

# **J S UNIVERSITY**

## **ASSIGNMENT FOR DIPLOMA IN CIVIL 2 ND SEM.**

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

**All questions are compulsory.**

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

### **List Of Suggested Questions**

The list of suggested questions is 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 Practical and suggested practical's**

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.

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<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>
DME 1	<b>SUB-APPLIED MATHEMATICS – II</b>
DME 2	<b>SUB- APPLIED PHYSICS-II</b>
DME 3	<b>SUB-APPLIED CHEMISTRY-II</b>
DME 4	<b>SUB-APPLIED MECHANICS</b>
DME 5	<b>SUB- ENGINEERING DRAWING – II</b>
DME6	<b>SUB- GENERAL WORKSHOP PRACTICE – II</b>

**Cover page of Assignment**

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\_ID NUMBER .....

NAME .....

COURSE DIPLOMA.....

STREAM CIVIL .....

SEM 2 ND .....

SUBJECT CODE .....

SUBJECT NAME .....

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

## SUB-APPLIED MATHEMATICS – II

### PART-A

**Q.1** Find the maximum and minimum value of  $2 \sin \theta - 3 \cos \theta$ .

**Q.2** Define even and odd function with example.

**Q.3** Prove that  $\sec^2 \theta - \operatorname{cosec}^2 \theta \geq 4$

**Q.4** If  $\tan(A+B) = P$ ,  $\tan(A-B) = Q$  then show that  $\tan 2A = (p+q)/(1-pq)$

**Q.5** If  $\cos(\alpha+\beta) = \frac{4}{5}$  and  $\sin(\alpha-\beta) = \frac{5}{13}$  and  $\alpha, \beta$  lie between  $0$  and  $\pi/4$ , prove that

$$\tan 2\alpha = \frac{56}{33}.$$

### PART-B

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**Q.1** If the equation of the two diameter of a circle are  $x-y=5$  and  $2x+y=4$ , the radius of the circle is 5, find the equation of circle.

**Q.2** Prove that  $\frac{\sec 8\theta - 1}{\sec 4\theta - 1} = \frac{\tan 8\theta}{\tan 2\theta}$

## SUB- APPLIED PHYSICS-II

### PART-A

**Ques-1** What is total internal reflection (TIR)? Explain one of its applications.

**Ques-2** Write the properties of electric lines of force.

**Ques-3** What are the differences between EMF and potential difference of a cell?

**Ques-4** State Lenz's laws in electromagnetic induction.

**Ques-5** State Kirchhoff's laws.

### PART-B

**Ques-1** State and prove Gauss law.

**Ques-2** Derive lens formula for thin convex lens in case of real image.

## SUB-APPLIED CHEMISTRY-II

### PART-A

**Ques-1** Differentiate between an orbit and orbital.

**Ques-2** What are electrolytes and non-electrolytes?

**Ques-3** Define chemical bond. What is the cause of chemical combination?

**Ques-4** What are the advantages of long form of periodic table?

**Ques-5** How will you define indicator, titration and end point?

### PART-B

**Ques-1** a) Name and explain the quantum numbers?

b) Explain the process of electroplating?

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- Ques-2.** a) Explain molarity, normality and molality?  
b) Write a short note on aufbau principle and hund's rule?

## **SUB-APPLIED MECHANICS**

### **SEM SECOND**

#### **PART-A**

**Ques-1** What do mean by force? Explain Force system.

**Ques-2** Define triangle law of forces and lami's theorem.

**Ques-3** Establish a relation between efficiency, mechanical advantage and velocity ratio of a machine.

**Ques-4** Where the C.G. does lies of sphere, circular cone, and right circular cylinder?

#### **PART-B**

**Ques-1** Find centroid of I section whose dimensions are

Top flange = 10cm x 2.5cm

Web = 10cm x 2.5cm

Bottom flange = 15cm x 2.5cm

**Ques-2** . Coefficient of friction between a body of weight 200N and horizontal plane on which it rests is 0.35

- a) Calculate horizontal surface which acting upon the body just cause it to slide.  
b) If body is loaded with additional weight of 150N, calculate the least horizontal force which causes the body to slide.

## **SUB- ENGINEERING DRAWING – II**

#### **PART-A**

**Ques-1** Draw a plain scale to show metres and decimeters when 1 metre is represented by 2.5 centimetres. The scale should be long enough to measure upto 5 metres. Mark a distance of 4 metres and 3 decimeters on the scale.

**Ques-2** What is the difference between third angle and first angle projection?

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**Ques-3** A point L is placed in first Quadrant. It is 60 mm above H.P. and 20 mm in front of V.P. draw its projections.

**Ques-4** What is RF and how it is calculated? What are Plain Scales?

## **PART-B**

**Ques-1** Write the following sentence in free hand taking the height of letter as 8 mm.

**INDIA IS A SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC**

**Ques-2** Draw the conventional representation/symbol for any five of the following:

Hidden Line, Dimension Line, Short Break Line, Lead, Steel, Wood.

## **SUB- GENERAL WORKSHOP PRACTICE –II**

### **PART-A**

**Ques-1** Write short note on the following.

- i. Laser beam welding with the help of neat sketch. What are the applications of laser beam welding?
- ii. Ultrasonic welding and its applications.

**Ques-2.** Discuss the principle, working and application of die casting.

**Ques-3** Write short note on the following.

- a) Submerged arc welding
- b) Flux shielded arc welding

**Ques-4** What do you understand by wire drawing and how does it differ from Extrusion?

### **PART-B**

**Ques-1** . What do you mean by pattern? Why patterns are used? Explain their functions.

**Ques-2** Explain the different types of defects in welded joints.