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**FIZIKADAN MAVZULASHTIRILGAN
O'ZBEKCHA-INGLIZCHA
ATAMALAR LUG'ATI**

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BISMILLAHIR ROHMANIR ROHIYM. ALLOHGA HAMDU SANOLAR, PAYG'AMBARIMIZ MUHAMMAD MUSTAFO SALOLLOHU ALAYHI VASSALLAMGA SALOVOTU DURUDLAR BO'LSIN!

Ushbu Lug'at Alloh roziligini istab, yosh o'quvchilarimiz, abituryentlarimiz va talabalarimizga foydali bo'lishini umid qilib yozildi. Yozish davomida turli o'quv qo'llanmalardan, turli dasturiy ta'minotlardan foydalandik, Alloh bu kitob mualliflari va dastur yaratuvchilarini ham o'zi mukofotlasin. Lug'atda kamchilik va nuqsonlar uchratsangiz, yoki biror joyida xatolik ko'rsangiz telegramdagi **@tyunus** akkauntimizga xabar bersangiz minnatdor bo'lardik. Ushbu lug'atdan ozgina bo'lsada foyda topsangiz, biz va oilamizdagilarning haqqiga duo qilishingizdan umid qilib qolamiz. (2022-yil. Sentyabr)

Alloh hammamizga bu dunyo va oxiratimizga foydasi tegadigan ilmlar olishni nasib qilsin!

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1.3	Impuls va energiya	Momentum and Energy
1.4	Suyuqliklar va gazlar mexanikasi	Mechanics of fluids and gases
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MUNDARIJA

Atom, yadro va zarralar fizikasi		
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5.2	Atom tuzilishi. Bor nazaryasi	Structure of atom. The Bor's theory
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Lug'at qanday tuzilgan va undan qanday foydalanish kerak?

Ushbu lug'at fizikadan mavzulashtirilgan xolda eng ko'p qo'llanadigan fizika atamalar va ularning tarjimalaridan iborat. Bundan tashqari lug'at oxirida ba'zi foydali ilovalar berilgan. Ushbu "Lug'at"dan kimlar foydalanshi mumkin? Bir so'z bilan aytganda barcha foydalanishi mumkin, ammo, asosan chet el oliygohlariga topshirmoqchi bo'lgan abituryentlar, fizika va unga bog'liq yo'nalishlarda tahsil olayotgan talabalar va fizikadan dars beradigan o'rta ta'lim tizimi o'qituvchilari bu lug'atdan ko'proq foydalanishlari ko'zda tutilgan. Ushbu lug'at hech qanday moddiy manfaatlar ko'zlanmasdan, mutlaqo bepul tarzda elektron shaklda foydalanish uchun TDTU Energetika fakulteti "Atom elektr stansiyalari" kafedrasini o'qituvchilari tomonidan tayyorlandi. Kelajakda bu lug'atni fizikaning va unga yaqin sohalarga tegishli atamalar va ularning tarjimalari bilan boyitish ko'zda tutilgan. Shuni unutmaslik kerakki lug'atdan foydalanishda foydalanuvchi ingliz tili grammatikasining bazaviy qismini yaxshi bilishi kerak, sababi, internatdan biror mavzu qidirishda, biror masala yoki ma'lumotni ingliz tilidan o'zbek tiliga tarjima qilishda grammatik masalalarni tushunmasdan to'g'ri tarjima qilib bo'lmaydi. Umid qilamizki ushbu Lug'atning oz bo'lsada foydasi tegadi !

MEXANIKA - MECHANICS

1.1 Kinematika

Materya	Matter
Modda	Substance
Maydon	Field
Fizik qonunlar	Physical laws
Abstraktsiyalar	Abstracts
Fizik tajribalar	Physical experiments
Fizik kattaliklar	Physical quantities
Vektor kattaliklar	Vector quantities (values)
Skalyar kattaliklar	Scalar quantities (values)
Fizik modellar	Physical models
Moddiy nuqta	Material point
Uzunlik (uzunlik birliklari)	Length (units of length)
Yuza (yuza birliklari)	Area (units of area)
Hajm (hajm birliklari)	Volume (units of volume)
Vaqt (vaqt birliklari)	Time (units of time)
Xalqaro birliklar sistemasi	International units system
Traektoriya	Trajectory
To'g'ri chiziq (egri chiziq)	Straight line (curved line)
Yo'l	Road
Ko'chish	Move
Harakat	Motion
Mexanik harakat	Mechanical motion
Koordinatalar sistemasi	Coordinate system
Tekis harakat	Smooth movement
Notekis harakat	Uneven motion (... motion)
Tezlik	Velocity
O'rtacha tezlik	Average velocity
Tezlanish	Acceleration
Natijaviy tezlik	The resulting speed (velocity)
Nisbiy tezlik	Relatively velocity
Oniy tezlik	Momentary speed (velocity)

