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Tentative Answer Key For 2025 TNPSC Combined Technical Services Examination (Non interview Posts) - Degree standard (POLLUTION CONTROL BOARD)

Examination Held On 4.8.2025



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- 1. The Occupational Health Services convention was held during the year
 - (A) 1975

(B) 1985

(C) 1995

- (D) 1997
- (E) Answer not known
- 2. Choose the right matches among type:
 - 1. PLIBEL Identification of Ergonomic Hazards
 - 2. DMQ Fire safety and rescue
 - 3. QEC Work place risk assessment
 - 4. RULA Emergence management
 - (A) 1 and 3 are correct
 - (B) 1 and 2 are correct
 - (C) 2 and 3 are correct
 - (D) 3 and 4 are correct
 - (E) Answer not known
- 3. The probability of adverse effects on human health resulting from some defined condition of exposure to a particular environmental agent or combination of agents is known as:

3

(A) Risk

(B) Hazard

(C) Vulnerable

- (D) Threat
- (E) Answer not known



- 4. The toxicants that damage kidney (nephrotoxics) are
 - (A) Lead, Chromium, Cadmium
 - (B) Chromium, Arsenic, Mercury
 - (C) Cadmium, Arsenic, Chromium
 - (D) Mercury, Cadmium, Lead
 - (E) Answer not known
- 5. Choose the characteristics of disasters from the following
 - 1. Usually occurs because of one of the danger sources
 - 2. Seriously and substantially impact the most vulnerable groups
 - 3. Results in serious imbalance in community functions
 - 4. Results in significant losses in human lives, materials and environment
 - (A) 2, 3 and 4
 - (B) 1, 2 and 3
 - (C) 1, 2, 3 and 4
 - (D) 2 and 4
 - (E) Answer not known
- 6. Cognitive ergonomics tool is formulated around the concepts of
 - (A) By ignoring fundamental principles of human actions
 - (B) Human abnormal behaviour analysis
 - (C) Mental work and cognitive tool
 - (D) Problems of design
 - (E) Answer not known



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- 7. Types of Hazards in workplace are
 - 1. Mechanical, vibrational and noise
 - 2. Heat and temperature
 - 3. Flammability
 - 4. Pressure Hazard
 - (A) 1, 2, 3 and 4
 - (B) 1, 2, and 3
 - (C) 3 and 4
 - (D) 2 alone
 - (E) Answer not known
- 8. Major Hazardous risk associated with pesticide manufacturing industries are
 - (A) Toxic chemical and flammable material
 - (B) Highly reactive (or) corrossive and extreme condition of temperature
 - (C) Large mechanical equipment pressure of collision
 - (D) Toxic chemical and highly reactive (or) corrosive
 - (E) Answer not known



- 9. Assertion [A]: The bill and Melinda Gates foundation has pledged \$200 million for medical aid to developing countries to help fight AIDS, TB and malaria as the establishment of emergency preparedness.
 - Reason [R]: As a antiretroviral therapy and antibodies to combat mother to child transmission or breast breeding had proven results in AIDS control
 - (A) Both [A] and [R] are false
 - (B) [A] is true but [R] is false
 - (C) [A] is false but [R] is true
 - (D) Both [A] and [R] are true
 - (E) Answer not known
- 10. Choose the right matches among gloves type
 - 1. Type 1 glove -650 rms voltage
 - 2. Type 2 glove -1300 rms voltage
 - 3. Type 3 glove 3300 rms voltage
 - 4. Type 4 glove 6600 rms voltage
 - (A) 1 and 3 are correct
 - (B) 1 and 2 are correct
 - (C) 2 and 3 are correct
 - (D) 3 and 4 are correct
 - (E) Answer not known



- 11. Which of the following statements are true about emergency evacuation?
 - (i) A precise estimate of the evacuation route is of primary importance to the evacuation planners.
 - (ii) Wardrop's system optimal (so) flow is best suited to decide evacuation route
 - (iii) Hope and Tardos introduced a first polynomial time algorithm for evacuation
 - (A) (i) only

