



PHYSICS 2

LAQS

CHAPTER 1 (WAVES)

(1)

1. EXPLAIN THE FORMATION OF STATIONARY WAVES IN STRETCHED STRINGS AND HENCE DEDUCE THE LAWS OF TRANSVERSE WAVES IN STRETCHED STRINGS **
2. WHAT IS DOPPLER EFFECT? OBTAIN AN EXPRESSION FOR THE APPARENT FREQUENCY OF SOUND HEARD, WHEN THE SOURCE IS IN MOTION WITH RESPECT TO AN OBSERVER AT REST. MENTION ITS APPLICATIONS.**
3. EXPLAIN THE FORMATION OF STATIONARY WAVES IN AN AIR COLUMN ENCLOSED IN OPEN PIPE . DERIVE THE EQUATIONS FOR THE FREQUENCIES OF THE HARMONICS PRODUCED.****
4. EXPLAIN THE FORMATION OF STATIONARY WAVES IN STRETCHED STRINGS WITH NEAT DIAGRAM AND HENCE DEDUCE THE EQUATIONS FOR FIRST , SECOND AND THIRD HARMONICS**
5. EXPLAIN THE FORMATION OF STATIONARY WAVES IN CLOSED PIPE . EXPLAIN THE VARIOUS MODES OF VIBRATION AND OBTAIN RELATIONS FOR THEIR FREQUENCIES****
6. WHAT IS DOPPLER SHIFT? OBTAIN AN EXPRESSION FOR THE APPARENT FREQUENCY OF SOUND HEARD WHEN OBSERVER IS IN MOTION WITH RESPECT TO A SOURCE AT REST**

PROBLEMS

1. A PIPE 30 CM LONG , IS OPEN AT BOTH ENDS. WHICH HARMONIC MODE OF THE PIPE RESONATES A 1.1 KHZ SOURCE? THE SPEED OF SOUND IN AIR IS 330 M/S**
2. A TRAIN SOUNDS ITS WHISTLE AS IT APPROACHES AND CROSSES A LEVEL CROSSING. AN OBSERVER AT THE CROSSING MEASURES A FREQUENCY OF 219 HZ AS THE TRAIN APPROACHES AND A FREQUENCY OF 184 HZ AS IT LEAVES. IF THE SPEED OF SOUND IS TAKEN TO BE 340 M/S. FIND THE SPEED OF THE TRAIN.*
3. A STRETCHED WIRE OF LENGTH 0.6 M IS OBSERVED TO VIBRATE WITH A FREQUENCY OF 30 HZ IN THE FUNDAMENTAL MODE. IF THE STRING HAS LINEAR MASS OF 0.05 KG/M , FIND THE TENSION IN THE STRING.**
4. A OPEN ORGAN PIPE 85 CM LONG IS SOUNDED. IF THE VELOCITY OF SOUND IS 340 M/S, WHAT IS THE FUNDAMENTAL FREQUENCY OF VIBRATION OF THE AIR COLUMN? **
5. IF THE FUNDAMENTAL FREQUENCY IN A CLOSED PIPE IS 300 HZ, FIND THE VALUE OF THIRD HARMONIC IN IT.**



6. A PIPE 30 CM LONG IS OPEN AT BOTH ENDS, FIND FUNDAMENTAL FREQUENCY. VELOCITY OF SOUND IN AIR IS 330 M/S**
7. A CLOSED PIPE 70 CM LONG IS SOUDED. IF VELOCITY OF SOUND IS 331 M/S WHAT IS FUNDAMENTAL FREQUENCY OF VIBRATION OF THE AIR COLUMN?****
8. TWO ORAGAN PIPES OF LENGHTS 65 CM AND 70 CM RESPECTIVELY, ARE SOUNDED SIMULTANEOUSLY . HOW MANY BEATS PER SECOND WILL BE PRODUCED BETWEEN THE FUNDAMENTAL FREQUENCY OF THE TWO PIPES (VELOCITY OF SOUND IS 330 M/S) *
9. A STRING HAS LENGTH OF 0.4 M AND MASS OF 0.16 GM. IF THE TENSION OF THE STRING IS 70 N , WHAT ARE THE THREE LOWEST FREQUENCIES IT PRODUCES WHEN PLUCKED?*