1.1 Kinematika

Vertikal harakat	Vertical motion
Ko'tarilish balandligi	Rise height (or only height)
Erkin tushish tezlanishi	Free fall acceleration
Boshlang'ich tezlik	Initial speed (or starting speed)
Jismni boshlang'ich tezlik bilan otmoq	Shooting the body at the initial speed
n-sekundagi ko'chishi	Movement of n th second
Maksimal ko'tarilish balandligi	Maximum ascent height
Gorizontal otilgan jism harakati	Horizontal thrown body's motion
Normal tezlanish	Normal acceleration
Tangensial tezlanish	Tangential acceleration
Natijaviy tezlanish	Total acceleration
Tezlikning gorizontal tashkil etuvchisi	Horizontal component of velocity
Tezlikning vertikal tashkil etuvchisi	Vertical component of velocity
Natijaviy tezlik vektori	The resulting velocity vector
Gorizontga nisbatan tashkil etgan burchagi	Angle relative to the horizon
Egrilanish radiusi	The radius of curvature
Tushish vaqti	Descent time
Uchish uzoqligi	Flight distance (or flight length)
Traektoriya tenglamasi	Equation of trajectory
Gorizontak ko'chishi	Horizontal move
Vertikal ko'chishi	Vertical move
Gorizontga burchak ostida otilgan jism	An object thrown at an angle to the horizon
Gorizontga nisbatan hosil qilgan burchagi	The angle formed with respect to the horizon
Aylanma harakat	Rotating motion
Aylanish davri	Period
Aylanish chastotasi	Frequency
Burchak tezlik	Angular velocity
Chiziqli tezlik	Linear velocity
Buralish burchagi	The angle of rotation
Aylanish radiusi	Radius of rotation
Aylanishlar soni	Number of rotation
Burchakli tezlanish	Angular acceleration
Markazga intilma tezlanish (normal tezlanish)	Normal acceleration

1.2 Dinamika

Dinamika	Dynamics
Kuch	Force (strength)
Natijalovchi kuch	Resulting force
Kuchlarning vektor yig'indisi	Vector sum of forces
Massa	Mass
Inertlik	Inertia
Tezlanish	Acceleration
Zichlik	Density
O'rtacha zichlik	Average density
Hajm (hajm birliklari)	Volume (units of volume)
Normal bosim kuchi	Normal pressure force
Jism og'irligi	Body weight (or only weight)
Vaznsizlik	Weightlessness (or zero gravity)
Statika	Statics
Muvozanat	Balance (equilibrium)
Turg'un muvozanat	Stable balance (stable equilibrium)
Befarq muvozanat	Indifferent balance
Turg'unmas muvozanat	Non stable balance (non stable equilibrium)
Ishqalanish	Friction
Ishqalanish kuchi	Friction force (friction strength)
Ishqalanish koeffitsienti	Friction coefficient
Sirpanishdagi ishqalanish	Friction in sliding (Slip friction)
Dumalashdagi ishqalanish	Friction in rolling
Butun olam tortishish kuchi	The gravitational force of the whole universe
Nyuton 1-qonuni	The first law of Newton
Nyuton qonunlari	Laws of Newton
Kuch momenti	The moment of force (or only moment)
Oddiy mexanizmlar	Simple mechanisms
Richak	Richag
Blok, ko'char blok, ko'chmas blok	Block, movable block, immovable block
Pona	Chock (fid, salient)
Qiya tekislik	Inclined plane (Sloping plane)
Mexanikaning oltin qoidasi	The golden rule of mechanics

1.3 Impuls va energiya

Impuls	Momentum
Jism impulsi	Momentum
Kuch impulsi	Force momentum
Impuls o'zgarishi	Change in momentum
Impuls vektori	Momentum vector
Impulsning saqlanish qonuni	Conservation of momentum
To'qnashuv	Collision
Elastik to'qnashuv	An elastic collision
Noelastik to'qnashuv	Non-elastic collision
Energiya	Energy
Kinetik energiya	Kinetic energy
Potensial energiya	Potential energy (or only potential)
To'la energiya	Full energy (total energy)
Energiyaning saqlanish qonuni	Conservation law of energy
Ish	Work
Kuch bajargan ish	Mechanical work,
Quvvat	Power
Foydali ish koeffitsienti	Useful work coefficient
O'zgaruvchan massali jism harakati	The motion of mass changing body
Meshcherskiy tenglamasi	Meshchersky equation
Siolkovskiye tenglamasi	Siolkovsky equation
Massaning o'zgarish tezligi	The rate of mass changing
Ichki energiya	Internal energy
Issiqlik	Heat
Energiya almashinuvi	Energy exchange

1.4 Suyuqliklar va gazlar mexanikasi

Suyuqlik	Fluid
Bosim	Pressure
Gaz	Gas
Paskal qonuni	Pascal's law
Suyuqlikning statik bosimi	Static pressure of
Suyuqlikning idish tubiga bosimi	The pressure of the liquid on the bottom of the container

1.4 Suyuqliklar va gazlar mexanikasi

Suyuqlikning idish yonsirtiga bosimi	The pressure of the liquid on the surface of the container
Dinamik bosim	Dynamical pressure
Tutash idishlar	Communicating vessels (or vases)
Tutash idishlar qonuni	The law of communicating vessels
Gidravlik press	Hydraulic press
Bernulli tenglamasi	Bernoulli's equation
Suyuqlik zichligi	Density of fluid
Suyuqlik tezligi	Speed of fluid
Suyuqlikning laminar oqimi	Laminar flow of liquid (laminar flow)
Suyuqlikning turbulent oqimi	Turbulent flow of liquid (turbulent flow)
Reynolds soni	Reynolds number
Jismlarning suyuqlikdagi harakati	Motion of bodies in fluid
Qovushqoqlik (suyuqlikdagi ishqalanish)	Viscosity (fluid friction)
Stoks formulasi	Stokes formula
Arximed kuchi	Archimedean force
Jismning suyuqlikda cho'kishi	Submergence (drowning, sinking) of a body in a liquid
Jismning suyuqlikda suzishi (muvozanati)	Body floats in liquid (equilibrium)