(B) (i) and (iii) only

(C) (i) and (ii) only

- (D) (ii) and (iii) only
- (E) Answer not known
- 12. The provision of facilities to maintain the health and well-being of individuals at the work place is known as:
 - (A) Safety

(B) Protection

(C) Welfare

- (D) Near miss
- (E) Answer not known
- 13. The process of characterizing the relationship between the dose of an agent received and the incidence of an adverse health effect is known as:

- (A) Exposure assessment
- (B) Risk characterization
- (C) Dose response assessment
- (D) Hazard identification
- (E) Answer not known



- 14. Which of the following statements are correct about Electrical Equipment Safety?
 - (i) Rubber gloves must be worn when electrician working near 'live' wires carrying 440 volts or more
 - (ii) All portable electric tools and equipment at office and laboratory equipment shall be inspected at regular intervals by an electrician
 - (iii) Two experienced men are necessary when working with 440 volts or more
 - (A) (i) only
 - (B) (i) and (iii) only
 - (C) (i) and (ii) only
 - (D) (ii) and (iii) only
 - (E) Answer not known
- 15. Which of the following is a major pollutant from E-waste?
 - (A) Aluminum
 - (B) Copper
 - (C) (PBB) Polybrominated biphenyl
 - (D) Zinc
 - (E) Answer not known



16. Select the correct benefits of EIA

- a. Environmental condition for better design
- b. It helps to reduce the project cost
- c. Insures appropriate mitigation measures to be taken
- d. To understand extensive ecological and socio-economic indicators.
- (A) b, d
- (B) a, b and c
- (C) c, d
- (D) b, c and d
- (E) Answer not known



- 17. Environmental clearance notification is given by
 - (A) Ministry of Human Resources Development
 - (B) Ministry of Environment and Forest
 - (C) Ministry of Health
 - (D) Ministry of Commerce
 - (E) Answer not known
- 18. Which action involves the impact linkages between the natural and social environment?
 - (A) Impact Prediction and Assessment
 - (B) Cumulative Impacts
 - (C) Direct Impacts
 - (D) Alternate Impacts
 - (E) Answer not known

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- 19. Assertion [A]: Expert committees for environmental assessment are constituted to ensure multidisciplinary inputs for development projects.
 - Reason [R]: These committees cover sectors such as mining, industrial, thermal power, river valley, infrastructure and nuclear power projects.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
 - (C) [A] is true, but [R] is false
 - (D) [A] is false, but [R] is true
 - (E) Answer not known
- 20. Assertion [A]: The Coastal Regulation Zone (CRZ) notification, 1991, aims to promote large-scale industrial development along coastal areas.
 - Reason [R]: The CRZ notification is intended to ensure the conservation and proper management of coastal ecosystems through regulated activities.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
 - (C) [A] is true, but [R] is false
 - (D) [A] is false, but [R] is true
 - (E) Answer not known



- 21. What is the primary purpose of project screening in the EIA process?
 - (A) To finalize the budget for environmental mitigation measures
 - (B) To identify whether a proposed project requires EIA
 - (C) To approve the project location
 - (D) To determine the post-construction environmental audit requirements
 - (E) Answer not known
- 22. Among the following, identify the criteria which is responsible to satisfy the objective of National Environment Policy such as conservation of critical Environmental resources
 - (A) Time and costs
 - (B) Projects for economic and social development
 - (C) Conservation of invaluable natural and manmade heritage
 - (D) Academic and Research Community
 - (E) Answer not known
- 23. The Environment Protection Act, 1986 requires _____ and is to be submitted to State Pollution Control Board.

- (A) To disclose their discharge level
- (B) Prohibition to discharge of pollutings matter
- (C) Environmental Audit
- (D) Community reserves
- (E) Answer not known



- 24. Which substance was added to the list of controlled substances in the Kigali Amendment to the Montreal protocol?
 - (A) Carbon dioxide
 - (B) Hydro fluoro Carbons (HFCs)
 - (C) Methane
 - (D) Nitrogen
 - (E) Answer not known
- 25. What is the first stage of the environmental clearance process for site-specific projects like mining, river valley, ports and harbours?
 - (A) Environmental clearance
 - (B) Final Approval from the State Government
 - (C) Site Clearance
 - (D) Construction permit
 - (E) Answer not known



