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UNIT- 1 ELECTROSTATICS

- ## UNIT- 2 CURRENT ELECTRICITY

- ## UNIT-3 MAGNETISM AND MAGNETIC EFFECTS OF ELECTRIC CURRENT

- ## UNIT-4 ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENT

UNIT-5 ELECTROMAGNETIC WAVES

1. Explain in detail the emission spectra and absorption spectra. (Pg-295)
2. Explain the Maxwell's modification of Ampere's circuital law. (Pg-284)
3. Write down Maxwell equations in integral form. (Pg-287)
4. Write down the properties of electromagnetic waves. (Pg-289)

UNIT-6 OPTICS

1. Derive the mirror equation and the equation for lateral magnification. (Pg-9)
2. Describe the Fizeau's method to determine speed of light. (Pg-12)
3. Derive the equation for refraction at single spherical surface. (Pg-28)
4. Obtain lens maker's formula and mention its significance. (Pg-32)
5. What is dispersion? Obtain the equation for dispersive power of a medium. (Pg-44,45)
6. Obtain the equation for resultant intensity due to interference of light. (Pg-52,53)
7. Obtain the equation for bandwidth in Young's double slit experiment. (Pg-58,59)
8. Discuss diffraction at single slit and obtain the condition for n^{th} minimum and maximum. (Pg-64)
9. Discuss the diffraction at a grating and obtain the condition for the m^{th} maximum. (Pg-68)
10. Discuss about simple microscope and obtain the equations for magnification for near point focusing and normal focusing. (Pg-82,83)
11. Explain about compound microscope and obtain the equation for magnification. (Pg-84)

UNIT 7 Dual Nature of Radiation and Matter

1. Explain the effect of potential difference on photoelectric current. (Pg-111)
2. Explain how frequency of incident light varies with stopping potential. (Pg-112)
3. Obtain Einstein's photoelectric equation with necessary explanation. (Pg-116)
4. Briefly explain the principle and working of electron microscope. (Pg-123)
5. Describe briefly Davisson – Germer experiment which demonstrated the wave nature of electrons. (Pg-122)

UNIT 8 Atomic and Nuclear physics

1. Explain the J.J. Thomson experiment to determine the specific charge of electron. (Pg-140)
2. Discuss the Millikan's oil drop experiment to determine the charge of an electron. (Pg-143)
3. Derive the energy expression for hydrogen atom using Bohr atom model. (Pg-152)
4. Discuss the spectral series of hydrogen atom. (Pg-158)
5. Obtain the law of radioactivity. (Pg-170)
6. Describe the working of nuclear reactor with a block diagram. (Pg-179)

UNIT 9 Semiconductor Electronics

1. Explain the construction and working of a full wave rectifier. (Pg-205)
2. Explain the working of NPN Transistor action in the common base mode. (Pg-214)
3. Sketch the static characteristics of a common emitter transistor and bring out the essence of input and output characteristics. (Pg-216)
4. Describe the function of a transistor as an amplifier with the neat circuit diagram. Sketch the input and output wave form. (Pg-220)

UNIT 10 Communication Systems

1. What is modulation? Explain the types of modulation with necessary diagrams. (Pg-238-241)
2. Elaborate on the basic elements of communication system with the necessary block diagram. (Pg-241)
3. Explain the three modes of propagation of electromagnetic waves through space. (Pg-244-247)

UNIT 11 Recent Developments in Physics

1. Discuss the applications of Nanomaterials in various fields. (Pg-263)
2. Discuss the functions of key components in Robots. (Pg-267)
3. Comment on the recent advancement in medical diagnosis and therapy. (Pg-273-277)