1.5 Qattiq jism harakati

Absolyut qattiq jism	Absolute solid body
Harakat	Motion
Aylanma harakat	Circular motion (rotational motion)
Egri chiziqli harakat	Curvilinear (curve linear) motion
Kuch momenti	Momentum
Impuls momenti	Angular momentum
Impuls momentini saqlanish qonuni	Conservation of angular momentum
Inersiya momenti	Moment of inertia
Shteyner teoremasi	Steiner's theorem
Disk, shar, halqa	Disk, ball, ring
Konus, sterjen	Cone,
Aylanma harakatda kinetik energiya	Kinetic energy in rotational motion

1.6 Deformatsiyalanuvchi jismlar fizikasi

Deformatsiya	Deformation
Yung moduli (elastiklik moduli)	Young's modulus (modulus of elasticity)
Absolyut uzayish	Absolute deformation
Nisbiy uzayish	Relative deformation
Ko'ndalang deformatsiya	Cross deformation
Ko'ndalang nisbiy deformatsiya	Cross relative deformation
Siljish moduli	Displacement module
Buralishdagi nisbiy deformatsiya	Relative deformation in torsion
Buralishdagi nisbiy deformatsiya	The relative deformation in the twist
Hajmning nisbiy o'zgarishi	Relative changing of volume
Deformatsiya potensial energiyasi	Potential energy of deformation
Guk qonuni (elastiklik qonuni)	Hooke's law (law of elasticity)
Mexanik kuchlanish	Mechanical tension

1.7 Tebranishlar va to'lqinlar

Tebranishlar	Vibrations (oscillation)
Mexanik tebranishlar	Mechanical oscillation
Garmonik tebranishlar	Harmonic oscillation
Majburiy tebranishlar	Compulsory oscillation
So'nuvchi tebranishlar	Damped oscillations
To'lqinlar	Waves
Mexanik to'lqinlar	Mechanical waves
Bo'ylama to'lqinlar	Longitudinal waves
Ko'ndalang to'lqinlar	Transverse waves
To'lqin sirti	Wave surface
To'lqin fronti	Wave front
Garmonik tebranishlar tenglamasi	Equation of harmonic oscillation
Tebranma harakat kinetik energiyasi	Kinetic energy of oscillation
Tebranma harakat potensial energiyasi	Potential energy of oscillation
Tebranish davri	Period
Tebranish chastotasi	Frequency
Tebranish fazasi	Phase of vibration

1.7 Tebranishlar va to'lqinlar

Tebranish amplitudasi	Amplitude of vibration
Matematik mayatnik	Mathematical pendulum
Cho'zilmas ip	Non-stretchable yarn
Fizik mayatnik	Physical pendulum
Muvozanat xolatiga qaytaruvchi kuch	The restoring force to the state of equilibrium (A restoring force)
Buralma mayatnik	Torsional pendulum
Bir jisnli tor tebranishlari	Homogeneous string vibrations
To'lqinning fazaviy tezligi	Phase speed of the wave
To'lqinning guruh tezligi	The group speed of the wave
Tovush to'lqinlari	Sound waves
Tovush qattiqligi	Loudness
Tovush balandligi	The pitch of the sound
Tovush energiyasi	Energy of the sound
Aks-sado	Echo
Tovush intensivligi	Sound intensity
Ovoz tembri	Voice timbre (Tone of the sound)
Infratovush, ultratovush	Infrasound, ultrasound

1.8 Maxsus nisbiylik nazariyasi

Nisbiylik	Relativity
Nisbiylik prinsipi	Relativity principle
Galileyning Nisbiylik prinsipi	Galileo's Principle of Relativity
Galiley almashtirishlari	Galilean permutations (transformation)
Enshteyn postulatları	Postulates of Einstein
Lorens almashtirishlari	Lorentz permutations (transformation)
Inersial sanoq sistemasi	Inertial system
Noinersial sanoq sistemasi	Non-inertial system
Relyativistik tezlik	Relativistic velocity
Yorug'likning vaaqumdagi tezligi	Light speed in the vacuum
Jismning tinchlikdagi energiyasi	The energy of the body at rest (rest mass energy)

1.8 Maxsus nisbiylik nazaryasi

Relyativistik tezliklarni qo'shish qonuni	The law of addition of relativistic velocities
Fazoning bir jinsliligi	Homogeneity of space
Vaqtning bir jinsliligi	Homogeneity of time
Harakatlanayotgan sistema	A moving system
Relativistik kinetik energiya	Relativistic kinetic energy
Jimning to'la energiyasi	The full energy of body

MOLEKULAR FIZIKA – MOLECULAR PHYSICS

2.1 Molekulyar kinetik nazariya

Molekula	Molecular
Nisbiy atom massa	Relative atom mass
Molyar massa	Molar mass
Moddaning kimyoviy xossalari	Chemical properties of matter
Modda miqdori	Number of mols
Molekulalar soni	Number of molecules
Avagadro soni	Avagadro's number
Loshmidt soni	Loshmidt number
Molekulalar konsentratsiyasi	Concentration of molecules
Absolyut temperatura	Absolute temperature
Kelvin shkalasi	Kelvin scale
Selsiy shkalasi	Celsius scale
Molekulalar o'rtacha kinetik energiyasi	Average kinetic energy of molecules
Bolsman doimiysi	Boltzman's constant
Ideal gaz	Ideal gas
Ideal gaz bosimi	Pressure of ideal gas
MKN ning asosiy tenglamasi	The main equation of molecular kinetic theory
Molekulalarining o'zaro ta'siri	Interaction of molecules
Gaz zichligi	Density of gas
Gaz molekulasi massasi	Mass of gas molecules
Avagadro qonuni	The Avagadro's law
Dalton qonuni	The Dalton's law
Ideal gazning parsial bosimi	Partial pressure
Ideal gaz holat tenglamasi	Equation of state for ideal gases
Universal gaz doimiysi	Universal gas constant