- 26. Assertion [A]: The Environment Protection Act, 1986 integrates various environmental laws, providing a unified approach to environmental protection and pollution control.
 - Reason [R] : The Act was enacted in response to the Bhopal Gas Tragedy to fill gaps in existing environmental regulations.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
 - (C) [A] is true, but [R] is false
 - (D) [A] is false, but [R] is true
 - (E) Answer not known
- 27. Assertion [A]: The Air (Prevention and Control of Pollution) Act, 1981 aims to Prevent, Control and abate air pollution in India.
 - Reason [R] : The Act was primarily enacted to regulate forest conservation and wildlife protection.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]

- (C) [A] is true, but [R] is false
- (D) [A] is false, but [R] is true
- (E) Answer not known



- 28. Assertion [A]: The 24-hour average NO₂ concentration standard under the NAAQS is the same for industrial and ecologically sensitive areas.
 - Reason [R] : NO₂ has similar harmful effects in all areas, irrespective of ecological sensitivity.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
 - (C) [A] is true, but [R] is false
 - (D) [A] is false, but [R] is true
 - (E) Answer not known
- 29. According to the Water Act, 1974, which of the following is not a power granted to the Central Pollution Control Board (CPCB)?
 - (A) To plan nation wide programs for the prevention and control of water pollution
 - (B) To advise the Central Government on matters related to water pollution
 - (C) To levy and collect water cess from industries
 - (D) To coordinate activities of State Pollution Control Boards
 - (E) Answer not known



- 30. Assertion [A]: The 24-hour PM2.5 standard allows exceedance only up to three times a year.
 - Reason [R] : PM2.5 particles can penetrate deep into the lungs and cause severe health issues, so strict limits are necessary.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
 - (C) [A] is true, but [R] is false
 - (D) [A] is false, but [R] is true
 - (E) Answer not known
- 31. Assertion [A]: The Water Cess Act, 1977 was last amended in 2003 to improve compliance and administration.
 - Reason [R] : The amendment removed the requirements for industries to maintain water consumption records.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]

- (C) [A] is true, but [R] is false
- (D) [A] is false, but [R] is true
- (E) Answer not known



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JANANI SRI NEET SCORE: 515



AKILA NEET SCORE: 459



CHARU DHARSHINI NEET SCORE: 487



- 32. For which of the following violating the provision of the Water Act will impose penaling?
 - (i) Failure to provide information about discharging effluents.
 - (ii) For prohibiting discharge of any polluting matter into stream.
 - (iii) Discharging coloured effluent to environment.
 - (iv) For prohibiting discharge of solid wastes.
 - (A) (i) and (ii)

(B) (iii) and (iv)

(C) (ii), (iii) and (iv)

- (D) (i), (ii) and (iv)
- (E) Answer not known
- 33. The notification amended to obtain environmental clearance for development projects come under
 - (A) Disposal of fly ash notification
 - (B) Coastal Regulation notification
 - (C) Doon valley notification
 - (D) Environmental Impact Assessment notification
 - (E) Answer not known



- 34. Assertion [A]: Producers have the obligation of Extended Producer Responsibility (EPR) to meet recycling or refurbishing targets for batteries they introduce into the market.
 - Reason [R] : EPR ensures producers are responsible for the entire lifecycle of the batteries, including end-of-life management.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
 - (C) [A] is true, but [R] is false
 - (D) [A] is false, but [R] is true
 - (E) Answer not known
- 35. Assertion [A]: Local bodies are responsible for the collection, treatment and disposal of Solid Waste Management Rules, 2016.
 - Reason [R] : The rules assign the task of monitoring and authorizing waste management process to local bodies.
 - (A) Both [A] and [R] are true and [R] is the correct explanation of [A]
 - (B) Both [A] and [R] are true, but [R] is not the correct explanation of [A]

- (C) [A] is true, but [R] is false
- (D) [A] is false, but [R] is true
- (E) Answer not known



- 36. As per Solid Waste Management Rules, 2016, which of the following is not included in the definition of solid waste?
 - (A) Street Sweepings