IMPORTANT THREE MARKS**UNIT- 1 ELECTROSTATICS**

1. List the properties of electric field lines. (Pg-18)
2. Derive an expression for electrostatic potential due to a point charge. (Pg-28)
3. Obtain the expression for capacitance for a parallel plate capacitor. (Pg-56)
4. Obtain the expression for energy stored in the parallel plate capacitor. (Pg-58)
5. Derive an expression for the torque experienced by a dipole due to a uniform electric field. (Pg-25)
6. Obtain Gauss law from Coulomb's law. (Pg-40)
7. Obtain the expression for electric field due to an uniformly charged spherical shell. (Pg-46)
8. Discuss the basic properties of electric charges. (Pg-03)
9. Explain in detail Coulomb's law and its various aspects. (Pg-04)
10. Define 'Electric field' and discuss its various aspects. (Pg-12)

UNIT- 2 CURRENT ELECTRICITY

1. Distinguish between drift velocity and mobility. (Pg-85,86)
2. Explain the principle of potentiometer. (Pg-112)
3. What is electric power and electric energy? (Pg-100)
4. Derive the expression for power $P=VI$ in electrical circuit. (Pg- 99,100)
5. Write down the various forms of expression for power in electrical circuit. (Pg-100)
6. State the applications of Seebeck effect. (Pg-117)
7. Explain the equivalent resistance of a series and parallel resistor network. (Pg-92,93)
8. State and explain Kirchhoff's rules. (Pg-107)
9. Obtain an expression for drift velocity. How it is related with the mobility? (Pg-85,86)
10. Derive the relation between the drift velocity and the current. (Pg-87)
11. Explain the equivalent emf of electric cells in series. (Pg-104)
12. Explain the equivalent emf of electric cells in parallel. (Pg-106)
13. Explain the temperature dependence of resistivity. (Pg-97)
14. Explain Seebeck effect. Give its applications. (Pg-117)
15. Explain Peltier effect. (Pg-118)
16. Explain Thomson effect. (Pg-118)

UNIT-3 MAGNETISM AND MAGNETIC EFFECTS OF ELECTRIC CURRENT

1. State and explain Biot-Savart law. (Pg-162)
2. Define Lorentz force. Give the properties of Lorentz magnetic force. (Pg-175)
3. Discuss the conversion of galvanometer into an ammeter and also a voltmeter. (Pg-193,194)
4. Compare dia, para and ferro-magnetism. (Pg-156)
5. What are the elements of the Earth's magnetic field? (Pg-130)
6. What happens when a bar magnet is freely suspended in uniform and non-uniform magnetic field? (Pg-144)
7. What are the properties of bar magnet? (Pg-134)
8. Give the properties of magnetic field lines. (Pg-136)
9. Explain Coulomb's inverse square law in magnetism. (Pg-139)
10. Calculate the torque acting on a bar magnet in uniform magnetic field. (Pg-143)
11. Explain the applications of hysteresis loop. (Pg-158)
12. Obtain the magnetic fields at various points on the toroid. (Pg-173)
13. Explain current loop behaves like a magnetic dipole. (Pg-167)
14. Write the difference between soft and hard ferromagnetic materials. (Pg-158)
15. Give the difference between Coulomb's law and Biot-Savart's law. (Pg-163)

UNIT-4 ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENT

1. How will you induce an emf by changing the area enclosed by the coil? (Pg-233)
2. Obtain an expression for Self-inductance of a long solenoid. (Pg-227)
3. Mention the various energy losses in a transformer. (Pg-245)
4. Obtain an expression for Energy stored in an inductor. (Pg-228)
5. Show that Lenz's law is in accordance with the law of conservation of energy. (Pg-219)
6. Obtain an expression for motional emf from Lorentz force. (Pg-217)
7. Using Faraday's law of electromagnetic induction, derive an equation for motional emf. (Pg-218)
8. Give the uses of Foucault current. (Pg-223)
9. Give the advantage of AC in long distance power transmission with an example. (Pg-246)
10. Obtain an expression for average power of AC over a cycle. Discuss its special cases. (Pg-264)
11. What are the drawbacks of Eddy currents. How it is minimized? (Pg-222)
12. Obtain the expression for average value of alternating current. (Pg-250)
13. Obtain an expression for RMS value of alternating current. (Pg-250,251)
14. Find out the phase relationship between voltage and current in a pure resistive circuit. (Pg-254)
15. Define quality factor. Obtain an expression for it. (Pg-262)
16. What are the advantages and disadvantages of AC over DC? (Pg-266)