2.2 Ideal gazga oid taqsimotlar

Ideal gazga oid taqsimotlar	Distributions for an ideal gas
Barometrik fo'rmla	Barometric formula
Bo'lsman taqsimoti	Boltzmann distribution
Ideal gaz molekulasi tezliklari	Velocities of ideal gas's molecules
Molekulalar tezliklari bo'yicha taqsimoti	Distribution of velocities of molecules

2.2 Ideal gazga oid taqsimotlar

Maksvell taqsimoti	Maxwell distribution
Nisbiy tezliklar uchun Maksvell taqsimoti	Maxwell distribution for relative velocities
O'rtacha kvadratik tezlik	Mean square velocity (average square velocity)
O'rtacha arifmetik tezlik	Arithmetic average speed
Eng katta ehtimoliy tezlik	Most probable speed
Gaz molekularining to'qnashishi	Collision of gas molecules
Molekulalarning erkin yugurish yo'li	The path of free movement of molecules
Molekulalarning effektiv diametrlari	Effective diameter of molecules
1 s dagi to'qnashishlar soni	Number of collision in 1 s
Dinamik qovushqoqlik	Dynamic viscosity
Ichki ishqalanish kuchi	Internal friction force
Dinamik qovushqoqlik koeffitsienti	Dynamic viscosity coefficient
Tezlik gradienti	Gradient of speed
Issiqlik o'tkazuvchanlik	Thermal conductivity
Diffuzya koeffitsienti	Diffusion coefficient
Issiqlik o'tkazuvchanlik koeffitsienti	Heat transfer coefficient (thermal conductivity coefficient)
Gazning o'zgarmas hajmdagi solishtirma issiqlik sig'imi	Specific heat capacity of gas at constant volume
Gazning o'zgarmas bosimdagi solishtirma issiqlik sig'imi	Specific heat capacity of gas at constant pressure

2.3 Ideal gaz ustida kechadigan jarayonlar

Izotermik jarayon	Isothermal process
Izobarik jarayon	Isobaric process
Izoxorik jarayon	Isochoric process
Adiabatik jarayon	Adiabatic process
Politropik jarayon	Polytropic process
Ideal gaz xolat parametrlari	Ideal gas state parameters
Adaibata ko'rsatkichi	Adaibata indicator (adiabatic index)
Politropa ko'rsatkichi	Polytropic indicator (polytropic index)
Bosimning hajmga bog'liqligi	Dependence of pressure on volume
Bosimning temperaturaga bog'liqligi	Dependence of pressure on temperature

2.4 Ichki energiyasi. Termodinamika qonunlari

Ideal gaz ichki energiyasi	Internal energy of ideal gas
Termodinamika qonunlari	Laws of thermodynamics
Issiqlik sig'imi	Heat capacity (Thermal capacity)
Solishtirma issiqlik sig'imi	Relative thermal capacity
Termodinamika 1-qonuni	The first law of thermodynamics
Termodinamikaning 2-qonuni	The second law of thermodynamics
Entropiya	Entropy
Sistemaga berilgan issiqlik miqdori	The amount of heat supplied to the system
Gazning bajargan ishi	The gases work
Gaz ichki energiyaning o'zgarishi	Changing of internal energy of gas
Issiqlik mashinalari	Heat machines (Thermal machines)
Karno sikli	Carnot cycle
Foydali ish koeffitsienti	Coefficient of performance (COP)

2.5 Real gazlar. Real gaz ichki energiyasi

Real gazlar	Real gases
Real gaz xolat tenglamasi	State equation of real gas
Van der Vaals tenglamasi	Vann-der Vaals equation
Kritik parametrlari	Critical parameters
Van der Vaals doimiylari	Vann-der Vaals constants
Bir mol gaz hajmi	The volume of one mol
Molekulalarning ichki bosimi	Internal pressure of molecules
Kiritik bosim (kiritik tempaeratura)	Critical pressure (critical temperature)

2.6 Suyuqliklar va qattiq jismlar xossalari

Suyuqlik sirti	Liquid surface
Sirt taranglik kuchi	Surface tension force (strength)
Sirt taranglik koeffitsienti	Surface tension coefficient
Sirt taranglik energiyasi	Surface tension energy
Sirt taranglik kuchi tufayli yuzaga keladigan ichki bosim	Internal pressure due to surface tension force
Kapilyar hodisalar	Capillary events
Suyuqliklarning issiqlikdan kengayishi	Thermal expansion of liquids

2.6 Suyuqliklar va qattiq jismlar xossalari

Hajmiy kengayish	Expansion of volume
Hajmiy kengayish ko'effitsienti	Volume expansion coefficient
Qaynash	Boil (boiling)
Bug'lanish	Evaporation
Qaynash temperaturasi	Boiling temperature
Bug' xosil bo'lish issiqligi	Heat of vaporization
To'yingan bug'	Saturated steam (vapor)
To'yinmagan bug'	Non-saturated steam (vapor)
Namlilik	Moisture (humidity)
Shudring nuqtasi	Dew point
O'z suyuqligi bilan dinamik muvozanatda	In dynamic equilibrium with its own fluid
Absolyut namlilik	Absolute humidity (moisture)
Nisbiy namlilik	Relative humidity (moisture)
Psixorometr (namlikni o'lchaydi)	Psychrometer (measures humidity)
Gigrometr (namlikni o'lchaydi)	Hygrometer (measures humidity)
Yoqilg'i	Fuel
Yoqilg'ining yonish issiqligi	Heat of combustion of fuel
Qattiq jismlar	Solids (solid bodies or solid objects)
Qattiq jismning issiqlikdan kengayishi	Thermal expansion of a solid body (object)
Chiziqli kengayish	Linear expansion
Erish (qotish) jarayoni	Melting ((hardening) process
Kristall tuzilish	Crystal structure
Amorf jismlar	Amorphous bodies
Sublimatsiya	Sublimation
Solishtirma erish issiqligi	Relative melting heat
Solishtirma qotish issiqligi	Relative solidification heat

