Sai Nath University

Assignment For Diploma in Automobile Engineering 3st 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:

➢ Nov-17

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-301	Engineering Mathematics 3
DEAE-302	Applied Mechanism
DEAE-303	Electrical Technology
DEAE-304	Engineering Graphics
DEAE-305	Strength of Material
DEAE-306	Practical Mechanics
DEAE-306	Practical S.O.M

SAI NATH UNIVERSITY

Cover page of Assignment

ID NUMBER   ……………………………………….

NAME   ……………………………. …………

COURSE   Diploma Engineering……………………

STREAM   Automobile………………………………

SEM   3ST………………………………………..

SUBJECT CODE   ………………………………………..

SUBJECT NAME   ………………………………………..

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

DEAE-301
Engineering Mathematics-3
Part A

1. Find the local maximum and local minimum, if any, for the function

F(x)=sinx+cosx, $0<x<\pi/2$.

2. Find points at which the tangent to the curve y=x^3-3x^2-9x+7 is parallel to x-axis.

3.Derive the derivative :-

$\qquad$ (a) y= sin(logx^2+9x+1)

$\qquad$ (b)y = sinx^{cosx}+cosx^{sinx}

4. Differentiate $\dfrac{(3x2+2x+5)}{\sqrt{x}}$

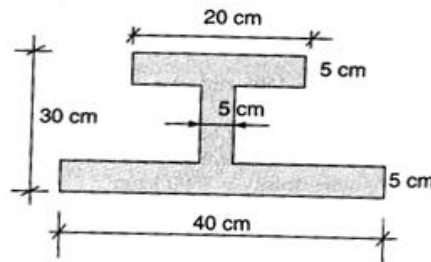5. Find the first and second partial derivative od z=x^3+y^3-3axy.

Part B

1. $\int_0^a \dfrac{x^7}{\sqrt{a-x^2}^2}dx$

2.Form the differential equation of the family of curves represented by the equation
(2x+a)^2+y^2=a^2.

DEAE-302
Applied Mechanism
Part A

1. : Find the area moment of inertia about the centroidal axes for a given area shown in the

2. State and prove the parallel axis theorem.
3. Distinguish between area moment of inertia, polar moment of inertia and mass moment of inertia.
4. State any two important laws of friction?

Part B

1. : What is centroid of a **(a)** rectangle **(b)** triangle with respect to base **(c)** triangle with respect to apex?
2. : Define the terms: coplanar parallel forces, like parallel forces and unlike parallel forces.

DEAE-303
Electrical Technology

Part A

1 Define KVL & KCL with proper diagram ?

2 Explain electrostatics & law of electrostatics ?

3 Define frequency & time period with proper diagram & unit ?

4 Connect the given battery in such a way that resultant value comes to be 530 volt.

   Given batteries are of 260,240,10,10,30,50,15,5 volts

5 Find The Energy Stored In The Capacitor If C=2F & V = 440V ?

Part B

1. What are the condition required for resonance condition?

2. What is magnetic flux? Express relation b/w flux,area & flux density?
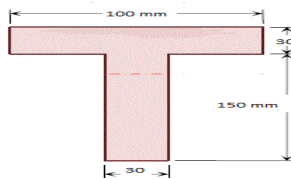
DEAE-304
Engineering Graphics
Part A

1. A square prism, base 40mm side and 65mm height, has its axis inclined at 450 to the H.P. and has an edge of its base, on the H.P. and inclined at 300 to the V.P. draw its projection.

2. A pentagonal pyramid base 25mm side and axis 50mm long has one of its triangular faces in the V.P. and the edge of the base contained by that face makes an angle of 300 with the H.P. draw its projection.

3. Draw the projection of a pentagonal pyramid base 30mm edge and axis 50mm long, having its base on the H.P. and an edge of the base parallel to the V.P.

4. Draw the projection of a straight line PQ which is 9cm long, is in the H.P. and makes an angle of 300 with the V.P. its end P is 2.5cm in front of the V.P.

5. A line AB, 90mm long is inclined at 300 to the H.P. its end A is 12mm above the H.P. and 20mm in front of the V.P. its front view measures 65mm. Draw the top view of AB and determine its inclination with the V.P.

Part B

1. Construct 1200 angle with help of scale and compass.
2. Bisect a 900 angle.

DEAE-305
Strength of Material
Part A

1. State clearly the Hooke's law ?
2. A steel bar 2m long and 150 mm^2 in cross-section is subjected to an axial pull of 15 kN. Find the elongation of the bar. Take E=200Gpa ?
3. Derive a relation for the volumetric strain of a body ?
4. Define Poisson's ratio ?
5. Find the centre of gravity of a 100mm x 150mm x 30mm T-section?

Part B

1. define the terms shear force and bending moment ?

2. What is shear force and Bending moment ?

DEAE-306
Practical Mechanics
Part A

1. Determine the shear strength of the given specimen.
2. (a) Determine the Charpy's impact strength for the given specimens.
   (b) Determine the Brinnel's Hardness number for the given specimens.
3. (a) Find the Hardness number for the given thin metal sheet.
   (b) Determine the IZod impact strength for the given specimen.
4. Conduct a compression test on the given helical spring and determine the following
5. Determine the Young's modulus of the material of the steel beam by conducting the deection test.

Part B

1. Determine Rockwell Hardness number for the given specimens
2. Conduct the tension test on MS rod and determine the following values   (a) yield stress   (b) ultimate stress