UNIT-5 ELECTROMAGNETIC WAVES

1. Explain the concept of intensity of electromagnetic waves. (Pg-290)
2. Discuss briefly the experiment conducted by Hertz to produce and detect electromagnetic spectrum. (Pg-288)
3. Write down the properties of electromagnetic waves. (Pg-289)
4. Discuss the source of electromagnetic waves. (Pg-291)

UNIT-6 OPTICS

1. State and explain Brewster's law? (Pg-78)
2. Discuss about Nicol prism. (Pg-81)
3. Discuss about pile of plates. (Pg-79)
4. Differentiate between Fresnel and Fraunhofer diffraction. (Pg-63)
5. What is Fresnel's distance? Obtain the equation for Fresnel's distance. (Pg-67)
6. Mention the differences between interference and diffraction. (Pg-68)
7. Differentiate between polarised and unpolarised Light (Pg-74)
8. Give the characteristics of image formed by a plane mirror. (Pg-4)
9. Derive the relation between f and R for a spherical mirror. (Pg-7)
10. Prove laws of reflection using Huygens' principle. (Pg-)
11. What is optical path? Obtain the equation for optical path of a medium of thickness d and refractive index n . (Pg-14)
12. Obtain the equation for critical angle. (Pg-20)
13. Explain the reason for glittering of diamond. (Pg-21)
14. Explain the working of an endoscope. (Pg-27)
15. Arrive at lens equation from lens maker's formula. (Pg-32)
16. Obtain the equation for lateral magnification for thin lens. (Pg-33)
17. Derive the equation for effective focal length for lenses in contact. (Pg-36)
18. Obtain the relation between phase difference and path difference. (Pg-54)

UNIT 7 Dual Nature of Radiation and Matter

1. What do you mean by electron emission? Explain briefly various methods of electron emission. (Pg-106-108)
2. Explain Effect of intensity of incident light on photoelectric current. (Pg-111)
3. List out the laws of photoelectric effect. (Pg-113)
4. Explain Characteristic x – ray spectra. (Pg-128)

5. Explain the quantum concept of light. (Pg-115)
6. Give the construction and working of photo emissive cell. (Pg-118)
7. Derive an expression for de Broglie wavelength of matter waves. (Pg-121)
8. Derive an expression for de Broglie wavelength of electrons. (Pg-121)

UNIT 8 Atomic and Nuclear physics

1. Write the properties of cathode rays. (Pg-140)
2. Write down the draw backs of Bohr atom model. (Pg-160)
3. Explain the variation of average binding energy with the mass number by graph and discuss its features. (Pg-164)
4. Explain in detail the nuclear force. (Pg-165)
5. Discuss the alpha decay process with example. (Pg-166)
6. Discuss the beta decay process with examples. (Pg-168)
7. Discuss the gamma decay process with example. (Pg-170)
8. Discuss the properties of neutrino and its role in beta decay. (Pg-170)
9. Explain the idea of carbon dating. (Pg-174)
10. Write a note on Discovery of Neutrons. (Pg-176)
11. Explain in detail chain reaction. (Pg-177)
12. Discuss the process of nuclear fusion and how energy is generated in stars? (Pg-181)
13. Explain in detail the four fundamental forces. (Pg-182)
14. Explain impact parameter. (Pg-147)
15. Explain Rutherford alpha scattering experiment. (Pg-145)
16. Explain distance of closest approach? (Pg-147)