ELEKTR VA MAGNETISM – ELECTRIC AND MAGNETISM

3.1 Elektr zaryad. Elektr maydon

Elektr zaryad	Electric charge
Elektr maydon	Electric field
Zaryadning saqlanish qonuni	Conservation of charges
Zaryadning chiziqli zichligi	Linear density of charges
Zaryadning sirtiy zichligi	Surface density of charges
Zaryadning hajmiy zichligi	Volume density of charges
Elektron zaryadi	Electron charge
Kulon qonuni	Kulon's law
Zaryadlarning tortishishi	Attraction of charges
Zaryadlarning itarishishi	Repulsion of charges
Zaryadlarning o'zaro ta'siri	Interaction of charges
Elektr doimiy	Electric constant
Elektr maydon induksiyasi	Induction of electric field
Elektr maydon kuchlanganligi	Electric field strength
Muhitning dielektrik singdiruvchanligi	Dielectric permittivity of the medium
Elektr maydon potentsiali	Electric potential
Elektr zaryadning potentsial energiyasi	The potential energy of charge
Dipol	Dipole
Dipol momenti	Moment of dipole
Elektr maydon bajargan ishi	Work of electric field
Superpozitsiya prinsipi	Superposition principle

3.2 Elektr to'ki. O'zgarmas to'k

Elektr to'ki	Electric current
O'zgarmas to'k	Constant current
O'zgarmas to'k qonunlari	The laws of constant current
Kriqgoff qonunlari	Krieghoff's laws
O'm qonuni	Om's law
To'k zichligi	Current density
Zaryadlarning konsentratsiyasi	Concentration of charges
Ko'ndalang kesim yuzasi	Cross-sectional surface
O'tkazgich	Conductor

3.2 Elektr to'ki. O'zgarmas to'k

Elektr qarshilik	Electrical resistance
Elektrik kuchlanish	Voltage (electric voltage)
Elektrik o'tkazuvchanlik	Conductivity
Qarshilikning termik koeffitsienti	Thermal coefficient of resistance
Solishtirma elektr qarshilik	Relative electric resistance
Tashqi qarshilik	External resistance
Ichki qarshilik	Internal resistance
Manbaning FIKi	Performance of the source (battery)
Qisqa tutashuv to'ki	Short circuit current
Elektr to'kining ishi	The work of electric current
Elektr to'kining quvvati	The power of electric current
Joul – Lens qonuni	Joule-Lence's law
Ajralgan issiqlik miqdori	Amount of released heat (energy)
Dielektrik	Dielectric (non-conductor)

3.3 Elektr asboblari, ularni turli xil ulashlar

Rezistor	Resistor
Reostat	Rheostat
Lampa	Lamp
Signal lampa	Signal lamp
Diod	Diode
Fotodiod	Photo diode
Tranzistor	Transistor
Kondensator	Capacitor
Induktiv g'altak	Inductive coil
Kabel	Cable
Voltmetr	Voltmeter
Ampermetr	Ammeter
Vatmetr	Watt-meter
O'tkazgichlarni ketma-ket ulash	Consecutively connecting of conductors
O'tkazgichlarni parallel ulash	Parallel connecting of conductors
Qo'shimcha qarshilik	Additional resistance

3.4 Magnit maydon. Magnit maydonda zarra harakati

Magnit maydon	Magnetic field
Magnit maydon induksiyasi	Magnetic field induction (magnetic induction)
Magnit maydon kuchlanganligi	Magnetic field strength
To'kning magnit maydoni	The magnetic field of current
Amper kuchi	Ampere's force
Amper qonuni	Ampere's force law
Magnit doimiysi	Magnetic constant
Elektr zaryadning magnit maydondagi harakati	Motion of charged particle in magnetic field
Zarraning aylanish davri	Rotation period of particle
Zarraning aylanish radiusi	Rotation radius of particle
Moddalarining magnit xossalari	Magnetic properties of matters
Diamagnitlar	Diamagnetic
Paramagnitlar	Paramagnetic
Ferromagnitlar	Ferromagnetics
Lorens kuchi	Lorentz force

3.5 Elektromagnit induksiya hodisasi

Elektromagnit induksiya hodisasi	The electromagnetic induction
Magnit oqimi	Flux of magnetic field
Magnit maydon energiyasi	Energy of magnetic field
Induktivlik	Inductance
Magnit momenti	Magnetic moment
Konturning magnit momenti	Magnetic moment of the contour

3.6 O'zgaruvchan to'k. Elektromagnit tebranishlar

O'zgaruvchan to'k	Alternating current (variable current)
O'zgaruvchan kuchlanish	Alternating voltage (variable voltage)
To'k kuchining effektiv qiymati	Effective value of current
Kuchlanishning effektiv qiymati	Effective value of voltage
Induktiv g'altak	Inductor (coils)
Sig'im qarshilik	Capacitance resistance
Aktiv qarshilik	Active resistance

