Roll No. 2 0 2 1 0 2 1 0 1 6

BCS - 151

B. Tech. (CSE)
Year: 1st Semester: II
Test-I (Examination): 2021-2022
INTRODUCTION TO C PROGRAMMING

Time: 1 Hr. **Max Marks: 10**

Note: Attempt ALL questions. Each question carries equal marks.

Q1.		Attempt any two parts of the following. Q. 1(a) is compulsory.	Marks	CO	BL	PO	PI Code
	a)	What are different types of errors occurred during the execution of C program. Write a C program to check whether an alphabet is vowel or consonant using switch case.	3	1,2,3	1,2,3	1,2,3	1.4.1
	b)	Define flowchart and algorithm. Write an algorithm for Fibonacci series (0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89….).	2	1, 2	1,2	1,2	1.4.1
	c)	Write a C program to find greatest common divisor (GCD) of two numbers using ternary operator and for loop?	2	3	2,3,4	2,3	1.4.1
Q2.		**Attempt any two parts of the following. Q. 2(a) is compulsory.**					
	a)	Write a C program to remove characters from the first string which are present in the second string.	3	3	2,3,4	1,2,3	1.4.1
	b)	Write a C program to print diagonals elements of a matrix.	2	3	2,3,4	2	1.4.1
	c)	Define recursive function and its types. Write a C function for swapping two integers where a function call is passed with two integers m and n.	2	4	1,2,3	1,2	1.4.1

BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes

PO – Program Outcomes

PI Code – Performance Indicator Code

BCS - 152

Roll No. 2 0 2 1 0 2 1 0 1 6

B. Tech. (Computer Science & Engineering)
Year: I^st Semester: II^nd
Test-I (Examination): 2021-2022
Web Designing - 2

Time: 1 Hr. Max Marks: 10

Note: Attempt ALL questions. ALL questions carry equal marks.

Q1.		Attempt any Two parts of the following. Q. 1(a) is compulsory. (Units-I)	Marks	CO	BL	PO	PI Code
	a)	What is Node .js? Explain the features of Node .js and Explain the callback concept in detail.	3	CO2	L1	1	1.4.1
	b)	Explain the components of Node .js Application. How to display all files in a directory using Node.js?	2	CO2	L2	1,2	1.4.1
	c)	Explain Node .js Modules and its type. How to Create Modules in Node.js? Explain with Example.	2	CO2	L2	1	1.4.1
Q2.		**Attempt any Two parts of the following. Q. 2(a) is compulsory. (Units -II)**					
	a)	What is Express JS and its key feature? What is routing and how routing works in Express.js?	3	CO3	L3	1,2	1.4.1
	b)	What is Middleware in express.js? Explain the function and types of Middleware.	2	CO2	L2	1,2	1.4.1
	c)	How to implement JWT authentication in Express app ? Explain with an Example?	2	CO3	L3	1	1.4.1

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CO - Course Outcomes
PO - Program Outcomes
PI Code - Performance Indicator Code

BEC-154

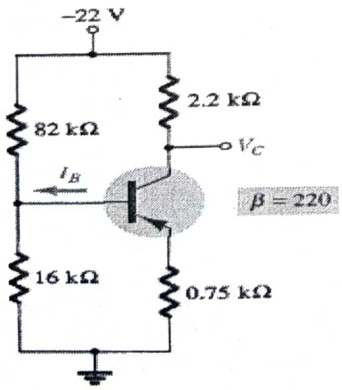
Roll No. 2021021016

B. Tech.
EVEN SEMESTER (SEM-II)
TEST- 1 EXAMINATION 2021 - 2022

Basic Electronic Components and Circuits

Max. Marks: 10

Time: 1 Hrs.
Note: Attempt all questions.

Q. No.	Questions	Marks	CO	BL	PI
1.	Attempt any **two** parts of the following. Q1(a) is compulsory.	**05**			
1(a)	With the help of suitable diagrams, discuss the principle operation of the PN junction diode for following configurations: (i) No biasing (ii) Forward biasing (iii) Reverse biasing	3	CO1	L1, L2	1.3.1
1(b)	Write short notes with the suitable diagram on: Intrinsic & Extrinsic Semiconductor	2	CO2	L3,L4	1.3.1
1(c)	Discuss the basic concept of energy band bands in the material. Point out the basic characteristics of semiconductor materials.	2	CO1	L1,L2	1.3.1
2.	Attempt any **two** parts of the following. Q2(a) is compulsory.	**05**			
2(a)	Describe the basic working principle of NPN transistor and discuss about the CE configuration of it.	3	CO2	L3,L4	1.3.1
2(b)	If the base current in a transistor is 30 μA when the emitter current is 7.2mA, what are the values of α and β? Also calculate the collector current.	2	CO4	L2,L3	1.3.1
2(c)	 Determine I_B, I_C, I_E, V_{CE}, V_C, V_E and V_B for the network of Fig. 2.	2	CO4	L1,L2	1.3.1