UNIT 9 Semiconductor Electronics

1. Draw the circuit diagram of a half wave rectifier and explain its working? (Pg-204)
2. Explain Zener diode as a voltage regulator. (Pg-208)
3. What is an LED? Give the principle of operation with a diagram. (Pg-209)
4. Transistor functions as a switch.Explain. (Pg-219)
5. State and prove De Morgan's First and Second theorems. (Pg-228)
6. Write notes on Photodiode. (Pg-210)
7. Explain the working principle of a solar cell.Mention its applications. (Pg-211)
8. Elucidate the formation of a N-type and P-type semiconductors. (Pg-197,198)
9. Explain the formation of PN junction diode. Discuss its V-I characteristics. (Pg-199,202)

UNIT 10 Communication Systems

1. What do you know about GPS? Write a few applications of GPS. (Pg-251)
2. Give the applications of ICT in mining and agriculture sectors. (Pg-251,252)
3. What is the principle of RADAR. Give the applications of RADAR. (Pg-249)
4. Fiber optic communication is gaining popularity among the various transmission media – justify. (Pg-248)
5. Write a note on INTERNET.

UNIT 11 Recent Developments in Physics

1. Distinguish between Nanoscience and Nanotechnology. (Pg-258)
2. What is the difference between Nano materials and Bulk materials? (Pg-258)
3. Mention any two advantages and disadvantages of Robotics. (Pg-270)
4. What are the possible harmful effects of usage of Nanoparticles? Why? (Pg-264)
5. Elaborate any two types of Robots with relevant examples. (Pg-268)

IMPORTANT TWO MARKS**UNIT- 1 ELECTROSTATICS**

1. State Coulomb's law. Write in vector form. (Pg-4)
2. Define one coulomb. (Pg-05)
3. Define 'Electric field'. (Pg-12)
4. The electric field lines never intersect. Justify. (Pg-20)
5. Define 'Electric dipole'. (Pg-21)
6. What is electric dipole moment? Give its unit. (Pg-22)
7. Write a note on microwave oven. (Pg-26)
8. What is an equipotential surface? (Pg-32)
9. Define 'electrostatic potential energy'. (Pg-34)
10. Define 'electric flux'. (Pg-38)
11. What is meant by electrostatic energy density? (Pg-58)
12. Write a short note on 'electrostatic shielding'. (Pg-50)
13. What is Polarisation or dielectric polarisation? (Pg-54)
14. What is dielectric strength? (Pg-55)
15. Define 'capacitance'. Give its unit. (Pg-56)
16. What is corona discharge? (Pg-67)
17. Distinguish between polar and non-polar molecules. Give examples. (Pg-53)
18. State Gauss law. (Pg-41)
19. During lightning, it is safer to sit inside bus than in an open ground or under tree. Why? (Pg-51)
20. Define electrostatic induction. (Pg-51)
21. Define dielectrics or insulators. (Pg-53)
22. Define relative permittivity. (Pg-05)
23. What is meant by quantisation of charges? (Pg- 4)
24. What are the differences between Coulomb force and gravitational force? (Pg-5)

UNIT- 2 CURRENT ELECTRICITY

1. Distinguish between drift velocity and mobility. (Pg-85,86)
2. State Ohm's law. (Pg-89)
3. What are ohmic and non-ohmic devices? (Pg-89)
4. Define electrical resistivity or Specific resistance. (Pg-90)
5. Define temperature coefficient of resistance. (Pg- 97)
6. What is superconductivity? (Pg-99)
7. What is electric power and electric energy? (Pg-100)
8. Define current density. (Pg-87)
9. State Kirchhoff's current rule. (Pg-107)
10. State Kirchhoff's voltage rule. (Pg-108)
11. State the principle of potentiometer. (Pg-113)
12. What do you mean by internal resistance of a cell? (Pg-103)
13. State Joule's law of heating. (Pg- 115)
14. What is Seebeck effect? (Pg-117)
15. What is Thomson effect? (Pg-118)
16. What is Peltier effect? (Pg- 118)
17. State the applications of Seebeck effect. (Pg-117)
18. Define electric current. (Pg-84)
19. Define one ampere (1 A) (Pg-84)
20. Distinguish between Peltier effect and Joule's effect. (Pg-118*)
21. Repairing the electrical connection with the wet skin is always dangerous. Why? (Pg-91)
22. Why Nichrome used as heating device? (Pg-115)
24. Define critical or transition temperature. (Pg-99)

