resistance	7M
		OR	
6.		Derive Eigen energies of a particle in one dimensional potential box	7M

UNIT–IV

7.	a)	Explain Hall effect and write its applications	7M
	b)	What is photo diode explain it	7M
		OR	
8.	a)	Differentiate intrinsic and extrinsic semiconductors	7M
	b)	Explain direct and indirect band gap semiconductors	7M

UNIT–V

9.	a)	Define ferromagnet and explain the B-H loop	7M
	b)	Explain the production of nano materials by ball milling method	7M
		OR	
10.	a)	Justify magnetic moment by the origin of materials	7M
	b)	classify the ferromagnetics by hysteresis property	7M

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Hall Ticket Number :										

R-17

Code: 7G311

I B.Tech. I Semester Supplementary Examinations December 2020

Fundamentals of Electrical & Electronics Engineering

(Common to EEE & ECE)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

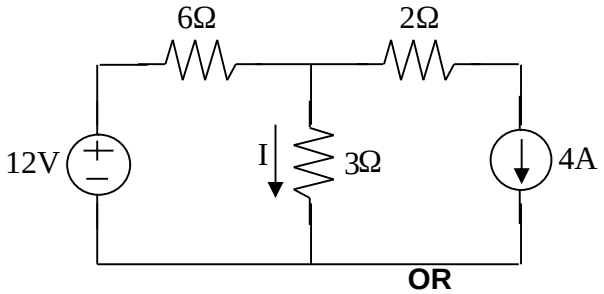
1. Write voltage, current, power and energy relations for the circuit elements given below.
   Resistor 2) Inductor 3) Capacitor

OR

2. Find the color codes for the resister values given below.
   a) 100Ω b) 470Ω c) 1KΩ d) 1MΩ

UNIT–II

3. Find the current 'I' using Kirchoffs Current Law (KCL)



OR

4. a) State and explain super position theorem.
   b) State and explain maximum power transfer theorem.

UNIT–III

5. Write short notes on
   a) Junction capacitance
   b) Temperature dependence on V-I characteristics of a PN junction diode.

OR

6. a) Draw and explain the energy band diagram of PN junction diode.
   b) Illustrate the function of Zener diode as a voltage regulator.

UNIT–IV

7. a) Derive the expression for ripple factor and efficiency for half wave and full wave rectifiers.
   b) Define the following
      i) Average current ii) RMS current iii) PIV

OR

8. Explain the operation of Bridge rectifier with neat diagrams and derive the expression for ripple factor and effiency.

UNIT–V

9. Explain the operation of PNP transistor with neat diagram.

OR

10. a) What is the function of multi meter? Explain it with neat diagram.
    b) What is DSO? Explain its operation.

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Hall Ticket Number :										

R-17

Code: 7G111

I B.Tech. I Semester Supplementary Examinations December 2020

Problem Solving Techniques and C Programming

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Give the block diagram of a computer. Explain functionality of each component.

   b) Write an algorithm to calculate the roots of a quadratic equation.

OR

2. Explain in detail about the software development method with suitable example.

UNIT–II

3. a) What is the need of explicit type conversion in C? How to cast the data?

   b) What is an integer constant, floating constant and character constant? Give valid examples.

OR

4. a) Describe the structure of a C program with example

   b) What are bitwise logical operators? Explain about bitwise logical operators with suitable programming example.

UNIT–III

5. a) How does a switch statement works? List the difference between switch and if else ladder statement.

   b) Write a program to demonstrate ‘goto’ statement.

OR

6. a) Write ‘C’ program to print the Fibonacci sequence.

   b) Explain the significance of ‘break’ and ‘continue’ statement with a sample program.

UNIT–IV

7. Write a C program to perform the operation of addition of two matrices.

OR

8. What are the different types of arrays in C? Explain with a suitable example, array declaration, initialization and accessing of the elements for these different types.

UNIT–V

9. What is the scope of variables of type extern, auto, register and static? Explain with example.

OR

10. What is a function? What are its advantages? Explain various parameter passing techniques.

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