SRI GURAJADA APPARAO GOVERNMENT DEGREE COLLEGE

(Re-accredited by NAAC with 'A' Grade, Affiliated to Andhra University)

YELLAMANCHILI - 531055, ANDHRA PRADESH

DEPARTMENT OF PHYSICS

MID-I OF SEM-II EXAM (2021-2022)

WAVE OPTICS

Max.Marks:20 Time : 1 Hour

SECTION-A

Answer any one of the following questions. 1x5=5M

1. Explain the occurance of interference fringes in Lloyd"s mirror.
2. Describe the diffraction patteren due to a single slit.
3. Explain the construction and working of a NICOL"s prisom.

SECTION-B

Answer any five of the following questions. 5*2=10M

1. Define Coherence.
2. Expain Cosine law.
3. Explain Diffraction.
4. What is Resolving power.
5. Define Brewster"s law.
6. Define double refraction.
7. Explain half wave plate.

SECTION-C

Answer All the following questions 10*1/2=5M

1. Interference is divided in_____types

2. Write the equation for fringe width in wedge film.

3.What is the equation for wavelength of light in Newton rings experiment.

4. Write the equation for area of the half-period zones.

Head of the Department
Department of Physics
S.G.A. Govt. Degree College
Yellamanchili - 531055
Visakhapatnam District

Principal
S.G.A.Govt.Degree College
YELLAMANCHILI - 531055
Visakhapatnam District

5.Write the intensity in N-slit diffraction.

6. Write the equation for Specific rotation.

7.What is the angle of plane glass plate in Mechelson"s Interferometer.

8.How many types of zone plates are there ?.

9.What is the material used for cementing of two parts in Nicol prisom.

10. Write the equation for thickness of crystal plate in Quarter wave plate.

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Department of Physics
S.G.A. Govt. Degree College
Yellamanchili - 531055
ANAKAPALLI District

Principal
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YELLAMANCHILI - 531 055
Visakhapatnam District

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DEPARTMENT OF PHYSICS

MID-II OF SEM-II EXAM (2021-2022)

WAVE OPTICS

Max.Marks:25 Time : 1 Hour

SECTION-A

Answer any one of the following questions. **1x5=5M**

1. Explain spherical aberration. Write any three methods to minimise spherical aberration.

2. Explain the construction and working of He-Ne laser.

3. Explain the Gabour hologram and discuss the limitations.

SECTION-B

Answer any five of the following questions. **5*2=10M**

1. Define spontaneous emission.

2. What is laser ?

3. Define population inversion

4. Write two applications of optical fibre.

5. What is Chromatic aberration..

6. Define Coma.

7. Explain Holography

Head of the Department
Dept. of Physics
S.G.A. Govt. Degree College

Principal
S.G.A.Govt.Degree Colle
YELLAMANCHILI - 531
Visakhapatnam Distric

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DEPARTMENT OF PHYSICS

MID-I OF SEM-IV EXAM (2021-2022)

ELECTRICITY,MAGNETISM &ELECTRONICS

Max.Marks:20 Time : 1 Hour

SECTION-A

Answer any one of the following questions. 1x10=10M

1. Derive an expression for electric field intensity due to a uniformly charged sphere.

2. Explain Hall effect. Derive an expression for Hall coefficient.

SECTION-B

Answer any two of the following questions. 2x5=10M

1. Derive the relation among E, D and P.

2. State and explain Biot-Savart law.

3. Explain Self Inductance and Mutual Inductance.

4. Derive an expression for the energy stored in a Solenoid,.

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Department of Physics
S.G.A. Govt. Degree College
Yellamanchili - 531055
ANAKAPALLI District

Principal
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YELLAMANCHILI - 531
Visakhapatnam District

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DEPARTMENT OF PHYSICS

MID-II OF SEM-IV EXAM (2021-2022)

ELECTRICITY, MAGNETISM AND ELECTRONICS

Max Marks:20 **Time : 1 Hour**

SECTION-A

Answer any one of the following questions. **1x10=10M**

1.Derive the expression for impedance, current and resonance frequency of a LCR series resonant circuit.

2. Explain the input and output characteristics of PNP transistor in CE configuration.

SECTION-B

Answer any two of the following questions. **2x5=10M**

1. Derive the differential form of Maxwell equations.

2. Explanation the PN junction characteristics.

3. Show that NAND gate is a universal gate.

4. Explain transistor is an amplifier.

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S.G.A.Govt.Degree College
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ANAKAPALLI Dist.

Principal
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Visakhapatnam District

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DEPARTMENT OF PHYSICS

MID-I of SEM-IV EXAM-(2021-2022)

Modern Physics

Time: 1hr | Max marks : 20

SECTION-A

Answer any one of the following questions. **1x10=10M**

1. Explain the Construction and working of Geiger-Muller counter.

2. Explain in detail about Shell model of a Nucleus and write its advantages and dis-advantages.

SECTION-B

Answer any two of the following questions. **2x5=10M**

1. Write a short note on Solid state Detector.

2. Explain in brief about Liquid drop model.

3. Write the characteristics of a central forces.

4. Explain the following terms

   (I). Nuclear charge

   (II). Nuclear magnetic dipole moment.

   (III). Nuclear Quadrupole moment

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MID-II of SEM-IV EXAM-(2021-2022)

Modern Physics

Time: 1hr

Max marks : 20

SECTION-A

Answer any one of the following questions. 1x10=10M

1. Explain in detail about Type-I and Type-II super conductors.
2. Derive the Schrodinger time- independent and time- dependent wave equations.

SECTION-B

Answer any two of the following questions. 2x5=10M

1. Explain the Postulates of Quantum mechanics
2. Write the applications of CNTs
3. Explain concept of Eigen functions, Eigen values and Operators
4. Explain about the Quantum wire, Quantum dot and Quantum well.

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