

J S University

Assignment For Diploma in Mechanical Engineering 3rd 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:

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
DAS-31	ENGG. MATHEMATICS-3
DME-31	MATERIAL & MATERIAL SCIENCE
DME-32	THERMAL ENGG.
DME-33	MANUFACTURING PROCESS

Cover page of Assignment

ID NUMBER

NAME

COURSE Diploma

STREAM Mechanical

SEM 3rd

SUBJECT CODE

SUBJECT NAME

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

APPLIED MATHEMATICS-3

PART-A

1. Differentiate $(\sin x)^{\cos x}$ with respect to x .

2. Find the angle between the curves

$$f(x) = 4 - x^2 \text{ and } g(x) = x^2.$$

3. Find the standard deviation of the following data :

38, 70, 48, 34, 42, 55, 63, 46, 54, 44.

4. If z_1 and z_2 are two complex numbers, then

show' that $|z_1 + z_2| \leq |z_1| + |z_2|$.

5. Find the different values of $(1 + i)^{1/3}$

PART-B

- 1.** Compute the variance of the probability of the number of doublets in four throws of a pair of dice.
- 2.** A manufacturer knows that the condensers, he makes contain on an average 1% defectives. He packs them in boxes of 100. What is the probability that a box selected at random will contain 3 or more defective condensers ?

Material & Material Science

Assignment

SEC A

1. What is strain hardening? How does it affect the properties of a material ?
2. How do you differentiate between elastic and plastic deformation ?
3. Explain the stress rupture with neat diagram.
4. Draw the Iron-Carbon equilibrium design and explain its salient features.
5. What is stainless steel ? Write its composition and applications.

Sec B

Q.1. Write short notes on any two of the following :

- (a) Critical cooling rate
- (b) Contents of low carbon steel
- (c) Composite materials

Q2. List out the various types of furnaces. Explain the working of cupola furnace with the help of a neat sketch. Mention its industrial applications.

Thermal Engg.

Assignment

SEC A

Q.1 What is the physical properties of ordinary Portland cement ?

Q.2 What are the properties of plain cement concrete ?

Q.3 What are the tensile strength of concrete ?

Q.4 (a) What are the grades of steel used in R.C.C ?

(b) What are the merits and demerits of R.C.C ?

Q.5 (a) What is main function of steel in R.C.C ?

(b) Define the bending theory of beam. What assumption are taken into account ?

Part B

Q1. In working stress method , What stress are taken for different concrete grades as well as steel grades ?

Q2. What are critical and actual neutral axis in R.C.C beams and how do we find X_a and X_c ?

Manufacturing Process

Part A

1. Describe the various types of cutters used in gear shaping.
2. Explain the working of electrochemical machine with the help of neat sketches.
3. Describe electron beam machining process with relevant sketches.
Give its applications.
4. Explain the various factors to be considered in selection of a broaching tool.
5. With the help of a neat sketch, explain the working of PLASMA arc machining.

PART-B

1. (a) Explain the working principle of Ion Beam machining with the help of a neat sketch.
(b) What is the difference between jigs and fixtures ? Also discuss the economic aspects of the use of jigs and fixtures.
2. With a neat sketch, briefly explain the process of water jet machining.

Earthquake

PART-A

1. What are the possible defects in timber ? Describe them with their figures.
2. Give the classification of rocks. Discuss them in brief.
3. Discuss the common building stones, with their uses.
4. Explain Slump Test for workability of concrete, with a neat sketch. Discuss the factors affecting workability.
5. What are the qualities of glass ? Discuss the various varieties of glass and their uses in the building industry.

PART-B

1. Discuss the causes of failure of foundations.
2. How are new foundations constructed adjacent to an old existing structure ?