(B) E-Waste

- (C) Horticulture Waste
- (D) Market Waste
- (E) Answer not known
- 37. Which of the following items was included in the ban under the Plastic Waste Management (Amendment) Rules, 2021 from 01.07.2022?
 - (A) Plastic carry bags below 120 microns
 - (B) Ear buds with plastic sticks
 - (C) PVC banners above 100 microns
 - (D) Non-woven plastic bags above 60 GSM
 - (E) Answer not known
- 38. What is a key objective of the E-Waste (Management) Rules, 2022?
 - (A) Promote open dumping of e-waste
 - (B) Ban all forms of electronics manufacturing
 - (C) Promote Circular Economy through Extended producer Responsibility
 - (D) Limit the role of producers in post-consumer waste management
 - (E) Answer not known



- 39. Which of the following is an essential element of (Integrated Solid Waste Management) ISWM for achieving sustainability?
 - (A) Emphasis on disposal and incineration
 - (B) Focus on resource recovery and minimizing waste generation
 - (C) Focus only on waste collection
 - (D) Ignoring recycling and focusing only on treatment
 - (E) Answer not known
- 40. Why does waste generation tend to be higher in urban areas than in rural areas?
 - (A) Urban areas use more natural fertilizers
 - (B) Urban lifestyles involve more consumption and packaging
 - (C) Rural areas generate more hazardous waste
 - (D) Urban areas have fewer people
 - (E) Answer not known
- 41. Among the following choose the best/correct methods with correct options (both) used to removing submicron particulates of size $0.5~\mu m$ to $1~\mu m$ from polluted air

- (1) venturi scrubber
- (2) spray tower
- (3) fabric filters
- (4) gravitational settling chambers
- (A) (1) and (3)

(B) (2) and (3)

(C) (2) and (4)

(D) (1) and (4)

(E) Answer not known



- 42. Organic solvent vapours are adsorbed from the gaseous pollutants using which of the following?
 - (A) Iron oxide

(B) Alkaline allumina

(C) Bauxite

- (D) Activated carbon
- (E) Answer not known
- 43. Acceptable indoor noise level for Radio and TV studios is
 - (A) 30-35 dB (A)

(B) 40-45 dB (A)

(C) 25-30 dB (A)

- (D) 25-35 dB (A)
- (E) Answer not known
- 44. The maximum permissible standards of sulphur di oxide for residential area in the New Revised National Ambient Air Qualities Standards in India is
 - (A) $30 \mu g/m^3$

(B) $120 \ \mu g / m^3$

(C) $50 \mu g/m^3$

- (D) $60 \mu g/m^3$
- (E) Answer not known
- 45. Which of the following involves forcing or pumping in fresh air, and causing the vitiated air to be exhausted out either by itself or through an exhaust fan placed at the outlet?
 - (A) Vaccum system

- (B) Plenum system
- (C) Air conditioning system
- (D) Air cooler system
- (E) Answer not known



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AATHAVAN M (24KI016)



(24KI020)





- 46. How much is the noise standard for passenger cars as per Environment (Protection) Rules 1986 in dB(A)?
 (A) 82
 (B) 85
 (C) 89
 (D) 75
 (E) Answer not known
- 47. Which of the following is responsible for changing oligotrophic water into intensity protective eutrophic water in fresh and marine eco systems?
 - (A) Calcium and phosphate nutrient species
 - (B) Potassium and phosphorus nutrient species
 - (C) Nitrogen and phosphorus nutrient species
 - (D) Chloride and sodium nutrient species
 - (E) Answer not known
- 48. The Montreal protocol is aimed to phase out the production of
 - (A) SO_2

(B) NO_2

(C) VOC_S

- (D) CFC_S
- (E) Answer not known
- 49. The cleaning capability of cyclonic scrubber wet collectors is about

- (A) 2500 litres of gas/per minute
- (B) 2000 litres of gas/per minute
- (C) 1500 litres of gas/per minute
- (D) 2250 litres of gas/per minute
- (E) Answer not known