3.7 Turli muhitlarda elektr toki. Elektroliz hodisasi

Suyuqliklarda elektr to'ki	Electricity in liquids (Electric current in liquids)
Metallarda elektr to'ki	Electricity in metals (electric current in metals)
Erkin elektronlar	Free electrons
Zaif bog'langan elektronlar	Weak connected electrons
Yarim o'tkazgich	Semiconductor
Donor	Donor
Akseptor	Acceptor
Dielektriklar	Dielectrics
n-tip o'tkazuvchanlik	n-type conductivity
p-tip o'tkazuvchanlik	p-type conductivity
Aralashmali o'tkazuvchanlik	Mixed conductance
O'ta o'tkazuvchanlik	High conductivity (super conductivity)
Kiritik qiymat	Critical value

OPTIKA – OPTICS

4.1 Geometrik optika

Optika	Optics
Yorug'lik	Light
Tushish burchagi	Angle of descent
Qaytish burchagi	Return angle
Singan nur	Broken light
Sinish burchagi	Refraction angle
Shaffof jism	Transparent body
Nur sindirish ko'rsatkichi	Light breaking indicator
To'la ichki qaytish hodisasi	Full internal return event
Linza	Lens
Linzaning foks masofasi	focal length of the lens
Optik kuchi	Optical power
Bosh optik o'q	Main optical axis
Linzaning chiziqli kattalashtirishi	Linear magnification of the lens
Buyum, tasvir	Object, image
Buyumdan linzagacha masofa	Object-to-lens distance
Linzadan tasvirgacha masofa	Distance from lens to image
Haqiqiy tasvir	Real image
Mavhum tasvir	Abstract image
Teskari tasvir	Reverse image
To'g'ri tasvir	Correct image
Optik asboblari	Optical instruments
Lupa	Magnifying glass
Mikroskop	Microscope
Binokl	Binoculars
Galiley turbasi	Galileo tube
Teleskop	Telescope
Inson ko'zi	Human eye
Ko'zoynak formulasi	Eyeglass formula
Botiq linza , qavariq linza	Concave lens, convex lens
Yiguvchi linza	Converging lens
Sochuvchi linza	Diffusing lens

4.2 Fotometriya

Fotometriya	Photometry
Yorug'lik energiyasi	Light energy
Yorug'lik oqimi	Stream of light
Intensivlik	Intensity
Birlik yuza	Unit surface
Yoritilganlik	lighting
Ravshanlik (yorqinlik)	luminosity
Yo'rug'lik kuchi	Light power
Fazoviy burchak	Spatial angle

4.3 Yorug'lik intenferensiyasi

To'lqin	Wave
Kogerent to'lqinlar	Coherent waves
Yorug'lik intenferensiyasi	Light interference
Fazalar farqi	Phase difference
Yorug'lik to'lqinlarining superpozitsiyasi	Superposition of light waves
Nyuton xalqalari	Newton's rings
Yupqa pardada intenferensiya	Interference in the thin curtain
Intenferensiyaning qo'llanishi	Application of interference
Interferometr	Interferometer

4.4 Yorug'lik difraksiyasi. Dispersiya

Yorug'lik difraksiyasi	Light diffraction
Difraksion panjara	Diffraction grating
Panjara doimiysi	Lattice constant
Difraksion panjaraning ajrata olish kuchi	Diffraction grating separation power
Panjaradagi shtrixlar soni	Number of barcodes on the grid
Difraksion maksimumning tartib raqami	The order number of diffraction maximum
To'lqin uzunligi	Wavelength
Gyugens-Frenel prinsipi	Huygens-Fresnel principle
To'lqin fronti	Wave front
Yassi to'lqinlar, sferik to'lqinlar	Flat waves, spherical waves
Ko'ndalang to'lqinlar, bo'ylama to'lqinlar	Transverse waves, longitudinal waves

4.4 Yorug'lik difraksiyasi. Dispersiya

Frenel zonasi	Fresnel zone
To'lqin sirti	Wave surface
Golografiya	Golography
Yorug'lik qutblanishi	Light polarization
Bryuster qonuni	Brewster's law
Malyus qonuni	Malus' Law
Qutblanish darajasi	Degree of polarization
Yorug'lik dispersiyasi	Light dispersion
Spektral analiz	Spectral analysis

4.5 Yorug'lik tezligi. Dopler effekti

Yorug'lik tezligi	Speed of light
Fazaviy tezlik	Phase speed
Guruhiy tezlik	Group speed
Ryomer usuli	Rømer method
Maykelson usuli	The Michelson method
Dopler effekti	Doppler effect
Chastotaning o'zgarishi	Frequency change
To'lqin uzunlikning o'zgarishi	Change in wavelength
Zarraning muhidagi tezligi	Speed of the particle in the medium
Relyativistik tezlik	Relativistic speed

4.6 Yorug'lik ta'sirlari

Yorug'lik ta'siri	Effects of light
Fotoeffekt	Photoelectric effect
Ichki (tashqi) fotoeffekt	Internal (external) photoelectric
Fotoeffekt qonunlari	Photoelectric effect laws
Enshteyn formulasi	Einstein formula
Kompton effekti	Compton effect
Yorug'lik bosimi	Pressure of light
Sirtning yorug'lik qaytarish koeffitsienti	Light return coefficient of the surface
Vavilov-Cherenkov nurlanishi	Vavilov-Cherenkov radiation

ATOM, YADRO VA ZARRALAR FIZIKASI

5.1 Kvant fizikasi asoslari

Foton	Photon
Foton impulsi	Photon momentum
Foton energiyasi	Energy of photon
Foton to'lqin uzunligi	Wavelength of photon
Plank doimiysi	Planck constant
De-Broyl to'lqini	De Broglie wave
To'lqin-zarra dualizmi	Wave-particle duality

