

# **Sai Nath University**

## **Assignment For Diploma in AUTOMOBILE Engineering II<sup>ND</sup> Sem.**

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/ Examiners. Assignment Submission Dates are:

➤ June-18

### **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 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.

## **Subject Code**

## **Subject Name**

DEAE-201

Engg. Mathematics II

DEAE-202

Information Technology Applications

DEAE-203

Manufacturing Process

DEAE-204

Workshop Practice

DEAE-205

Basic Electronics Practical

DEAE-206

Basic Workshop Practice



## **SAI NATH UNIVERSITY**

### **Cover page of Assignment**

ID NUMBER .....

NAME .....

COURSE Diploma Engineering.....

STREAM AUTOMOBILE.....

SEM 2<sup>ND</sup> .....

SUBJECT CODE .....

SUBJECT NAME .....

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

## DEAE-201

### [Mathematic-II]

#### Part A

1. Evaluate :  $\int \sin 3x \sin 4x \, dx$
2. Find the semi-interquartile range of the daily wages (in T) of 7 persons given below :  
12, 7, 15, 10, 19, 17, 25
3. If  $x = -1 + i\sqrt{2}$ , find the value of  $x^4 + 4x^3 + 4x^2 + 1$ .
4. Find the equation of the tangent of the ellipse  $4x^2 + 9y^2 = 72$  at (3, 2).
5. A particle moving in a straight line traverses a distance  $x$  in time  $t$ . If  $t = \frac{1}{2}x^2 + x$ , then find its velocity..

#### Part B

1. particle moves in a straight line and its velocity  $v$  at time  $t$  seconds is given by  $v = (3t^2 - 4t + 5)$  cm/sec. Find the distance travelled by it during the first 3 seconds after the start.  
.
2. find the area of the triangle bounded by the line  $4y - 5x = 0$ , the  $x$ -axis and the ordinate  $x = 4$ , by the method of integration. Verify your result by using the formula-  
Area of triangle =  $\frac{1}{2} \times \text{base} \times \text{altitude}$ .

**DEAE-202**  
**[Information Technology Applications]**  
**Part A**

1. Differentiate between Hardware and Software.
2. Distinguish between High Level Languages and Low Level Languages.
3. Explain the following terms :
  - (a) Primary Memory
  - (b) Secondary Memory
  - (c) ISDN
  - (d) E-mail
4. (a) Explain the MS Excel Toolbars with functions  
(b) Explain MS PowerPoint.
5. Explain the Generations of Computers.

**Part B**

1. Explain the different components of a CPU.
2. Explain the following terms :
  - Footer
  - Alignment
  - LAN
  - MAN
  - WAN
  - Hibernate
  - Paintbrush.

**DEAE-203**  
**[Basic Electronics]**  
**Part A**

1. Define electronics and write about its application.
2. Explain the existence of various electron energy bands in solids. Based on these bands distinguish between insulators, conductors and semiconductors.
3. Describe with the help of a diagram, the principle and working of a zener diode.  
Why is zener diode used in voltage regulator circuit ?
4. What is a transistor ? Explain input and output characteristics of an NPN transistor in a common base configuration.?
5. The current gain of a transistor in a common base arrangement is 0.95. Find the voltage gain and power gain, if the load resistance of the output circuit is  $500\text{ k}\Omega$  and input resistance is  $100\Omega$ .

**Part B**

1. Explain half wave and full wave rectifier.
2. What is the fundamental difference between Audio amplifier and Tuned amplifier.

**DEAE-204**  
**[Workshop Practice]**  
**Part A**

1. Differentiate between Dead Centre, Live Centre and Revolving Centre used in Lathe Machines.
2. Explain the process of electric arc welding with a neat sketch.
3. Describe about seal. What is static seal, dynamic seal and oil seal?
4. Write with neat diagram about Sliding contact bearings and Solid journal bearing.
5. Write short notes on any two of the following :
  - (a) Oldham's coupling
  - (b) Sunk key
  - (c) V belt drive
  - (d) Chain drive

**Part B**

1. What is gear train? Write about simple, compound and reverted gear train.
2. What is drilling? Describe with neat sketch about power drill machine.

**DEAE-205**  
**[Basic Electronics Practical]**  
**Part A**

1. Describe with the help of a diagram, the principle and working of a zener diode.  
Why is zener diode used in voltage regulator circuit ?
2. Explain base width modulation (early effect) with the aid of plots of potential and minority carrier concentration throughout the base region.
3. Compare the characteristics of a transistor amplifier in the three possible configurations.
4. Why are the transistor amplifiers always operated above knee voltage region ?  
State various methods of improving stability.
5. Sketch the cross-section view of an enhancement mode MOSFET. Explain its operation and characteristics.

**Part B**

1. Distinguish between JFET and MOSFET from construction and drain characteristic point of view.
2. Write short notes on any three of the following :
  - (a) LDR
  - (b) CMOS and its application
  - (c) Channel Length Modulation
  - (d) Biasing of BJT



**DEAE-206**  
**[Practical Work Shop]**  
**Part A**

1. Name three fluxing agents used in soldering operation. Give their uses.
2. What is 'Press Forging' ? Explain in brief.
3. What are the common tests performed on 'Foundry Sand' ? Write in detail about any two of them.
4. What are the main constituents of an oil paint ? Describe it in brief.
5. Mention the use of 'Tong' in forging. Sketch any one of the chisels.

**Part B**

1. Sketch and describe the working principle of 'Submerged Arc Welding'. Explain 'Torch' used in cutting of metals.
2. Enlist the different types of 'Measuring Tools' used in a fitting shop. Describe any two of them with neat sketches.