SET-III

HOD Official Email id: hodconfi.csea@igitsarang.ac.in

Phone Nos.:

(a) HOD: 9861414972

(b) Controller of Examination: 9861110442

Total Number of Pages: 02	**BTECH**
	Subject Code: ESCS2105
1st Semester Regular Examination May2021	
Subject Name: Programming language using C	
Branch: CHEM/CSE/ETC/METT/PROD	
Time: 2 Hours	
Max Marks: 60	
Question Code:	
All the questions are compulsory	
The figures in the right-hand margin indicate marks.	
Students are requested to email a good quality scanned copy of the Answer Booklet (single PDF file) to your HOD.	

Q1	Find the output of the following bit questions with justification briefly.
	a. void main()
	{ printf("\nHelo");
	printf("\bHi");
	printf("\rBye"); }
	b. int main()
	{ int n;
	for(n = 7; n>=0; --n)
	printf("n = %d", --n); }
	c. #define square(x) x*x
	int main()
	{ int x = 49/square(7);
	printf("%d", x); }
	d. int main()
	{ static int i=5;
	if(--i){
	main();
	printf("%d ",i); } return 0;}
	e. What will be the output of the following command line C code (if run with no options or arguments)?
	int main(int argc, char *argv[])
	{ printf("%d\n", argc);
	return 0; }
		(5X2=10)

Q2	Draw a flowchart and write an algorithm to check whether a given integer number is a prime number or not.	**(10)**

Q3	c. Subtract these two binary numbers using 1's and 2's complement method 100001.110101(minuend) , 1011111.110(subtrahend) b. Subtract these two decimal numbers using 9's and 10's complement method 34234.89(minuend),1345.6869(subtrahend)	**(2X5)**
Q4	Write a program in C to find the factorial of five numbers using recursion.	**(10)**
Q5	Using a user defined string handling function "String /Token" to extract the city code from a telephone number given in the following format: +914522000000(here the first three digits, will be country code, nest three digits will be city code and the rest of the digits will be the telephone number.	**(10)**
Q6	Write a program in C to read the details of a student from a file and then print it on the screen.	**(10)**

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HOD Official Email id: hod.physics@igitsarang.ac.in

Phone Nos.:

(a) HOD: 9437528149

(b) Controller of Examination: 9861110442

Total Number of Pages: 02		**BTECH**
		Subject Code: BSPY1102
1st Semester Regular Examination May 2021		
Subject Name: Physics		
Branch: CSEA/CHEM/METT/PROD/ETC		
Time: 2 Hours		
Max Marks:60		
Question Code:		
All the questions are compulsory		
The figures in the right-hand margin indicate marks.		
Students are requested to email good quality scanned copy of the Answer Booklet (single PDF file) to your HOD.		
Q1(a)	What is D'Alembert's principle, explain it.	**(5)**
(b)	The 1st focal length of a zone plate is 1.2m, for wave length 6000 A^0.Determine the radii of the 1st and 2nd transparent zones.	(5)
Q2(a)	Write the Maxwell's electromagnetic equations in free space in presence of charges and currents. Name each symbol used in the equation.	**(5)**
(b)	The surface area of a sphere of radius 'a' is given to be $4\pi a^2$.Use Gauss divergence theorem to evaluate the volume of the sphere.	(5)
Q3(a)	What is forced oscillation? Set up a differential equation for it.	**(5)**
(b)	A simple harmonic oscillator of mass 10 g is subjected to a restoring force, of force constant 90 dyne/cm. Find the time periods of oscillator. If it is subjected to a damping force proportional to velocity, what is the maximum value of damping constant for which the motion will remain oscillatory?	**(5)**
Q4(a)	Explain with the help of a neat diagram the working of a Ruby laser.	**(5)**
(b)	What is an Optical fiber? Define and explain the terms(i) Attenuation (ii) Numerical aperture.	**(5)**
Q5(a)	Solve the schrodinger's time independent equation to find energy eigen values of a free particle.	**(5)**
(b)	A particle of mass 0.2 mg is in one-dimensional potential well of width 1mm.Find	**(5)**

	the (i) ground state energy and (ii) energy gap between n=9 and n=10 levels.	
Q6	Write shot notes on any two: (a)Faraday's law of electromagnetic induction (b) Zone plate (c) Couple Oscillation (d)Acceptance angle and acceptance cone	**(5x2)**