50.	A organic carcinogenic compound present in cigarette smoke is			
	(A)	Carbondioxide	(B) Sulphurdioxide	
	(C)	Benzo (a) pyrene	(D) Benzy azo Nitrine	
	(E)	Answer not known		
51.	Choose the right answer among type of sources in connection with Air Pollution.			
	(1)	Solid waste disposal is area	source	
	(2)	Power plants are point source		
	(3)	Onsite incineration is point source		
	(4)	Railyard locomotives is area source		
	(A)	(1) and (3) are correct	(B) (2) and (3) are correct	
	(C)	(2) and (4) are correct	(D) (3) and (4) are correct	
	(E)	Answer not known		
52.	Petr	ol engine receive	than Diesel engine.	
	(A)	High fuel content mixture		
	(B)	Low fuel content mixture		
	(C)	Moderate fuel content mixture		
	(D)	Equal fuel content mixture		
	(E)	Answer not known		



- 53. Fluidised bed combustion (FBC) is one of the modified and New type of combustion chamber because
 - (i) It increase the coal combustion and decrease the heat transfer.
 - (ii) It reduce the coal combustion as well as decrease the heat transfer.
 - (iii) It increase the coal combustion efficiency
 - (iv) It increase the efficiency of coal combustion as well as heat transfer
 - (A) (iv) only

(B) (ii) only

(C) (iii) and (ii)

- (D) (i) only
- (E) Answer not known
- 54. 'London Smog' occurred in
 - (A) December 1952

(B) November 1952

(C) December 1954

- (D) October 1952
- (E) Answer not known
- 55. Exposure to NO_2 even in a small concentration but longer period leads to

23

(A) Lungs problem

(B) Liver problem

(C) Kidneys problem

- (D) Heart problem
- (E) Answer not known



- 56. Which of the following models is primarily used for evaluating the impact of air quality management practices for multiple pollutants at multiple scales?
 - (A) CAMX

(B) CMAQ

(C) UAM

- (D) CALGRID
- (E) Answer not known
- 57. What does the dispersion model describe?
 - (A) The rate of pollutant emission overtime
 - (B) How pollutants or particles spread in the environment
 - (C) The temperature changes in a given area
 - (D) The chemical reaction rate of pollutants
 - (E) Answer not known
- 58. Which of the following field tests is typically used in transient simulations?
 - (A) grain size analysis

(B) slug test

(C) isotope tracing

- (D) soil classification
- (E) Answer not known



59. Assertion [A] : Bubble aeration is a process where gas transfer

occurs across the gas water interface of gas bubbles, which is commonly used in activated

sludge systems.

Reasons [R] : According to Bewtra (1962), Oxygen transfer

from bubbles occurs in three phases: formation of the bubble at the capillary opening, bubble.

(A) Both [A] and [R] are correct and the [R] is the correct explanation for the [A]

- (B) Both [A] and [R] are correct, but the [R] is not the correct explanation for [A]
- (C) [A] is correct, but the [R] is incorrect
- (D) [A] is incorrect, but the [R] is correct
- (E) Answer not known
- 60. In the Oxygen sag curve model of a stream receiving organic waste, the lowest point of dissolved oxygen typically occurs in
 - (A) zone of degradation
 - (B) zone of active decomposition
 - (C) zone of recovery
 - (D) zone of clean water
 - (E) Answer not known
- 61. The greater the number and diversity of confirming observations, the more probable it is that the conceptualization embodied in the model is not flawed such a model is said to be

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(A) Weak

(B) Robust

(C) Adequate

(D) Frail

(E) Answer not known



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- 62. Standard deviation of sampling distribution of mean is (Notations are as usual)
 - (A) σ/n

(B) $\sqrt[\sigma]{n}$

(C) σ/n^2

- (D) $\sqrt{\sigma/n}$
- (E) Answer not known
- 63. In stratified sampling, the population is divided into
 - (A) Groups with equal sizes
- (B) Homogenous sub groups
- (C) Randomly selected groups
- (D) Heterogeneous clusters
- (E) Answer not known
- 64. What does the theory of testing of hypothesis employ to make decisions?
 - (A) Large population data
 - (B) Sample theory and statistical techniques
 - (C) Experimental design only
 - (D) Visual data representation
 - (E) Answer not known
- 65. In which of the following situations a test of significance is NOT typically applied?
 - (A) Testing if a machine fills exactly 500 ml of milk
 - (B) Comparing the productivity of two manufacturing processes
 - (C) Calculating mean rainfall for the last 10 years
 - (D) Checking if students IQ scores meet a standard
 - (E) Answer not known