CHAPTER 6 (CURRENT ELECTRICITY)

(1)

1. STATE KIRCHHOFF'S LAWS FOR AN ELECTRICAL NETWORK. USING THESE LAWS DEDUCE THE CONDITION FOR BALANCE IN A WHEATSTONE BRIDGE. ****
2. STATE THE WORKING PRINCIPLE OF POTENTIOMETER AND EXPLAIN WITH THE HELP OF CIRCUIT DIAGRAM HOW THE POTENTIOMETER IS USED TO DETERMINE THE INTERNAL RESISTANCE OF THE GIVEN PRIMARY CELL. ****
3. STATE THE WORKING PRINCIPLE OF POTENTIOMETER AND EXPLAIN WITH THE HELP OF CIRCUIT DIAGRAM HOW THE EMF OF TWO PRIMARY CELLS ARE COMPARED BY USING POTENTIOMETER****

PROBLEMS

1. TWO RESISTORS OF RESISTANCES 10 OHMS AND 15 OHMS ARE CONNECTED IN PARALLEL. FIND THE EFFECTIVE RESISTANCE OF THEIR COMBINATION**
2. A BATTERY OF EMF 2.5 V AND INTERNAL RESISTANCE r IS CONNECTED IN SERIES WITH A RESISTOR OF 45 OHM THROUGH A N AMMETER OF RESISTANE 1 OHM. THE AMMETER READS A CURRENT OF 50 MILLI AMPERE. CALCULATE THE INTERNAL RESISTANCE***
3. A POTENTIOMETER WIRE IS 5 M LONG AND A POTENTIAL DIFFERENCE OF 6 V IS MAINTAINED BETWEEN ITS ENDS. FIND THE EMF OF A CELL WHICH BALANCED AGAINST A LENGTH OF 180 CM OF THE POTENTIOMETER WIRE.**
4. A WIRE OF RESISTANCE $4R$ IS BENT IN THE FORM OF A CIRCLE. WHAT IS THE EFFECTIVE RESISTANCE BETWEEN THE ENDS OF THE DIAMETER?***



5. IF THE BALANCE POINT IN A METER BRIDGE FROM THE LEFT IS 60 CM, COMPARE THE RESISTANCES IN THE LEFT AND RIGHT GAPS OF METER BRIDGE **
6. A BATTERY OF EMF 10 V AND INTERNAL RESISTANCE 3 OHM IS CONNECTED TO A RESISTOR R. IF THE CURRENT IN THE CIRCUIT IS 0.5 A , CALCULATE THE VALUE OF R**
7. THREE RESISTORS 3 OHM, 6 OHM AND 9 OHM ARE CONNECTED TO BATTERY. IN WHICH OF THEM WILL THE POWER DISSIPATION BE MAXIMUM IF
 - A) THEY ALL ARE CONNECTED IN PARALLEL
 - B) THEY ALL ARE CONNECTED IN SERIES. GIVE REASONS**
8. THREE RESISTORS 2, 4 AND 5 OHMS ARE COMBINED IN PARALLEL. WHAT IS THE TOTAL RESISTANCE OF THE COMBINATION ?**
9. IN A POTENTIOMETER ARRANGEMENT, A CELL OF EMF 1.25 V GIVES A BALANCE POINT AT 35 CM LENGTH OF WIRE. IF THE CELL IS REPLACED BY ANOTHER CELL AND THE BALANCE POINT SHIFTS TO 63 CM, WHAT IS THE EMF OF THE SECOND CELL**

CHAPTER 14 (NUCLEI)

(1)

1. WHAT IS RADIOACTIVITY ? STATE THE LAW OF RADIOACTIVE DECAY. SHOW THAT RADIOACTIVE DECAY IS EXPONENTIAL IN NATURE.**
2. EXPLAIN THE PRINCIPLE AND WORKING OF A NUCLEAR REACTOR WITH THE HELP OF LABELLED DIAGRAM. ****
3. WHAT ARE THE DIFFERENCES BETWEEN NUCLEAR FISSION AND NUCLEAR FUSION ? EXPLAIN THE PROTON – PROTON CYCLE OF NUCLEAR FUSION OCCURRING IN STARS*