UNIT-3 MAGNETISM AND MAGNETIC EFFECTS OF ELECTRIC CURRENT

1. State Flemming's left hand rule (FLHR). (Pg-184)
2. Define magnetic flux. (Pg-136)
3. Define magnetic dipole moment. (Pg-132)
4. State Coulomb's inverse law. (Pg-140)
5. What is magnetic susceptibility? (Pg-151)
6. State Biot-Savart's law. (Pg-162)
7. State tangent law. (Pg-147)
8. State Ampere's circuital law. (Pg-169)
9. Define Meissner effect. (Pg-152)
10. Define Curie's law. (Pg-153)
11. Define curie temperature. (Pg-155)
12. State Curie - Weiss law. (Pg-155)
13. State right hand thumb rule for current carrying conductor. (Pg-161)
14. Define magnetic dipole moment of current loop. (Pg-167)
15. State right hand thumb rule for direction of magnetic moment in a current loop. (Pg-167)
16. Define gyro-magnetic ratio. (Pg-168)
17. How the current sensitivity of galvanometer can be increased? (Pg-192)
18. Define one tesla. (Pg-175)
19. What are the limitations of cyclotron? (Pg-183)
20. Define pole strength of the magnet. (Pg-132)
21. Define End rule. (Pg-167)
22. What is meant by hysteresis? (Pg-157)
23. Define one ampere. (Pg-186)
24. Define magnetic permeability. (Pg-149)
25. Define magnetic field. (Pg-133)
26. Define magnetic flux density. (Pg-137)
27. Define relative permeability. (Pg-149)
28. State Maxwell's right hand cork screw rule. (Pg-161)
29. What are the elements of the Earth's magnetic field? (Pg-130)
30. Define intensity of magnetization. (Pg-150)
31. Write a note on MRI. (Pg-173)

UNIT-4 ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENT

1. State Faraday's laws of electromagnetic induction. (Pg-212)
2. State Lenz's law. (Pg-214)
3. State Fleming's right hand rule. (Pg-216)
4. Mention the ways of producing induced emf. (Pg-233)
5. Define self inductance or coefficient of self induction. (Pg-226)
6. Define the unit of self inductance (one henry). (Pg-226)
7. Define mutual inductance or coefficient of mutual induction. (Pg-230)
8. Distinguish between step up and step down transformer. (Pg-245)
9. Define the efficiency of the transformer. (Pg-245)
10. Define mean value or average value of AC. (Pg-250)
11. List out the advantages of stationary armature-rotating field system of AC generator. (Pg-240)
12. What do you mean by resonant frequency? (Pg-261)
13. What are LC oscillations? (Pg-267)
14. How will you define Q-factor? (Pg-263)
15. Define magnetic flux. (Pg-207)
16. What are called Eddy currents (Foucault currents)? (Pg-221)
17. Define phasor and phasor diagram. (Pg-252,253)

18. Define inductive reactance. (Pg-255)
19. An inductor blocks AC but it allows DC. Why? (Pg-256*)
20. Define capacitive reactance. (Pg-257)
21. A capacitor blocks DC but it allows AC. Why? (Pg-259*)
22. Define power factor. (Pg-266)
23. Define wattless and wattful current. (Pg-265)
24. What are the advantages of three phase AC generators? (Pg-243)
25. Define impedance of RLC circuit. (Pg-260)

UNIT-5 ELECTROMAGNETIC WAVES

1. What is displacement current? (Pg-286)
2. What are electromagnetic waves? (Pg-288)
3. What is meant by Fraunhofer lines? (Pg-296)
4. What is called pointing vector? Give its unit. (Pg-291)
5. Define electromagnetic spectrum. (Pg-292)
6. Define emission spectra. (Pg-295)
7. Define absorption spectra. (Pg-296)
8. Write a note on Infrared radiation. (Pg-293)
9. Write a note on UV-rays. (Pg-293)
10. Write a note on X-rays. (Pg-294)