393-Environmental and Chemical Engineering

ACADEMY

- 66. A study claims that forest fires in Uttarakhand have increased by 13% which of the following represents the most appropriate null and alternative hypothesis?
 - (A) H_o : Increase in less than 13%, Ha: Increase is 13%
 - (B) H_o : Increase exactly 13%, Ha : Increase is not 13%
 - (C) H_o : Increase is more than 13%, Ha: Increase is 13%
 - (D) H_o : No increase, Ha: Increase is exactly 13%
 - (E) Answer not known
- 67. The analysis in which the model is used to inspect the system and gain insight into how the system works. This analysis is
 - (A) Exploratory analysis
- (B) Case analysis
- (C) Model validation analysis
- (D) Problem definition
- (E) Answer not known
- 68. Assertion (A): In modelling, a variable is a value that changes

freely in time and space.

Reason (R) : A State variable represents a State or

compartment in the model.

- (A) Both [A] and [R] is true and [R] is the correct explanation of [A]
- (B) Both [A] and [R] is true but [R] is not the correct explanation of [A]

- (C) [A] is true, but [R] is false
- (D) [A] is false but [R] is true
- (E) Answer not known



- 69. Which of the following error/errors arise during the computer representation of the algorithm that operationalises the model?
 - (A) Computational errors

(B) Procedural errors

(C) Propagation errors

(D) Both (A) and (B)

- (E) Answer not known
- 70. Why is soil depth considered a critical factor in Environmental modeling?
 - (A) It affects air quality and pollution level
 - (B) It controls water flow into and through the soil
 - (C) It increases the soil temperature
 - (D) It limits the number of soil organisms
 - (E) Answer not known
- 71. Rotating biological contractor treatment system is
 - (A) An attached growth process
 - (B) A suspended growth process
 - (C) A combination of attached and suspended growth process
 - (D) Neither attached not suspended growth process
 - (E) Answer not known



- 72. In sludge processing, following treatments are to be done.
 - (1) Conditioning
 - **(2)** Dewatering
 - Thickening (3)
 - Digestion **(4)**
 - (5)Disposal

Choose the correct sequences to be followed

- (A)
- $(1) \to (2) \to (3) \to (4) \to (5)$ (B) $(2) \to (1) \to (3) \to (4) \to (5)$
- $(3) \to (4) \to (1) \to (2) \to (5)$ (D) $(4) \to (1) \to (2) \to (3) \to (5)$ (C)
- (E) Answer not known
- Which gas consumes more alkalinity in an anaerobic digester 73. during anaerobic digestion process?
 - Carbon di oxide (A)

(B) Methane

(C) Oxygen

- (D) Ammonia
- (E) Answer not known
- 74. When the recirculation ratio in a high rate trickling filter is unity, then the recirculation factor is
 - (A) 1

(B) > 1

(C) < 1

- (D) Zero
- Answer not known (E)

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(POLLUTION CONTROL BOARD)

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- 75. Consider the following sequence of operations in of upflow anaerobic sludge blanket reactor units for municipal sewage water treatment. Arrange the steps in the correct order
 - (i) Pumping \rightarrow Screening \rightarrow Degritting
 - (ii) Sludge blanket settling \rightarrow Drying \rightarrow Gas collection
 - (iii) Sludge blanket settling \rightarrow Gas collection \rightarrow Drying
 - (iv) Degritting \rightarrow Pumping \rightarrow Screening

Among the above four sequences which two are correct other two sequences are Incorrect

- (A) (i), (ii) are correct, (iii) and (iv) are incorrect
- (B) (i), (iv) are correct, (ii) and (iii) are incorrect
- (C) (ii), (iii) are correct, (i) and (iv) are incorrect
- (D) (i), (iii) are correct, (ii) and (iv) are incorrect
- (E) Answer not known
- 76. Biological sludge does not settles and leaves a small amount of clear supernatant at the top is called as
 - (A) Sludge Bulking