5.2 Atom tuzilishi. Bor nazaryasi

Atom	Atom
Elementlar	Elements
Vodorod atomi	Hydrogen
Bor nazaryasi	The Bohr theory
Bor postulatlari	Bar postulates
Diskret qiymat	Discrete value
Elektron pog'onalar	Electronic spikes
Energetik sathlar	Energy levels
Elektron orbitasi	Electron orbit
Absolyut qora jism	Absolute black body
Issiqlikdan nurlanish	Radiation from heat
Sinxratron nurlanish	Synchrotron radiation
Spektral zichlik	Spectral density
Plank taqsimoti	Planck's distribution
Stefan - Bolsman qonuni	Stephan - Boltzmann's Law
Stefan-Bolsman doimiysi	Stephan - Boltzmann constant
Vinning siljish qonuni	Wien's displacement law
Balmerning seriyasi	Balmer series
Ridberg doimiysi	Rydberg constant
To'lqin chastotasi	Wave frequency

5.3 Atom yadrosi. Elementar zarralar

Yadro	Nuclei
Nuklonlar	Nucleons
Proton	Proton
Neytron	Neutron
Pozitron	Positron
Mezon	Meson
Kvarklar	Quark
Yadro kuchlari	Nuclear forces
Yadro o'lchami	Size of nucleus
Yadro zichligi	Density of nucleus
Yadro modellari	Models of nucleus
Tomchi modeli	Drop model
Fermi gaz modeli	Fermi gas model
Qobiqli model	Shell model
Umumlashgan model	Generalized model
Nuqlidlar (nuqlid yadrolar)	Nuclides (nuclei)
Izotop yadrolar	Isotope nuclei
Izoton yadrolar	Isotonic nuclei
Izobar yadrolar	Isobar nuclei
Izomer yadrolar	Isomer nuclei
Ko'zgu yadrolar	Mirror cores
Yadro parchalanishlari	Nuclear fission
Radioaktivlik	Radioactivity
Aktivlik	Activity
Yadrolarning o'rtacha yashash vaqti	Average survival time of nuclei
Yarim yemrilish davri	Half-life
α yemrilish	Alpha rays
β yemrilish	Beta rays
γ yemrilish	Gamma rays
Yadro reaksiyalari	Nuclear reactions
Yadro energiyasi	Nuclear energy
Zanjir reaksiya	Chain reaction
Ekzotermik reaksiya	Exothermic reaction
Endotermik reaksiya	Endothermic reaction
Tezlatgichlar	Accelerators

5.3 Atom yadrosi. Elementar zarralar

Katta Adron Kollayderi	Big hadron collider
Sinxratron	Synchrotron
Fazatron	Phasetron
Elementar zarralar	Particles
Leptonlar,	Leptons
Mezonlar	Mesons
Barionlar	Barions
Spin	Spin
Magnet momenti	Magnetic moment
Bosh kvant soni	Prime quantum number
Orbital kvant soni	Orbital quantum number
Kvant sonlar	Quantum numbers
Zarraning zaryadi	Charge of particle
Zarraning tinchlikdagi massasi	The mass of the particle in peace

Real mashqlardan namunalar – Real examples

1. From an elevated point A, a stone is projected vertically upward. When the stone reaches a distance h below A, its velocity is double of what it was at a height h above A. Show that the greatest height obtained by the stone above A is $5h/3$.
2. A man of height 1.8 m walks away from a lamp at a height of 6 m. If the man's speed is 7 m/s, find the speed in m/s at which the tip of the shadow moves.
3. Find the centre of mass of a wire in the form of an arc of a circle of radius R which subtends an angle 2α symmetrically at the centre of curvature.
4. The equation of a transverse wave travelling on a rope is given by $y = 5 \sin \pi(0.02x - 4.00t)$, where y and x are expressed in centimetres and t is in seconds. Find the amplitude, frequency, velocity and wavelength of the wave.
5. Determine the constant in the gas equation given that a gram molecule of a gas occupies a volume of 22.4 l at NTP.
6. An object is cooled from 85 to 75 °C in 2 min in a room at 30 °C. What time will be taken for the object to cool from 55 to 45 °C.
7. A spark is produced between two insulated surfaces, maintained at a constant difference of 5×10^6 V. If the energy output is 10^{-5} J, calculate the charge transferred. How many electrons have flowed?
8. A disc of radius R is uniformly charged to Q and placed in the xy -plane with its centre at the origin. Find the electric field along the z -axis.
9. A charge Q is uniformly distributed in a long cylinder of radius R and charge density ρ . Find the electric field for the regions (a) $r > R$; (b) $r < R$.
10. An air-traffic controller observes two aircraft on his radar screen. The first is at altitude 800 m, horizontal distance 19.2 km, and 25.0° south of west. The second aircraft is at altitude 1100 m, horizontal distance 17.6 km, and 20.0° south of west. What is the distance between the two aircraft?
11. Light of wavelength 700 nm is incident on the face of a fused quartz prism ($n = 1.458$ at 700 nm) at an incidence angle of 75.0°. The apex angle of the prism is 60.0°. Calculate the angle (a) of refraction at the first surface, (b) of incidence at the second surface, (c) of refraction at the second surface, and (d) between the incident and emerging rays.
12. An electron in the $n = 5$ energy level of hydrogen undergoes a transition to the $n = 3$ energy level. What is the wavelength of the photon the atom emits in this process?
13. Can a hydrogen atom in the ground state absorb a photon of energy less than 13.6 eV? Can this atom absorb a photon of energy greater than 13.6 eV?
14. An energy of about 21 eV is required to excite an electron in a helium atom from the 1s state to the 2s state. The same transition for the He⁺ ion requires approximately twice as much energy. Explain.
15. Calculate the magnitude of the orbital angular momentum for a hydrogen atom in (a) the 4d state and (b) the 6f state.
16. The carbon dioxide laser is one of the most powerful developed. The energy difference between the two laser levels is 0.117 eV. Determine (a) the frequency and (b) the wavelength of the radiation emitted by this laser. (c) In what portion of the electromagnetic spectrum is this radiation?

