J.S.University

Assignment For B.Tech 1stsem.

The Assignment will consist of two parts, A and B. Part A will have 5 short answer questions(40-60 words) of 4 marks each. Part B will have 2 long answer questions of 10 marks each

All questions are compulsory.

These Assignments should be completed and submitted in written form by the student to his/her respective Faculty/Examiner. Assignment Submission Dates are:Dec-2023

List Of Suggested Questions

The list of suggested questions are for students to practice. Although optional, we recommend that students solve these questions, as they will help them in preparing for exams as well as in clearing the important concepts of the subject.

List of Practicals and suggested practicals

The list of practical's should be done by the students in their Lab Sessions. These are the basic practical's, which each student should be able to do himself independently. While the list of suggested practicals are optional, but it is recommended that students should perform those practical so as to have a thorough knowledge of the subject

Education Delivery Schedule (EDS)

As per University Semester scheme, the minimum contact hours of each paper has been Divided into two hours theory and practical class. The faculty will maintain this attendance paper wise for his/her batch.

Assignments will be completed by the Student in his/her own handwriting.

J.S. UNIVERSITY

Cover page of Assignment

ID NUMBER	
NAME	
COURSE	B.Tech
STREAM	
SEMESTER	
SUBJECT CODE	
SUBJECT NAN	1E

BTAS-13

ENGINEERING PHYSICS-I

PART A

- 1. What are inertial and non-inertial frames of reference ?
- 2. A meson has a speed 0.6c with respect to ground and its time of flight with respect to in the rest frame is 2×10-8s2×10-8 then what is the time of flight observed with respect to itself ?
- 3. In a photoelectric effect experiment the threshold wavelength of light is 380 nm. If the wavelength of incident light is 260 nm,then what is the maximum kinetic energy of emitted electrons $E(in eV) = [1237/\lambda(in nm)]$?
- **4.** The work function of a substance is 4.0 ev.then what is the longest wavelength of light that can cause photoelectron emission from this substance ?
- 5. (i) The refractive index of glass is 1.5. What is the speed of light in glass? The speed of light in a vacuum is (3.0 x 10⁸ m s⁻¹)
 (ii) Is the speed of light in glass independent of the colour of light ? If not,

which of the two colours, red and violet, travels slower in a glass prism?

PART B

- 1. In Young's double-slit experiment, the slits are separated by 0.28 mm, and the screen is placed 1.4 m away. 1.2cm is the distance between the central bright fringe and the fourth bright fringe. Determine the wavelength of light used in the experiment.?
- 2. A beam of light consisting of two wavelengths, 650 nm and 520 nm, is used to obtain interference fringes in Young's double-slit experiment.
 - a) Find the distance of the third bright fringe on the screen from the central maximum for wavelength 650 nm.
 - **b**) What is the least distance from the central maximum where the bright fringes due to both wavelengths coincide?

BTME-11 ENGINEERING MECHANICS PART -A

- 1. What is static equilibrium and dynamic equilibrium?
- 2. A given object takes n times as much time to slide down at 450 rough incline as it takes to slide down a perfectly smooth 45^{0} incline. What is the coefficient of kinetic friction between the object and the incline plane.?
- **3.** From a uniform circular disc of radius R and mass 9 M, a small disc of radius R/3 is removed, as shown in the figure. Calculate the moment of inertia of the remaining disc about an axis perpendicular to the plane of the disc and passing through the centre of the disc.



- **4.** A car starts from rest and in 30 seconds attains a speed of 50 m/s. Then, it travels at the same speed for 20 seconds. Find the total distance travelled, acceleration and distance travelled during acceleration.?
- **5.** A car moving with a speed of 120Km/h along a straight highway and is brought to rest within a distance of 150m. How long does it take for the car to stop? Also, calculate the retardation of the car.?

- 1. In a factory four bulbs of 100 W each and five fans of 110 W each operate for 12 hours daily. Calculate the units of electricity consumed? Also find the total expenditure if one unit costs 2.50 rupees?
- 2. What are the distinctive speculations of disappointment under the static burden? Clarify using your words.

BTCS-11

COMPUTER SYSTEM AND PROGRAMMING IN C

PART-A

1. Write a C program to count and print the number of words in a given

string.

- **2.** Write a program in 'C' language to implement Bubble Sort.
- **3.** Write a program in 'C' language that accepts a file as input and prints the lines of that file in reverseorder to standard output. That is, first line will be printed as last line, second line will be printed as last but one line Make and list any assumptions word.
- **4.** Write a program in `C' language that accepts a Matrix as input and prints the sum of all integers ondiagonal to standard output. Make necessary assumptions.
- 5. Write a program in 'C' language that accepts a string as input and prints the number of vowels in it.

- 1. What is a sparse matrix ? Explain row-major order and column-major order with an example.
- 2. How can array elements be accessed using pointers in C ? Give example.

BTAS-14

ENVIRONMENT AND ECOLOGY

PART-A

- **1.** Explain the operation of rapid sand gravity filters using a neat sketch.
- 2. Differentiate between type-I and type-II settling processes used in water treatment.
- 3. Describe the different types of hardness present in water. How are they removed ?
- **4.** Explain the self-purification process of surface water.
- 5. Explain the processes of coagulation and flocculation used in water treatment.

- **1.** Discuss the relative merits and demerits of various disinfectants used in water treatment.
- 2. Describe the different types of distribution reservoirs used in a water distribution system.

BTAS-12 ENGINEERING MATHS-I PART-A

1. IF A = $\begin{bmatrix} 4 & -2 \\ 7 & 0 \end{bmatrix}$ and B = $\begin{bmatrix} 3 & 5 \\ 2 & -3 \end{bmatrix}$, Then find the Product of A and B.

2. Find the Eigen Value of Matrix,

$$\mathbf{A} = \begin{bmatrix} 4 & 6 & 10 \\ 3 & 10 & 13 \\ -2 & -6 & -8 \end{bmatrix}$$

- **3.** Find the Partial derivative of $f(x,y) = x^2 y + \sin x + \cos y$.
- 4. Let x (u,v)= u^2-v^2 , y = (u,v) = 2uv. Find the jacobian J(u,v).
- 5. What are Derivatives ? What is differential equation ?

PART B

- **1.** Solve the function $\iint x \cdot \log x \, dx dy$.
- 2. Difination and Proof that of Divergence theorem?

BTAS-11 COMMUNICATION SKILLS

PART-A

- 1. What is communication ? Write the process of communication.
- 2. What is written communication ? Give its advantages and disadvantage .
- 3. Gives in detail of importance of communication in business.
- 4. Describes barriers to communication .
- 5. What is principles of effectives communications ?

- 1. What is verbs? Write its classification.
- 2. Give 10 idioms and phrase with example.