- (B) Sludge Filtering
- (C) Sludge Thickening
- (D) Sludge Digesting
- (E) Answer not known
- 77. National Research Council has developed empirical equation for trickling performance as $VF = \frac{W}{5.08} \left[\frac{E_1}{1 E_1} \right]^2$ where W stand for
 - (A) Carbon di oxide

- (B) Dissolved oxygen
- (C) Chemical oxygen demand
- (D) Biological oxygen demand
- (E) Answer not known

- 78. Sequencing Batch Reactors processes majorly used in
 - (A) Fertilizer Industry
- (B) Sugar Mill Industry
- (C) Petroleum Industry
- (D) Steel Industry
- (E) Answer not known
- 79. Which statement best distinguishes the performance of activated sludge process from Trickly filter in Municipal waste water treatment?
 - (A) Activated sludge process uses less energy and produces less sludge than Tricky Filter
 - (B) Trickling Filter removes nutrients better due to longer biomass retention
 - (C) Activated sludge process handles shock loads better due to active Biomass control
 - (D) Tricky Filter achieves better effluent quality due to diverse biofilms
 - (E) Answer not known
- 80. Unless the sludge age in a reactor is greater than cell doubling time, the cell may get washed out of system. Thus relation between sludge age (θ_c) and growth rate (μ) of microorganism is

(A)
$$\mu \theta_c = 1$$

(B)
$$\mu + \theta_c = 1$$

(C)
$$\mu - \theta_c = 1$$

(D)
$$\mu/\theta_c = 1$$

(E) Answer not known



- 81. Which one of the following pollutants is showing resistant to microbial degradation?
 - (A) Aliphatic derivatives
- (B) Carbohydrates

(C) Proteins

- (D) Aromatic derivatives
- (E) Answer not known
- 82. Among the following types of aerators used in biological wastewater treatment process, which of the following aerators is not mechanical type aerator?
 - (A) Fire bubble aerator
- (B) Vertical axis aerator
- (C) Aspirator type aerator
- (D) Cage rotors and brushes
- (E) Answer not known
- 83. In membrane process water treatment, the contaminantssuspended solids, emulsified components, bacteria and protozoa are removed by
 - (A) Ultrafiltration

(B) Nanofiltration

(C) Hyperfiltration

- (D) Microfiltration
- (E) Answer not known



- 84. Consider the statements about Aerated lagoons
 - (i) recommended for complete aerobic biological treatment of raw waste water
 - (ii) have simple holding basins usually 2-4 m deep
 - (iii) need continuous, supply of oxygen
 - (iv) need not involve with microorganisms

Which one of the following is correct?

- (A) (i), (ii), (iii) and (iv)
- (B) (i), (ii) and (iii)
- (C) (iv) only
- (D) (i), (ii) and (iv)
- (E) Answer not known
- 85. The secondary settling tank serves the following functions.
 - (i) Clarification of liquid overflow
 - (ii) Thickening of the sludge underflow
 - (iii) Bulking of sludge by growth of filamentous microbes

Which one of the following is correct?

- (A) (i) and (ii) are correct, (iii) is incorrect
- (B) (i) and (iii) are correct, (ii) is incorrect
- (C) (ii) and (iii) are correct, (i) is incorrect
- (D) (i) is correct, (ii) and (iii) are incorrect
- (E) Answer not known



- 86. The secondary settling Tanks in trickling filters primarily produces:
 - (A) Solid Effluent
 - (B) Sludge
 - (C) Clear effluent and biomass sludge
 - (D) Concentrated substrate solids
 - (E) Answer not known
- 87. Assertion [A]: Increasing the $\frac{Qr}{Q}$ ratio indefinitely in an activated sludge process always improves treatment efficiency by maintaining hyper biomass concentrations.
 - Reason [R]: Higher return activated sludge flow recycles more micro organisms thus increasing the biomass retention time and improving substrate degradation.
 - (A) Both [A] and [R] are true and [R] correctly explains [A].
 - (B) Both [A] and [R] are true, but [R] does not correctly explains [A].
 - (C) [A] is false, but [R] is true.
 - (D) Both [A] and [R] are false.
 - (E) Answer not known



