

საკვალიფიკაციო ტესტები პროგრამისათვის „წყლის ინჟინერია“
Qualification tests for Master's program “Water Engineering”

1		Infectious agents present in polluted wastewater are named:
	A.	Pesticides
	B.	Pathogens
	C.	Nutrients
	D.	Hallogens

2		Natural complex organic acids found in surface water and have dark brown color are:
	A.	Fulvic acids (soluble)
	B.	Humic acids (insoluble)
	C.	Humic or kerogen (insoluble)
	D.	Humic acids (insoluble)

3		Lakes created by river meanders in flood plains and lakes formed by fluvial damming due to sediment deposition by tributaries are called:
	A.	Tectonic lakes
	B.	Glacial lakes
	C.	Fluvial lakes
	D.	Solution lakes

4		The transpiration is:
	A.	The evaporation from groundwater surface
	B.	The rainfall that flows into rivers as surface water and recharges groundwater
	C.	The evaporation from water surface
	D.	Process of water movement through a plant and its evaporation from aerial parts

5		Amoebic dysentery is caused by:
	A.	Virus
	B.	Bacteria
	C.	Protozoa
	D.	Fungi

6		Which of them is not Greenhouse efficiency key gas?
	A.	CH ₄
	B.	CO ₂
	C.	N ₂ O
	D.	H ₂ S

7		Water quality Monitoring define as:
	A.	A finite duration, intensive program to measure and observe the quality of the aquatic environment for a specific purpose.
	B.	Continuous, specific measurement and observation for the purpose of water quality management and operational activities
	C.	Long-term, standardised measurement and observation of the aquatic environment in order to define status and trends

	D.	Background levels for studying natural processes; used as reference point for pollution and impact assessments
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8		Which of them is equation of continuity of mass?
	A.	$V = AQ$
	B.	$Q = AT$
	C.	$A = QV$
	D.	$Q = AV$

9		The major components of petroleum are:
	A.	Halogenated Aliphatics
	B.	Aliphatic compounds
	C.	Aromatic hydrocarbons
	D.	Alicyclic hydrocarbons

10		A community of organisms living in a particular environment named:
	A.	Biosphere
	B.	Community
	C.	Ecosystem
	D.	Biome

11		Particulate organic matter is defined as:
	A.	Sorbed organochlorine compounds, hydrocarbons, etc., controlled, for example, by hydrophilic/hydrophobic characteristics and liposolubility.
	B.	Adsorbed nutrient elements required for plant growth which actively exchange between sediment and water.
	C.	sorbed heavy metals, arsenic, etc., controlled by various processes, such as adsorption and desorption, uptake and recycling, and redox conditions.
	D.	Either dissolved organic substances adsorbed from solution onto mineral particles

12		The equation $INFLOW + STORAGE \text{ AT START OF PERIOD} - WATER \text{ USE} - OUTFLOW = STORAGE \text{ AT END OF PERIOD}$ named:
	A.	Water quantity equation
	B.	Water budget equation
	C.	Water assessment equation
	D.	Water quality equation

13		In general, the water cycle consists of:
	A.	Condensation and sediments.
	B.	Evaporation, condensation and sediments.
	C.	Evaporation and condensation.
	D.	Condensation and transpiration.

14		Which of them is not Essential nutrient?
	A.	Carbon
	B.	Potassium
	C.	Oxygen
	D.	Nitrogen

15		Contaminants of particular concern in reservoirs with respect to human and
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		animal health are:
	A.	Dissolved oxygen
	B.	Synthetic organic compounds
	C.	Dissolved hydrogen
	D.	Salinisation

16		Water on Earth can exist in:
	A.	One basic state
	B.	The two basic states
	C.	Three basic states
	D.	Four basic states

17		Animal cells do not have:
	A.	Mitochondria
	B.	Nucleoli
	C.	Cell wall
	D.	Lysosomes

18		The Photocatalytic processes are in nature:
	A.	Electric
	B.	Magnetic
	C.	Electrochemical
	D.	Mechanic

19		Equation $Q = -K_i A$ named:
	A.	Darcy's Law
	B.	Bernoulli's Law
	C.	Manning's Law
	D.	D.Pascal's Law

20		The absorption of CO₂ from the atmosphere under certain conditions causes:
	A.	Basalt dissolution
	B.	Silicate dissolution
	C.	Granite dissolution
	D.	Limestone dissolution

21		The term Ecology means:
	A.	Study of the impact of humans in environment
	B.	Study of interaction of organisms
	C.	Study of surrounding nature
	D.	The relations of organisms to one another and to their physical surroundings

22		The class of highly branched polymers called:
	A.	Polymers
	B.	Telomers
	C.	Haptomers
	D.	Dendrimers

23		A pollution input that can be related to a single outlet define as:
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	A.	Non-point sources
	B.	Multy-point sources
	C.	Point sources
	D.	Diffuse-sources