PROBLEMS

1. THE HALF LIFE OF RADIUM IS 1600 YEARS. HOW MUCH TIME DOES 1 g OF RADIUM TAKE TO REDUCE TO 0.125 g?****
2. IF ONE MICROGRAM OF $^{92}\text{U}^{235}$ IS COMPLETELY DESTROYED IN AN ATOM BOMB, HOW MUCH ENERGY WILL BE RELEASED****

SAQS

CHAPTER 2 (RAY OPTICS)

(1)



1. EXPLAIN THE FORMATION OF MIRAGE**
2. DEFINE CRITICAL ANGLE. EXPLAIN TOTAL INTERNAL REFLECTION USING A DIAGRAM****
3. WHY DOES THE SETTING SUN APPEAR RED ?*
4. WITH A NEAT LABELLED DIAGRAM EXPLAIN THE FORMATION OF IMAGE IN A SIMPLE MICROSCOPE AND WRITE THE EQUATION FOR LINEAR MAGNIFICATION ****
5. EXPLAIN THE FORMATION OF RAINBOW **

CHAPTER 3 (WAVE OPTICS)

(1)

1. DERIVE THE EXPRESSION FOR THE INTENSITY AT A POINT WHERE INTERFERENCE OF LIGHT OCCURS. ARRIVE AT THE CONDITIONS FOR MAXIMUM AND ZERO INTENSITY**
2. HOW DO YOU DETERMINE THE RESOLVING POWER OF YOUR EYE**
3. EXPLAIN DOPPLER EFFECT IN LIGHT. DISTINGUISH BETWEEN RED SHIFT AND BLUE SHIFT****
4. DOES THE PRINCIPLE OF CONSERVATION OF ENERGY HOLD FOR INTERFERENCE AND DIFFRACTION PHENOMENON ? EXPLAIN BRIEFLY.*
5. EXPLAIN HOW PLANE POLARISED LIGHT IS OBTAINED BY REFLECTION AND REFRACTION*

CHAPTER 4 (ELECTRIC CHARGES AND FIELDS)

(1)

1. DERIVE THE EQUATION FOR THE MOMENT OF COUPLE ACTING ON AN ELECTRIC DIPOLE IN A UNIFORM ELECTRIC FIELD ****
2. STATE GAUSS 'S LAW IN ELECTROSTATICS AND EXPLAIN ITS IMPORTANCE ***
3. STATE AND EXPLAIN COULOMB'S INVERSE SQUARE LAW IN ELECTRICITY ***
4. DERIVE AN EXPRESSION FOR INTENSITY OF ELECTRIC FIELD AT A POINT ON THE AXIAL LINE OF AN ELECTRIC DIPOLE**
5. DEFINE INTENSITY OF ELECTRIC FIELD AT A POINT. DERIVE AN EXPRESSION FOR THE INTENSITY DUE TO A POINT CHARGE**

CHAPTER 5 (ELECTROSTATIC POTENTIAL AND CAPACITANCE) (1)

1. DERIVE AN EXPRESSION FOR THE CAPACITANCE OF A PARALLEL PLATE CAPACITOR****
2. THREE CAPACITORS OF CAPACITANCES 2Pf, 3 Pf AND 4 Pf ARE CONNECTED IN PARALLEL. WHAT IS THE TOTAL CAPACITANCE OF THE COMBINATION ? DETERMINE THE CHARGE ON EACH CAPACITOR IF THE COMBINATION IS CONNECTED TO A 100 V SUPPLY***



3. EXPLAIN PARALLEL COMBINATION OF CAPACITORS. DERIVE THE FORMULA FOR EQUIVALENT CAPACITANCE IN PARALLEL COMBINATION*
4. DERIVE AN EXPRESSION FOR THE ELECTRIC POTENTIAL DUE TO A POINT CHARGE****
5. THREE CAPACITORS OF CAPACITANCES 2Pf, 3 Pf AND 4 Pf ARE CONNECTED IN PARALLEL
 - A. WHAT IS THE TOTAL CAPACITANCE OF THE COMBINATION
 - B. DETERMINE THE CHARGE ON EACH CAPACITOR, IF THE COMBINATION IS CONNECTED TO A 200 V SUPPLY **
6. DERIVE THE FORMULA FOR EQUIVALENT CAPACITANCE WHEN THE CAPACITORS ARE CONNECTED IN SERIES*