UNIT-6 OPTICS

1. State the laws of reflection. (Pg-2)
2. What are the Cartesian sign conventions for a spherical mirror? (Pg-8)
3. What is optical path? (Pg-14)
4. State the laws of refraction. (Pg-15)
5. What is principle of reversibility? (Pg-17)
6. What is relative refractive index? (Pg-18)
7. What is critical angle and total internal reflection? (Pg-20)
8. What are mirage and looming? (Pg-22)
9. What is Snell's window? (Pg-23)
10. What are the sign conventions followed for lenses? (Pg-32)
11. What is power of a lens? (Pg-36)
12. What is angle of minimum deviation? (Pg-42)
13. State Rayleigh's scattering law? (Pg-46)
14. Why does sky appear blue? (Pg-46)
15. What is the reason for reddish appearance of sky during sunset and sunrise? (Pg-46)
16. What is angle of polarization or polarizing angle. (Pg-78)
17. What is a wavefront? (Pg-49)
18. What is Huygens' principle? (Pg-49)
19. What are the condition for bandwidth of broad interference pattern? (Pg-59)
20. What is diffraction? (Pg-63)
21. What is Fresnel's distance?
22. What is a diffraction grating? (Pg-68)
23. What is Rayleigh's criterion? (Pg-72)
24. What is polarisation? (Pg-73)
25. What are polariser and analyser? (Pg-75)
26. What are plane polarised, unpolarised and partially polarised light? (Pg-75)
27. State Malus' law. (Pg-76)
28. List the uses of polaroids. (Pg-78)
29. State Brewster's law. (Pg-78)
30. What is double refraction? (Pg-80)

31. What are the uses of spectrometer? (Pg-87)
32. What is myopia? What is its remedy? (Pg-90)
33. What is hypermetropia? What is its remedy?(Pg-91)
34. What is presbyopia? (Pg-91)
35. What is astigmatism? (Pg-92)

UNIT 7 Dual Nature of Radiation and Matter

1. Define work function of a metal. Give its unit. (Pg-106)
2. What is photoelectric effect? (Pg-109)
3. Define Stopping potential. (Pg-112)
3. Give the definition of intensity of light and its unit. (Pg-116) Note
4. How will you define threshold frequency? (Pg-117)
5. What is a photo cell? Mention the different types of photocells. (Pg-118)
6. State de Broglie hypothesis(or) matter waves. (Pg-121)
7. A proton and an electron have same kinetic energy. Which one has greater de Broglie wavelength. Justify. (Pg-122) *
 - de Broglie wavelength of proton ; $\lambda_p = h/\sqrt{2 m_p K}$
 - de Broglie wavelength of electron ; $\lambda_e = h/\sqrt{2 m_e K}$
 - Here the mass of the proton is greater than the mass of the electron ($m_p > m_e$)
 - Hence the de Broglie wavelength of electron is greater than that of proton ($\lambda_e > \lambda_p$)
8. An electron and an alpha particle have same kinetic energy. How are the de Broglie wavelengths associated with them related? (Pg-122)*
9. What are X-rays?
10. Write the applications of X-rays.