CO = Course Outcomes (as per the syllabus made for BEC-154 according to NEP)
BL = Bloom Taxonomy (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 –Evaluating, 6 – Creating)
PI- Program Indicator (Reference to Examination Reform AICTE (Page 15) – Program Outcome-1.3 Demonstrate competence in engineering fundamentals, Program Indicator- 1.3.1 Apply fundamental engineering concepts to solve engineering problems)

Sub. Code: BSM-156

Roll No. 2 0 2 1 0 2 1 0 1 6

B. Tech.
Year: First Semester: Second
Minor Test-I (Examination): 2021-2022
Applied Statistics and Probability

Time: 1 Hr. **Max marks:20**

Note: Attempt ALL questions. ALL questions carry equal marks.

		Marks	CO	BL	PO	PI Code
Q1.	**Attempt any Two parts of the following. Q. 1 (a) is compulsory.**					
a)	Calculate the first four moments of the following distribution about the mean and hence find β_1 and β_2.	6	2,6	1,5	1,3,5	
b)	The marks obtained by 10 students in mathematics(x) and statistics(y) are given below. Find the coefficient of correlation between x and y.	4	2,5	1,3	1,3	
c)	Find the moment generating function given that $P(X=r) = pq^{r-1}$, r=1,2,3.... Hence also find mean and variance.	4	2,5	1,3	1,5	
Q2.	**Attempt any Two parts of the following. Q. 2 (a) is compulsory.**					
a)	Obtain the equation of lines of regression for the data given and then find the Karl Pearson's coefficient of correlation.	6	2,6	1,3,5	1,5	
b)	Fit the curve $y=ax^b$ for the following data;	4	3,6	1,3	1,2	
c)	Prove that (i) $\sigma_{x-y}^2 = \sigma_x^2 + \sigma_y^2 - 2r\sigma_x\sigma_y$ (ii) If the coefficient of correlation between two variables x and y is 0.5 and acute angle between their lines of regression is $\tan^{-1}\left(\frac{3}{5}\right)$. Show that	4	2,6	2,4,5	5	

$\sigma_x = 2\sigma_y$

X	0	1	2	3	4	5	6	7	8
f	1	8	28	56	70	56	28	8	1

X	75	30	60	80	53	35	15	40	38	48
Y	85	45	54	91	58	63	35	43	45	44

X	6	2	10	4	8
Y	9	11	5	8	7

X	1	2	3	4	5
Y	0.5	2	4.5	8	12.5

BSM-179

Roll No. 2 0 2 1 0 9 1 0 1 6

B. tech-1st Year
(SEM-II) Even Semester
TEST-1 (EXAMINATION) 2021 - 2022

Quantum Physics and Nanomaterials

Time: 1 Hrs. Max. Marks: 10

Note: Attempt all questions.

			Marks	CO	BL	PO	PI Code
Q.1		**Attempt any two parts of the following. Q.1(a) is compulsory.**					
	(a)	Define Specific heat capacity and derive the Specific heat formula using Debye's theory.	3	1	1	1	
	(b)	Find out the dispersion relation of 1-dimensional monoatomic lattice and show that it acts like a low pass filter in long wavelength limit.	2	1	3	1	
	(c)	Discuss the properties of paramagnetic and ferromagnetic materials. Write down the Curie-Weiss law for ferromagnetic materials.	2	1	1	1	
Q.2		**Attempt any two parts of the following. Q.2(a) is compulsory.**		1		1	
	(a)	Draw the circuit diagram of common emitter amplifier using n-p-n transistor. Explain how it amplifies a weak signal.	3	2	2	1	
	(b)	Write down the truth table of OR, NAND and NOR gates. Also draw their logical symbol.	2	4	1	1	
	(c)	Find the equilibrium electron and hole concentration and locate the fermi level with respect to intrinsic level in silicon at T = 300 K. Given that $N_d = 8\times10^{16}$ /cm^3, $n_i = 1.5\times10^{10}$ /cm3 and Na $=2\times10^{16}$ /cm^3.	2	2	5	1	

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