CHAPTER 7 (MOVING CHARGES AND MAGNETISM)

(1)

1. A CIRCULAR COIL OF WIRE CONSISTING OF 100D TURNS, EACH OF RADIUS 8 CM CARRIES A CURRENT OF 0.4 A. WHAT IS THE MAGNITUDE OF THE MAGNETIC FIELD B AT THE CENTER OF THE COIL**
2. STATE AND EXPLAIN AMPERES LAW****
3. STATE AND EXPLAIN BIOT SAVARTS LAW****
4. DERIVE AN EXPRESSION FOR THE MAGNETIC FIELD AT A POINT ON THE AXIS OF A CURRENT CARRYING CIRCULAR COIL USING BIOT SAVART LAW**
5. A LONG STRAIGHT WIRE CARRIES A CURRENT OF 35 A. WHAT IS THE MAGNITUDE OF THE FIELD B AT A POINT 20 CM FROM THE WIRE*
6. A CURRENT OF 10 A PASSES THROUGH TWO VERY LONG WIRES HELD PARALLEL TO EACH OTHER AND SEPARATED BY A DISTANCE OF 1M. WHAT IS THE FORCE PER UNIT LENGTH BETWEEN THEM?*
7. DERIVE AN EXPRESSION FOR MAGNETIC INDUCTION AT THE CENTER OF CURRENT CARRYING CIRCULAR COIL USING BIOT SAVARS LAW*
8. **EXPLAIN THE MAGNETIC DIPOLE MOMENT OF REVOLVING ELECTRON ******

CHAPTER 9 (ELECTROMAGNETIC INDUCTION)

(1)

1. A PAIR OF ADJACENT COILS HAS MUTUAL INDUCTANCE OF 1.5 H. IF THE CURRENT IN ONE COIL CHANGES FROM 0 TO 20 A IN 0.5 S, WHAT IS THE CHANGES OF FLUX LINKAGE WITH THE OTHER COIL**
2. DESCRIBE THE WAYS IN WHICH EDDY CURRENTS ARE USED TO ADVANTAGE****



3. OBTAIN AN EXPRESSION FOR THE EMF INDUCED ACROSS A CONDUCTOR WHICH IS MOVED IN A UNIFORM MAGNETIC FIELD WHICH IS PERPENDICULAR TO THE PLANE OF MOTION****
4. CURRENT IN A CIRCUIT FALLS FROM 5 A TO 0 A IN 0.1 S. IF THE AVERAGE EMF OF 200 V INDUCED , GIVEN AN ESTIMATE OF THE SELF INDUCTANCE OF THE CIRCUIT*
5. OBTAIN AN EXPRESSION FOR THE MUTUAL INDUCTANCE OF TWO LONG CO AXIAL SOLENOIDS*
6. OBTAIN AN EXPRESSION FOR THE MAGNETIC ENERGY STORED IN SOLENOID IN TERMS OF THE MAGNETIC FIELD, AREA AND LENGTH OF THE SOLENOID*

CHAPTER 13 (ATOMS)

(1)

1. WHAT ARE LIMITATIONS OF BOHRS THEORY OF HYDROGEN ATOM****
2. DESCRIBE RUTHER FORD ATOMIC MODEL. WHAT ARE THE DRAW BACKS OF THIS MODEL****
3. WRITE A SHORT NOTE ON DE BROGLIE EXPLANATION OF BOHRS SECOND POSTULATE OF QUANTIZATION ****
4. EXPLAIN THE DIFFERENT TYPES OF SPECTRAL SERIES IN THE SPECTRUM OF HYDROGEN**
5. DERIVE AN EXPRESSION FOR POTENTIAL AND KINETIC ENERGY OF AN ELECTRON IN AN Y ORBIT OF A HYDROGEN ATOM ACCORDING TO BOHRS ATOMIC MODEL*

CHAPTER 15 (SEMI CONDUCTORS)

(1)