Ilovalar – Appendix

Standart ko'paytuvchilar - Standard multipliers

Power	Prefix	Abbreviation	Power	Prefix	Abbreviation
10^{-24}	yocto	y	10^1	deka	da
10^{-21}	zepto	z	10^2	hecto	h
10^{-18}	atto	a	10^3	kilo	k
10^{-15}	femto	f	10^6	mega	M
10^{-12}	pico	p	10^9	giga	G
10^{-9}	nano	n	10^{12}	tera	T
10^{-6}	micro	μ	10^{15}	peta	P
10^{-3}	milli	m	10^{18}	exa	E
10^{-2}	centi	s	10^{21}	zetta	Z
10^{-1}	deci	d	10^{24}	yotta	Y

Ba'zi fizik doimiylar - Some Physical Constants

Name	Symbol	Value
Atomic mass unit	u	$1.66 \cdot 10^{-27}$ kg
Avogadro's number	N_A	$6.022 \cdot 10^{23}$ particle/mol
Bohr magneton	μ_B	$9.274 \cdot 10^{-24}$ J/T
Bohr radius	r_B	$5.291 \cdot 10^{-11}$ m
Boltzmann's constant	k_B	$1.38 \cdot 10^{-23}$ J/K
Compton wavelength of electron	λ_C	$2.426 \cdot 10^{-12}$ m
Coulomb constant	k	$8.987 \cdot 10^9$ N·m ² /C ²
Electron mass	m_e	$9.109 \cdot 10^{-31}$ kg
Electron volt	eV	$1.602 \cdot 10^{-19}$ J
Elementary charge	e	$1.602 \cdot 10^{-19}$ C
Gas constant	R	8.31 J/(K·mol)
Gravitational constant	G	$6.67 \cdot 10^{-11}$ N·m ² /kg ²
Neutron mass	m_n	$1.6749 \cdot 10^{-27}$ kg
Nuclear magneton	μ_n	$5.0507 \cdot 10^{-24}$ J/T
Permeability of free space	μ_0	$4\pi \cdot 10^{-7}$ T·m/A
Permittivity of free space	ϵ_0	$8.854 \cdot 10^{-12}$ C ² /(N · m ²)
Planck's constant	h, $\hbar$	$6.626 \cdot 10^{-34}$ J·s
Proton mass	m_p	$1.672 \cdot 10^{-27}$ kg
Rydberg constant	R_H	$1.097 \cdot 10^7$ m ⁻¹
Speed of light in vacuum	c	$3 \cdot 10^8$ m/s

Ilovalar – Appendix

Uzunlik birliklari

XBS dagi asosiy o'lchov birligi - 1 m (1 metr)

XBS dagi qo'shimcha birliklari - 1 sm, 1 dm, 1 km

XBS ga kirmaydigan birliklari:

1 dengiz mili = 1852 m,

1 yorug'lik yili = $9.4 \cdot 10^{15}$ m,

1 a.b. (astronomik birlik) = $1.5 \cdot 10^{11}$ m

1 pc (parsek) = 3.29 y.y (yorug'lik yili) = $3.11 \cdot 10^{16}$ m

1 dyum = 0.0254 m

1 fut = 12 dyum = 0.3048 m

1 yard = 3 fut = 0.9144 m

1 mil = 1760 yard = 1609.344 m

Yuza birliklari

XBS dagi asosiy o'lchov birligi: 1 m²

XBS dagi qo'shimcha birliklari: 1sm², 1dm²

XBS ga kirmaydigan yuza birliklari:

1 ar = 1 m²

1 st (so'tix) = 100 m²

1 ga (gektar) = 10000 m²

1 kv.yard = 0.8361 m²

1 kv. Fut = 9.29 m²

1 kv dyum = 6.452 sm²

Hajm birliklari

XBS dagi asosiy o'lchov birligi: 1 m³

XBS dagi qo'shimcha birliklari: 1 dm³, 1 sm³

XBS ga kirmaydigan hajm birliklari:

1 litr = 10⁻³ m³

1 kub yard = 0.7646 m³

1 kub fut = 2.832 dm³

1 kub dyum = 16.39 sm³

1 bushel = 36.37 dm³

1 gallon (britanya) = 4.546 m³

1 gallon (AQSH) = 3.785 m³

Ilovalar – Appendix

Greek letters

Small Greek letters used in mathematics					
α	alpha	ι	iota	ρ	rho
β	beta	κ	kappa	σ	sigma
γ	gamma	λ	lambda	τ	tau
δ	delta	μ	mu	υ	upsilon
ϵ	epsilon	ν	nu	φ, ϕ	phi
ζ	zeta	ξ	xi	χ	chi
η	eta	$\omicron$	omicron	ψ	psi
θ, ϑ	theta	π	pi	ω	omega
Capital Greek letters used in mathematics					
$\mathbf{B}$	beta	$\mathbf{\Pi}$	Pi	$\mathbf{\Phi}$	Phi
$\mathbf{\Gamma}$	gamma	$\mathbf{\Theta}$	theta	$\mathbf{\Psi}$	psi
$\mathbf{\Xi}$	xi	$\mathbf{\Lambda}$	lamda	$\mathbf{\Omega}$	omega
$\mathbf{\Delta}$	delta	$\mathbf{\Sigma}$	sigma	$\mathbf{\Upsilon}$	Upsilon