2 year B.S.C (Semester IV) → MODERN PHYSICS - PAPER V

M O S T I M P QUESTIONS

UNIT – 1 (ATOMIC & MOLECULAR PHYSICS)

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Long Questions

1. WRITE ABOUT SPECTRAL QUANTIZATION AND ELECTRON SPIN AND DESCRIBE ITS EXPERIMENTAL VERIFICATION (STERN-GERLACH EXPERIMENT)?
2. WHAT IS RAMAN EFFECT? DESCRIBE EXPERIMENTAL SET UP TO STUDY RAMAN EFFECT. GIVE THEORY?WRITE RAMAN EFFECT APPLICATIONS?

Shot Questions

1.EXPLAIN ABOUT LS COUPLING AND JJ COUPLING?

2.DEFINE ZEEMAN EFFECT AND EXPLAIN ITS EXPERIMENTAL VERIFICATION?

3. GIVE SELECTION RULES AND WRITE ABOUT FINE STRUCTURE OF SODIUM D LINES?

4.EXPLAIN ABOUT QUANTUM NUMBERS?

UNIT – 2 (MATTER WAVES & UNCERTAINTY PRINCIPLE)

Long Questions

1.WHAT ARE MATTER WAVES?HOW THEY ARE ESSTABLISH BY DAVISSON GERMER EXPERIMENT? (EXPERIMENT ON ELECTRON DIFFRACTION)?

2.STATE AND EXPLAIN HEISENBERGS UNCERAINTY PRINCIPLE FOR P AND x.Extend IT TO ENERGY AND TIME.EXPLAIN THE CONSEQUENCES OF UNCERTANTY PRINCIPLE IN GAMMA RAY MICROSCOPE?

Shot Questions

1.EXPLAIN DEBROGLIE HYPOTESIS AND GIVE WAVELENGTH OF MATTER WAVES?

2.WHAT ARE THE PROPERTIES OF MATTER WAVES?

3.EXPLAIN BOHR PRINCIPLE OF COMPLEMENTARILY?

4.DEDUCE ABOUT PHASE AND GROUP VELOCITIES?

UNIT- 3 (QUANTUM MECHANICS)

Long Questions

1.DERIVE SCHRODINGER TIME DEPENDENT AND TIME INDEPENDENT WAVE EQUATIONS FOR MATTER WAVES?

2.WHAT ARE BASIC POSTULATES OF QUANTUM MECHANICS?OBTAIN SCHRODINGER WAVE EQUATIONS FOR PARTICLE IN ONE DIMENSIONAL POTENTIAL BOX OF INFINATE HEIGHT?

Shot Questions

1.EXPLAIN ABOUT EIGEN VALUES AND EIGEN FUNCTIONS?

2.WRITE BASIC POSTULATES OF QUANTUM MECHANICS?

3.EXPLAIN ABOUT ONE DIMENSIONAL HARMONIC OSCILLATOR?

UNIT- 4 (NUCLEAR PHYSICS)

Long Questions

1.EXPLAIN LIQUID DROP MODEL AND SHELL MODEL OF THE NUCLEUS?
2.EXPLAIN PRINCIPLE OF GIEGER MULLER COUNTER (GM COUNTER) AND ITS WORKING?GIVE ITS APPLICATIONS?

Shot Questions

1.EXPLAIN GENERAL PROPERTIES OF NUCLEI?

2.EXPLAIN CHARACTERSTICS OF NUCLEAR FORCES?

3.EXPLAIN CLOUD CHAMBER AND ITS WORKING?

4.EXPLAIN SOLID STATE DETECTOR AND ITS WORKING?

UNIT- 5 (NANO MATERIALS & SUPERCONDUCTIVITY)

Long Questions

1.GIVE QUANTITATIVE DESCRIPTIONS OF BCS THEORY? HOW DOES IT ACCOUNT FOR THE SUPERCONDUCTIVITY STATE?EXPLAIN GIVE ITS APPLICATIONS?

2.WHAT ARE NANOMATERIALS?EXPLAIN CLASSIFICATION OF NANOMATERIALS?MENTION ITS PROPERTIES AND APPLICATIONS OF NANO MATERIALS?

Shot Questions

1.DEFINE SUPER CONDUCTIVITY AND ITS CLASSIFICATIONS (TYPE I AND TYPE II SUPERCONDUCTORS)?

2.EXPLAIN ABOUT MEISSNER EFFECT?

3.EXPLAIN ABOUT CRBON NANOTUBES (CNT)?

4.EXPLAIN ELECTRON CONOFINEMENT AND SIZE EFFECT OF NANO MATERIALS?