1. DESCRIBE HOW A SEMICONDUCTOR DIODE IS USED AS A HALF WAVE RECTIFIER****
2. DISTINGUISH BETWEEN HALF AND FULL WAVE RECTIFIERS****
3. WHAT IS RECTIFIER ? EXPLAIN THE WORKING OF A DIODE AS FULL WAVE RECTIFIER WITH DIAGRAM****
4. DEFINE NAND AND NOR GATES. GIVE THEIR TRUTH TABLES**
5. WHAT IS ZENER DIODE ? EXPLAIN HOW IT IS USED AS A VOLTAGE REGULATOR**
6. DRAW THE SYMBOL OF NOT GATE AND EXPLAIN ITS OPERATION. GIVE ITS TRUTH TABLE **



PHYSICS - 2

VSAQS

CHAPTER 2 (RAY OPTICS)

(1)

1. A CONCAVE MIRROR OF FOCAL LENGTH 10 CM IS PLACED AT A DISTANCE 35 CM FROM A WALL. HOW FAR FROM THE WALL SHOULD AN OBJECT BE PLACED SO THAT ITS REAL IMAGE IS FORMED ON THE WALL**
2. WHAT FOCAL LENGTH SHOULD THE RADING SPECTACLES HAVE FOR A PERSON FOR WHOM THE LEAST DISTANCE OF VISION IS 50 CM.**
3. A CONCAVE MIRROR PRODUCES AN IMAGE OF A LONG VERTICAL PIN, PLACED 40 CM FROM THE MIRROR AT THE POSITION OF THE OBJECT. FIND THE FOCAL LENGTH OF THE MIRROR**
4. WHAT IS HYPERMETROPIA ? HOW CAN IT BE CORRECTED****
5. WHAT IS MYOPIA ? HOW CAN IT BE CORRECTED****
6. DEFINE POWER OF CONVEX LENS. WHAT IS ITS UNIT****
7. WHAT DO YOU UNDERSTAND BY FOCUS AND PRINCIPAL FOCUS INTH CONTECT OF LENSES*
8. A SMALL ANGLED PRISM OF 4 DEGREES DEVIATES A RAY THROUGH 2.48 DEGREES. FIND THE REFRACTIVE INDEX OF THE PRISM****
9. WHAT IS DISPERSION ? WHICH COLOUR GETS RELATIVELY MORE DISPERSED****
10. WHAT ARE THE LAWS OF REFLECTION THROUGH CURVED MIRRORS**

CHAPTER 7 (MOVING CHARGES AND MAGNETISM)

1. HOW DO YOU CONVERT A MOVING COIL GALVANOMETER INTO AN AMMETER****
2. HOW DO YOU CONVERT A MOVING COIL GALVANOMETER INTO AN VOLTMETER****
3. WHAT IS THE MAGNETIC MOMENT ASSOCIATED WITH A CIRCUALR COIL OF N TURNS HAVING RADIUS OF CROSS SECTION r CARRYING A CURRENT I **
4. WHAT IS THE IMPORTANCE OF OERSTEDS EXPERIMENT**
5. WHAT IS THE PRINCIPLE OF MOVING COIL GALVANOMETER**
6. DISTINGUISH BETWEEN AMMETER AND VOLTMETER**
7. WHAT IS THE FORCE ON A CONDUCTOR OF LENGTH L CARRYING CURRENT I PLACED IN A MAGNETIC FIELD OF INDUCTION B . WHEN DOES IT BECOMES MAXIMUM*
8. WHAT IS THE FORCE ON A CHARGED PARTICLE OF CHARGE q MOVING WITH A VELEOCITY V IN A MAGNETIC FIELD OF INDUCTION B . WHEN DOES IT BECOMES MAXIMUM*
9. WHAT IS THE SMALLEST VALUE OF CURRENT THAT CAN BE MEASURED WITH A MOVING COIL GALVANOMETER*
10. A WIRE LOOP OF IRREGULAR SHAPE CARRYING CURRENT IS PLACED IN AN EXTERNAL MAGNETIC FIELD. IF THE WIRE IS FLEXIBLE , WHAT SHAPE WILL THE LOOP CHANGE TO ? WHY ?*



CHAPTER 8 (MAGNETISM AND MATTER)

(2)

