

M. TECH.-III (MECHANICAL CAD/CAM) (CBCS – 2015 COURSE) :
WINTER - 2017

SUBJECT: ELECTIVE 1: ADVANCED STRESS ANALYSIS

Day: **Tuesday**
Date: **16/01/2018**

W-2017-2920

Time: **11.00 AM TO 02.00 PM**
Max. Marks: 60

N.B.:

- 1) All Questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Both sections should be written in **SEPARATE** answer sheets.
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SECTION-I

Q.1 Explain in detail stress strain relationship for brittle and ductile materials. **(10)**

OR

Discuss stress Functions in rectangular and cylindrical co-ordinate systems.

Q.2 Explain evaluation of stress concentration factors in different geometries using plasticity theorem **(10)**

OR

Write short note on “Strain rate effects on highly deformable materials and stress calculations.

Q.3 Explain failure phenomenon in two and three dimensional stress analysis. **(10)**

OR

What are the different types of composites and How elastic properties of composite are evaluated?

SECTION-II

Q.4 Write short note on Bending of plate to cylindrical surface. **(10)**

OR

Write short note on Bending of a long uniform loaded rectangular plate.

Q.5 Discuss the methods of computing contact stresses and deflection of bodies in point contact. **(10)**

OR

Explain i) Contacts between cam and follower
ii) Ball Bearing contacts.

Q.6 Explain dimensional analysis in details. **(10)**

OR

What are the characteristics of strain gauge measurements?

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