



L.D. College of Engineering,
Ahmedabad

Physics (3110011)

Mid-Semester examination syllabus



Date: 20/12/2021

Following are the topics included for the mid-semester examination:

Module-2: Waves, Motion and Acoustic

- Echo, Reverberation, Reverberation time
- Absorption of sound, Coefficient of sound absorption
- Factors affecting acoustic of the building
- Designing factors for acoustical quality of a hall
- Numericals based on the above topics

Module-4: Ultrasonic and Non-destructive testing (NDT)

- Ultrasonic waves- A kind of longitudinal wave
- Properties of ultrasound
- Production of ultrasonic waves: Piezoelectric and Magnetostriction method
- Detection of ultrasound
- Determination of velocity for ultrasonic waves

Module 5: Lasers

- Properties of laser beams: mono-chromaticity, coherence, directionality and brightness
- Amplification of light by population inversion
- Einstein's theory of matter radiation: A and B coefficients.
- Spontaneous and stimulated energy-matter interactions.
- components of a Laser system.



L.D. College of Engineering,
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Physics (3110018)

Mid-Semester examination syllabus



Date: 16/12/2021

Following are the topics included for the mid-semester examination:

Module 1: Electronic material

- Classical free electron model
 - o Assumptions
 - o Successes
 - o Failures
- Electrical Conductivity
- Thermal Conductivity
- Wiedemann Franz Law
- Density of States
- Numericals

Module 2: Semiconductor

- Classification of materials based on energy band diagram
- Introduction to a semiconducting material
- F-D distribution function & Fermi energy level
- Intrinsic semiconducting material
 - 1) Electron density (n) in C.B.
 - 2) Hole density (p) in V.B.
 - 3) Intrinsic carrier concentration (n_i)
 - 4) Mobility of charge carriers (μ_e and μ_h)
 - 5) Conductivity (σ_i) and analysis of the resistivity Vs. inverse of temperature graph
 - 6) Position of Fermi energy level
 - 7) Numerical based on the above mathematical expressions
- Differences between pure and doped semiconducting material

Module-4: Measurement

- Resistance and resistivity of metal, semiconductor and insulators
- Two Probe measurement method
- Four Probe measurement method
- Van der Pauw measurement method

Common instructions regarding Mid-semester Examination

1. The mid-semester exam will be online and should be attempted with a unique E-mail ID provided by you in the shared google form. **(Google form will be shared at earliest)**
2. Every student is required to update and check that their electronic device is compatible with this software and that they have no issues using it.
3. Examination pattern and timings:

Your whole exam is having two segments:

- a. MCQ based test

This test will have **40 questions** and the time for the examination will be **11:00 am to 11:30 am (30min.)**

- b. Descriptive question-answer examination

You must answer the questions in the same order, create a PDF document, and upload it within the specified time.

(Use your camera's low resolution setting to create PDF files that are smaller and easier to post.)

In the form ...below the question....you need to write

“Submitted in PDF” for each question

Just before the examination.... accessibility of the documents will be provided, be ready with the gadget, stationary materials, calculator, etc.

4. The test will include both objective and subjective questions.
5. The exam URL will be shared in advance on the WhatsApp group
6. You can only submit once, so make sure you've answered all the questions correctly.
7. Do not wait till the last moment to submit. You will be marked absent if you do not turn in your exam on time.
8. Reasons related to internet issues may not be accepted.