1. WHAT HAPPENS TO COMPASS NEEDLES AT THE EARTH'S POLES**
2. WHAT DO YOU UNDERSTAND BY MAGNETIZATION OF A SAMPLE**
3. WHAT IS THE MAGNETIC MOMENT ASSOCIATED WITH A SOLENOID**
4. WHAT ARE THE UNITS OF MAGNETIC MOMENT, MAGNETIC INDUCTION AND MAGNETIC FIELD**
5. MAGNETIC LINES FORM CONTINUOUS CLOSED LOOPS. WHY*****
6. DEFINE MAGNETIC DECLINATION****
7. DEFINE MAGNETIC INCLINATION OR ANGLE OF DIP****
8. CLASSIFY THE FOLLOWING MATERIAL WITH REGARD TO MAGNETISM
MANGANESE, COBALT, NICKEL, BISMUTH, OXYGEN, COPPER****
9. IF EARTH'S MAGNETIC FIELD AT EQUATOR IS ABOUT 4×10^{-5} T. WHAT IS ITS MAGNETIC DIPOLE MOMENT (RADIUS OF EARTH = 6.4×10^6 M)*
10. THE HORIZONTAL COMPONENT OF EARTH'S MAGNETIC FIELD AT A CERTAIN PLACE IS 2.6×10^{-5} T AND THE ANGLE OF DIP IS 60 DEGREES. WHAT IS THE MAGNETIC FIELD OF THE EARTH AT THIS LOCATION*
11. A BAR MAGNET OF LENGTH 0.1 M AND WITH A MAGNETIC MOMENT 5 AM^2 IS PLACED IN A UNIFORM MAGNETIC FIELD OF INTENSITY 0.4 T, WITH ITS AXIS MAKING AN ANGLE OF 60 DEGREES WITH THE FIELD. WHAT IS THE TORQUE ON THE MAGNET ?*
12. A COIL OF 20 TURNS HAD AN AREA OF 800 MM^2 AND CARRIES A CURRENT OF 0.5 A. IF IT IS PLACED IN A MAGNETIC FIELD OF INTENSITY 0.3 T WITH ITS PLANE PARALLEL TO THE FIELD, WHAT IS THE TORQUE THAT IT EXPERIENCES ?*
13. A SOLENOID OF LENGTH 22.5 CM HAS A TOTAL OF 900 TURNS AND CARRIES A CURRENT OF 0.8 A. WHAT IS THE MAGNETISING FIELD H NEAR THE CENTER AND FAR AWAY FROM THE ENDS OF THE SOLENOID*

CHAPTER 10 (ALTERNATING CURRENT)

(1)

1. A TRANSFORMER CONVERTS 200 V ac INTO 2000 V ac . CALCULATE THE NUMBER OF TURNS IN THE SECONDARY IF THE PRIMARY HAS 10 TURNS**
2. WHAT TYPE OF TRANSFORMER IS USED IN A 6 V BED LAMP**
3. WHAT IS THE PHENOMENON INVOLVED IN THE WORKING OF A TRANSFORMER**
4. WRITE THE EXPRESSION FOR THE REACTANCE OF AN INDUCTOR AND A CAPACITOR**
5. WHAT IS THE PHASE DIFFERENCE BETWEEN AC EMF AND CURRENT IN THE FOLLOWING-
PURE RESISTOR, PURE INDUCTOR AND PURE CAPACITOR**
6. WHAT IS TRANSFORMER RATIO**
7. THE PRIMARY OF A TRANSFORMER WITH PRIMARY TO SECONDARY TURNS RATIO 1:2 IS CONNECTED TO AN ALTERNATOR OF VOLTAGE 200 V. A CURRENT OF 4 A IS FLOWING THROUGH THE TRANSFORMER HAS NO LOSSES, FIND THE SECONDARY VOLTAGE AND CURRENT*
8. WHAT IS MEANT BY WATTLESS COMPONENT OF THE CURRENT**



9. WHAT IS STEP UP TRANSFORMER ? HOW IT DIFFERS FROM STEP DOWN TRANSFORMER ?**
10. A POWER TRANSMISSION LINE FEEDS INPUT POWER AT 2300 V TO A STEP DOWN TRANSFORMER WITH ITS PRIMARY WINDINGS HAVING 4000 TURNS. WHAT SHOULD BE THE NUMBER OF TURNS IN THE SECONDARY IN ORDER TO GET OUTPUT POWER AT 230 V*