24		Which of them is not the Pysiographic data?
	A.	Topographical data
	B.	Geological data
	C.	Hydrogeological data
	D.	Geomorphological data

25		The site of cell respiration and ATP production in eukaryotic cells is:
	A.	Cell membrane
	B.	Mitochondria
	C.	Golgi apparatus
	D.	Endoplasmatic reticulum

26		Conversion of undesirable chemicals into less toxic ones that can be readily excreted by the body named:
	A.	Bioactivation
	B.	Detoxification
	C.	Potentiation
	D.	Additivitation

27		Which of them is not Hydrological data?
	A.	Sediment
	B.	Evaporation
	C.	Insurance
	D.	Precipitation

28		The cloudiness or haziness of a fluid caused by suspended solids that are usually invisible to the naked eye named:
	A.	Gravity
	B.	Viscosity
	C.	Turbidity
	D.	Density

29		What is softened of water?
	A.	Remove of the odor
	B.	Remove of the Rigidity (Ca, Mg) salts
	C.	Remove of the turbidity
	D.	Remove of the sulfur

30		Enzymes are:
	A.	Catalysts that occur in all living organisms
	B.	Pathogenic microorganizms
	C.	Desease causing substances
	D.	Chemical pollutants

31		An expression of the conservation of energy for any incompressible flowing fluid in terms of its pressure, velocity, density, acceleration, and vertical height called:
	A.	Darcy's Law
	B.	Bernoulli's Law
	C.	Manning's Law
	D.	Pascal's Law

32		The main source of microorganisms in surface water is:
	A.	Rainwater
	B.	Fertilizers
	C.	The soil
	D.	Pesticides

33		Structures formed inside bacterial cells and are released when cells are exposed to adverse environmental conditions called:
	A.	Spores
	B.	Oocytes
	C.	Flagellas
	D.	Spermatozoids

34		The objective of Preliminary Treatment of wastewater is:
	A.	To eliminate debris and grit
	B.	To settle particulate material
	C.	To remove colloidal and dissolved biodegradable organic material
	D.	To treat or dispose of sludge

35		The benefits derived from a unit volume of water used is called:
	A.	Equity
	B.	Geopolitical efficiency
	C.	Uncertainty
	D.	Economic efficiency

36		The weight of the water per its unit volume, which depends on the temperature of the water named:
	A.	Gravity
	B.	Viscosity
	C.	Turbidity
	D.	Density

37		Clearing of forest cover exposes the soil to wind, rain and storms, thereby resulting in loss of top fertile layer of soil called:
	A.	Soil erosion
	B.	Depletion of nutrients
	C.	Deforestation
	D.	High Yielding

38		The thin layer of gases that cover Earth's surface named:
	A.	Hydrosphere
	B.	Geosphere
	C.	Atmosphere

	D.	Biosphere
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39		Water Resources Assessment defined as:
	A.	Determination of the quantity of water resources
	B.	Management of quality of water resources
	C.	Determination of the sources, extent, dependability and quality of water resources for their utilization and control
	D.	Management of water shed water resources
		Determination of the quantity of water resources

40		According to the total content in natural waters in the first place are put:
	A.	Phosphate ions
	B.	Chloride ions
	C.	Sulphate ions
	D.	Nitrogenous ions

41		The circular DNA molecules in eukaryotes called:
	A.	Nucleotides
	B.	Chromosomes
	C.	Plasmids
	D.	Nucleoplasm

42		Chemicals with surface activity that are used for household and industrial cleaning, and personal care products named:
	A.	Pesticides
	B.	Surfactants
	C.	Herbicides
	D.	Fungicides

43		A measure of the resistance of a fluid which is being deformed by either shear stress or tensile stress is called:
	A.	Gravity
	B.	Viscosity
	C.	Turbidity
	D.	Density

44		A pressure change at any point in a confined incompressible fluid is transmitted throughout the fluid such that the same change occurs everywhere is:
	A.	Darcy's Law
	B.	Bernoulli's Law
	C.	Manning's Law
	D.	Pascal's Law

45		The major part of available fresh water is locked up into:
	A.	Glaciers and Ice
	B.	Groundwater
	C.	Lakes
	D.	Rivers

46		The raw sewage contains about:
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	A.	1part of waste in 10 parts of water
	B.	1part of waste in 100 parts of water
	C.	1part of waste in 1000 parts of water
	D.	1part of waste in 10 000 parts of water

47		Photosynthesis is the manufacture in green plant leaves of:
	A.	Proteins
	B.	Carbohydrates
	C.	Lipids
	D.	Hydrocarbons