UNIT 8 Atomic and Nuclear physics

1. What are cathode rays? (Pg-140)
2. Give the results of Rutherford alpha scattering experiment. (Pg-146)
3. What is meant by excitation energy. (Pg-155)
4. Define the ionization energy and ionization potential. (Pg-155)
5. Define impact parameter. (Pg-147)
6. What is isotope? Give an example. (Pg-161)
7. What is isotone? Give an example. (Pg-161)
8. What is isobar? Give an example. (Pg-161)
9. Define atomic mass unit u. (Pg-161)
10. Show that nuclear density is almost constant for nuclei with $Z > 10$. (Pg-163)
11. What is mass defect? (Pg-163)
12. What is binding energy of a nucleus? Give its expression. (Pg-163)
13. Calculate the energy equivalent of 1 atomic mass unit. (Pg-164)
14. What is meant by radioactivity? (Pg-166)
15. What is mean life of nucleus? Give the expression. (Pg-173)
16. What is half-life of nucleus? Give the expression. (Pg-172)
17. What is meant by activity or decay rate? Give its unit. (Pg-171)
18. Define curie. (Pg-172)
19. How will you classify Neutrons based on their kinetic energy.
20. Define Nuclear fission.
21. Define Nuclear fusion.
22. Define thermonuclear fusion reaction.
23. Write proton-proton cycle of fusion reaction.
24. What are the constituent particles of neutron and proton? (Pg-182)

UNIT 9 Semiconductor Electronics

1. Distinguish between intrinsic and extrinsic semiconductors. (Pg-195,197)
2. What do you mean by doping? (Pg-197)
3. Define rectifier Efficiency. (Pg-205)
4. Define zener breakdown voltage. (Pg-206)
5. Distinguish between avalanche and zener breakdown. (Pg-206,207)
6. Draw the circuit diagram for NPN transistor in CB,CC,CE mode. (Pg-213,214)
7. Explain the current flow in a NPN transistor. (Pg-215)
8. What is Light Emitting Diode (LED). Give its symbol. (Pg-209)
9. Define Input resistance or input impedance. (Pg-217)
10. Define Output Resistance or output impedance. (Pg-218)
11. Define Forward current gain. (Pg-218)
12. What is meant by damped and undamped oscillations. (Pg-222)
13. Draw oscillator block diagram?. (Pg-222)
14. Write the Barkhausen conditions for sustained Oscillations (Pg-223)
15. What is Logic gates.
16. State De Morgan's first and second theorems. (Pg-228)
17. Distinguish between Digital ICs and Analog ICs or linear ICs. (Pg-230)
18. Define barrier Potential. (Pg-200)
19. What is meant by biasing. (Pg-201)

UNIT 10 Communication Systems

1. Give the factors that are responsible for transmission impairments. (Pg-243)
The three different causes of impairment are attenuation, distortion, and noise.
2. Define modulation. (Pg-239)
3. Define amplitude modulation. (Pg-239)
4. Give the advantages and limitations of amplitude modulation. (Pg-239)
5. Define frequency modulation. (Pg-240)
6. Give the advantages and limitations of frequency modulation. (Pg-240)
7. Define phase modulation and give its advantages. (Pg-240,241)
8. Distinguish between wireline and wireless communication? Specify the range of electromagnetic waves in which it is used. (Pg-243)
9. Explain centre frequency or resting frequency in frequency modulation. (Pg-240)
10. Define bandwidth. (Pg-243)
11. Define channel width or bandwidth of the transmission system. (Pg-244)
12. Define Ground wave propagation (or) surface wave propagation. (Pg-245)
13. Define Sky wave propagation (or) ionospheric Propagation. (Pg-246)
14. Define skip distance. (Pg-246)
15. Define skip zone or skip area. (Pg-246)
16. Define Space wave propagation. (Pg-247)
17. What is fiber optic communication. (Pg-248)
18. What do you mean by Internet of Things? (Pg-250)

UNIT 11 Recent Developments in Physics

1. Distinguish between Nanoscience and Nanotechnology. (Pg-258)
2. What is the difference between Nano materials and Bulk materials? (Pg-258)
3. Give any two examples for "Nano" in nature. (Pg-259,260)
4. Mention any two advantages and disadvantages of Robotics. (Pg-270)
5. Why steel is preferred in making Robots? (Pg-270)
6. What are black holes? (Pg-279)
7. What are sub atomic particles? (Pg-278)
8. What is meant by Cosmology? (Pg-279)