CHAPTER 11 (ELECTROMAGNETIC WAVES)

1

1. GIVE USES OF INFRARED RAYS****
2. IF THE WAVELENGTH OF ELECTROMAGNETIC RADIATION IS DOUBLED, WHAT HAPPENS TO ENERGY OF PHOTON**
3. WHAT ARE THE APPLICATIONS OF MICROWAVES****
4. MICROWAVES ARE USED IN RADARS. WHY**
5. HOW ARE MICROWAVES PRODUCED**
6. THE CHARGING CURRENT FOR A CAPACITOR IS 0.6 A. WHAT IS THE DISPLACEMENT CURRENT ITS PLATES**
7. WHAT IS THE RELATION BETWEEN AMPLITUDES OF THE ELECTRIC AND MAGNETIC FIELDS IN FREE SPACE FOR AN ELECTROMAGNETIC WAVE*
8. WHAT IS THE RATIO OF INFRARED RAYS AND ULTRAVIOLET RAYS IN VACUUM*
9. WHAT IS THE PRINCIPLE OF PRODUCTION OF ELECTROMAGNETIC WAVES**
10. WHAT IS THE AVERAGE WAVELENGTH OF X RAYS**

CHAPTER 12 (DUAL NATURE OF RADIATION AND MATTER)

(2)

1. WHAT ARE CATHODE RAYS**
2. WHAT IS WORK FUNCTION**
3. WHAT IS PHOTO ELECTRIC EFFECT**
4. GIVE EXAMPLES OF PHOTO SENSITIVE SUBSTANCE. WHY ARE THEY CALLED SO**
5. WRITE DOWN EINSTEIN'S PHOTOELECTRIC EQUATION**
6. WRITE DOWN DE BROGLIE RELATION AND EXPLAIN THE TERMS THERE IN **
7. STATE HEISENBERG'S UNCERTAINTY PRINCIPLE****
8. WHAT IS THE DE BROGLIE WAVELENGTH ASSOCIATED WITH A NELECTROM ACCELERATED THROUGH A POTENTIAL DIFFERENCE OF 100 VOLT**
9. AN ELECTRON , AN ALPHA PARTICLE AND A PROTON HAVE THE SAME KINETIC ENERGY. WHICH OF THESE PARTICLES HAS THE SHORTEST DE BROGLIE WAVE LENGTH*
10. WHAT IMPORTANT FACT DID MILLIKAN EXPERIMENT ESTABLISH**

CHAPTER 15 (SEMICONDUCTOR)

(1)

1. WHAT ARE INTRINSIC AND EXTRINSIC SEMICONDUCTORS **
2. WHAT IS P TYPE SEMICONDUCTOR. WHAT ARE THE MAJORITY AND MINORITY CHARGE CARRIERS IN IT **
3. WHAT IS P N JUNCTION DIODE . DEFINE DEPLETION LAYER*
4. WHAT IS ZENER VOLTAGE AND HOW WILL A ZENER DIODE BE CONNECTED IN CIRCUITS GENERALLY**



5. DRAW THE CIRCUIT SYMBOLS FOR PNP AND NPN TRANSISTORS****
6. IN WHICH BIAS CAN A ZENER DIODE BE USED AS VOLTAGE REGULATOR**
7. WHICH GATED ARE CALLED UNIVERSAL GATES**
8. WRITE TRUTH TABLE OF AND GATE . HOW DOES IT DIFFER FROM AND GATE**
9. WHAT IS N TYPE SEMICONDUCTOR. WHAT ARE THE MAJORITY AND MINORITY CHARGE CARRIERS IN IT**

CHAPTERS 16 (COMMUNICATION SYSTEM)

(1)

1. WHAT ARE THE BASIC BLOCKS OF A COMMUNICATION SYSTEM**
2. WHAT IS SKY WAVE PROPAGATION**
3. MENTION VARIOUS PARTS OF IONOSPHERE**
4. DEFINE MODULATION. WHY IS IT NECESSARY****
5. MENTION BASIC METHODS OF MODULATION****
6. WHICH TYPE OF COMMUNICATION IS EMPLOYED IN MOBILE PHONES**
7. WHAT IS WORLD WIDE WEB**
8. MENTION THE FREQUENCY RANGE OF SPEECH SIGNALS**