48		All the waters on the earth's surface, such as lakes and seas, and sometimes including water over the earth's surface, such as clouds named:
	A.	Hydrosphere
	B.	Geosphere
	C.	Atmosphere
	D.	Biosphere

49		Stickslike bacterias are called:
	A.	Vibrios
	B.	Bacilli
	C.	Cocci
	D.	Spirilles

50		The surface potential in colloids called:
	A.	Alpha potential
	B.	Beta potential
	C.	Gamma potential
	D.	Zeta potential

51		During aerobic sewage treatment, the microorganisms need:
	A.	Carbon environment
	B.	Nitrogen environment
	C.	Phosphorus environment
	D.	Oxygen environment

52		The main component of the protein molecule are:
	A.	Nucleic acids
	B.	Amino Acids
	C.	Shugars
	D.	Fats

53		Cholera is caused by:
	A.	Virus
	B.	Bacteria
	C.	Protozoa
	D.	Fungi

54		Which of them is biodegradable polymer?
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	A.	Polyethylene glycol
	B.	Cellulose acetate
	C.	Polystyrene
	D.	Teflon

55		The rigid outer part of the earth, consisting of the crust and upper mantle named:
	A.	Atmosphere
	B.	lithosphere
	C.	Hydrosphere
	D.	Biosphere

56		Of the metal ions in natural waters, the largest quantities are ions:
	A.	Calcium
	B.	Magnesium
	C.	Sodium
	D.	Aluminum

57		What substance is excreted from methantank during digestion?
	A.	Oxygen
	B.	Hydrogen sulphide
	C.	Methane
	D.	Nitrogen

58		Cooling and solidification of molten magma or lava give rise to:
	A.	Metamorphic Rocks
	B.	Igneous Rocks
	C.	Sedimentary Rocks
	D.	Mezomorphic Rocks

59		To neutralize alkaline water most often used:
	A.	Technical ammonia water
	B.	Hydrated lime
	C.	Sodium hydroxide
	D.	Technical Sulfuric Acid

60		All bacteria that cause plant and animal diseases are:
	A.	Symbionts
	B.	Parasites
	C.	Xenobionts
	D.	Metabionts

61		Meeting the needs of the present without compromising the ability of future generations to meet their own needs defined as:
	A.	Environmental impact statement
	B.	Impact prediction
	C.	Mitigation
	D.	Sustainable development

62		Which of microorganism causes Typhoid Fever?
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	A.	Escherichia coli
	B.	Giardia intestinales
	C.	Entamoeba histolytica
	D.	Salmonella typhi

63		The complex multistage process of abnormal cell growth and differentiation that can lead to cancer called:
	A.	Carcinogenicity
	B.	Developmental toxicity
	C.	Genotoxicity
	D.	Biotoxity

64		The settling method is used to remove:
	A.	Fats
	B.	Oils
	C.	Suspended substances
	D.	Oil products

65		All algae contains:
	A.	Chlorophyll
	B.	Chrizophyll
	C.	Neutrophil
	D.	Basophil

66		Physical disturbance of bed sediment and release of interstitial waters, including possible desorption of some contaminants to the water column called:
	A.	Salinization
	B.	Bioturbation
	C.	Evaporation
	D.	Resuspension

67		What taste does not water have?
	A.	Salty
	B.	Sweet
	C.	Bitter
	D.	Hot

68		The global ecological system integrating all living beings and their relationships named:
	A.	Atmosphere
	B.	lithosphere
	C.	Hydrosphere
	D.	Biosphere

69		A submicroscopic agent of infectious disease that requires a living cell for its multiplication is:
	A.	Virus
	B.	Worm
	C.	Protozoa

	D.	Crustacea
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70		Surveillance define as:
	A.	A finite duration, intensive program to measure and observe the quality of the aquatic environment for a specific purpose.
	B.	Continuous, specific measurement and observation for the purpose of water quality management and operational activities
	C.	Long-term, standardised measurement and observation of the aquatic environment in order to define status and trends
	D.	Background levels for studying natural processes; used as reference point for pollution and impact assessments

71		The most intense destruction of concrete is in conditions of:
	A.	High water pH
	B.	Ultrahigh water pH
	C.	Low water pH
	D.	Neutral pH values of water

72		Conversion the small colloidal particles into larger particles called:
	A.	Sediments
	B.	Coagulants
	C.	Flocs
	D.	Precipitates

73		Cavitation is:
	A.	The velocity head at the discharge of a pumping system
	B.	A state of flow where the pressure in the liquid becomes equal to its vapor pressure
	C.	Value of the efficiency that corresponds to the best operating performance of the pump.
	D.	A head loss due to loss of internal energy

74		The oligotrophic reservoirs are:
	A.	Nutrient rich
	B.	Have not nutriens
	C.	Nutrient poor
	D.	Polluted with sewage

75		The composition of industrial wastewater depends on:
	A.	Geological conditions
	B.	Nature of production processes
	C.	Climatic conditions
	D.	Production locations

76		The process of purification of water by absorption called:
	A.	Filtration
	B.	Transpiration
	C.	Distillation
	D.	Sedimentation

77		A unit operation in which solids are drawn toward a source of attraction is:
	A.	Flotation
	B.	Screening
	C.	Retenting
	D.	Settling

78		The ability of organic compounds to bind metal ions and maintain them in solution named:
	A.	Donation
	B.	Respiration
	C.	Chelation
	D.	Resorbtion

79		The microorganisms which extract energy from organic or inorganic oxidation/reduction reactions called:
	A.	Heterotrophic organisms
	B.	Autotrophic organisms
	C.	Chemotrophic organisms
	D.	Lithotrophic organisms

80		Which form of nitrogen is not exist in water?
	A.	Ammonia
	B.	Azides
	C.	Nitrite
	D.	Nitrate

81		Which of them is not physical characterisation of water?
	A.	Turbidity
	B.	Color
	C.	Alkalinity
	D.	Temperature

82		Measurement of chlorophyll pigments called:
	A.	Chlorophyll absorbtion
	B.	Chlorophyll chelation
	C.	Chlorophyll oxidation
	D.	Chlorophyll fluorecence

83		The spent water after homes, commercial establishments, industries, Public institutions, and similar entities defined as:
	A.	Clearwater
	B.	Blackwater
	C.	Wastewater
	D.	Bluewater

84		Low salt water is called:
	A.	Cristalline
	B.	Soft
	C.	Tough

	D.	Muddy
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85		Adsorbent is:
	A.	The solute adsorbed onto the surface of a solid
	B.	Carbon with enhanced adsorption characteristic
	C.	The solid that adsorbs the adsorbate
	D.	Carbon with decreasing adsorption characteristic

86		Increased mineral salts in rivers defined as:
	A.	Eutrophication
	B.	Salinisation
	C.	Acidification
	D.	Sedimentation

87		The gently stirring the water to cause more small particles to bump into each other and stick together, forming larger particles called:
	A.	Flocculation
	B.	Absorption
	C.	Sedimentation
	D.	Adsorption

88		The microorganisms which rely only on light for energy are called:
	A.	Heterotrophic organisms
	B.	Autotrophic organisms
	C.	Phototrophic organisms
	D.	Lithotrophic organisms

89		Secondary treatment is:
	A.	Treatment is brought about by physical processes such as screening and sedimentation
	B.	Removing debris and coarse materials that may clog equipment in the plant
	C.	Biological and chemical unit processes are used to treat wastewater.
	D.	Unit operations and chemical unit processes are used to further remove BOD, nutrients, pathogens, and parasites

90		Lakes occurring in cavities created by percolating water in water-soluble rocks named:
	A.	Tectonic lakes
	B.	Shoreline lakes
	C.	Dammed lakes
	D.	Solution lakes

91		The branch of science that deals with the composition, structure, and properties of substances and the transformation that they undergo defined as:
	A.	Geology
	B.	Physics
	C.	Biology
	D.	Chemistry

92		The formula H₂O₂ corresponds to:
	A.	Heavy water
	B.	Light water
	C.	Tritium-deuterium water
	D.	Super heavy water

93		Acidity is:
	A.	The ability of a substance to neutralize a base
	B.	The ability of a substance to act both as an acid and as a base
	C.	The ability of a substance to neutralize an acid.
	D.	The ability of a substance to neutralize alcohol

94		Physical disturbance of bed sediment and release of interstitial waters, including possible desorption of some contaminants to the water column named:
	A.	Hydroturbation
	B.	Geoturbation
	C.	Bioturbation
	D.	Resuspension

95		Bacteria that grow best at temperatures between 25°C and 40°C are called:
	A.	Hyperthermophiles
	B.	Psychrophiles.
	C.	Thermophiles
	D.	Mesophylls

96		
	A.	
	B.	
	C.	
	D.	

97		The process of purification of water by evaporation and condensation called:
	A.	Filtration
	B.	Transpiration
	C.	Distillation
	D.	Adsorption

98		Porosity and specific yield of geological materials porous to store water and permeable enough to transmit water in quantities that can be economically exploited is called:
	A.	Aquifer
	B.	Limestone
	C.	Layer of rock
	D.	Sandstone

99		Which of them is not Hydrological data?
	A.	Precipitation
	B.	Evaporation

	C.	Air pollution
	D.	Water quality

100		Pollution resulting from many diffuse sources called
	A.	Multy-point sources
	B.	Point sources
	C.	Diffuse-sources
	D.	Non-point sources

Literature

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