- 88. Choose the principal approaches to process control so as to maintain high levels of treatment performance with the activated sludge process under a wide range of operating conditions.
 - (1) Organics that escaped biological treatment
 - (2) Controlling the waste activated sludge
 - (3) Not maintaining dissolved oxygen levels in aeration tanks
 - (4) Regulating the amount of return activated sludge
 - (A) (2) and (3) are correct
 - (B) (1) and (4) are correct
 - (C) (4) and (2) are correct
 - (D) (3) and (1) are correct
 - (E) Answer not known
- 89. Among the below statement which one is wrong assumption?
 - (A) Liquid waste flow into reactor at a constant rate Q
 - (B) They mixed instantaneously and homogeneously with the contents of the reactor
 - (C) The mixed liquor is withdrawn at a rate not equal to the rate of inflow Q
 - (D) Influent does not contain any active microbes
 - (E) Answer not known



- 90. Aerobic suspended growth process used in mechanised plants are
 - (i) Activated sludge
 - (ii) Aerated lagoons
 - (iii) Waste sterilization ponds
 - (iv) UASB

Which one is Irrelevant?

- (A) (ii)
- (B) (iv)
- (C) (iii)
- (D) (i)
- (E) Answer not known



- 91. Microorganisms are NOT categorized in which of the following ways?
 - (A) By Phylum
 - (C) By Electron Acceptor type
 - (E) Answer not known
- (B) By Carbon Source
- (D) By Phyto Chemical
- 92. Reactor design in wastewater treatment typically requires knowledge from all of the following fields except:
 - (A) Thermodynamics
 - (C) Microeconomics
 - (E) Answer not known
- (B) Fluid Mechanics
- (D) Heat and Mass transfer



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- 93. Which of the following is a key characteristic of a batch reactor in biological wastewater treatment?
 - (A) Continuous inflow and outflow of wastewater
 - (B) Constant biomass concentration due to sludge recycling
 - (C) No inflow or outflow during the reaction phase
 - (D) Biomass grows on attached media surfaces only
 - (E) Answer not known
- 94. In an Aerated lagoon the top layer often has high pH and Oxygen levels, volatilisation from the surface can cause odour problems due to which of the following?
 - (A) In organic acids

(B) Organic acid

(C) Heavy metals

- (D) Microbial load
- (E) Answer not known
- 95. Arrange the following microbial growth phases in the correct sequential order:
 - (a) Exponential growth phase
 - (b) Endogenous growth phase
 - (c) Retarded growth phase
 - (A) (c) \rightarrow (a) \rightarrow (b)
 - (B) (a) \rightarrow (b) \rightarrow (c)
 - (C) (b) \rightarrow (a) \rightarrow (c)
 - (D) (c) \rightarrow (b) \rightarrow (a)
 - (E) Answer not known



96.	American architect "Paul Soleri" proposed a new concept of "Ecological Architecture" in the year							
	(A)	1950						
	(C)	1960		(D) 1966				
	(E)	Answer not kno	own					
97.		ED : Leadership eloped in United S	••			Design v	vas	
	(A)	1996		(B) 1997				
	(C)	1998		(D) 1999				
	(E)	Answer not kno	own					
98.		U.S. Environme mated annual cos			· –	=		
	(A)	\$ 20.83		(B) \$ 19.12	2			
	(C)	\$ 21.73		(D) None o	of the abo	ove		
	(E)	Answer not kno	own					
99.		"Nature Conserv ogist Union on	vancy" was bor	n of an olde	er organi	sation cal	lled	
	(A)	June, 5 th 1960		(B) Octobe	er, 10 th 20	010		



(D) None of the above

(C)

(E)

September, 11th 1950

Answer not known

- 100. Green buildings are designed to reduce the overall impact on
 - (A) Land Resources
 - (B) Water Potential
 - (C) Human health and natural environment
 - (D) Economic trade
 - (E) Answer not known
- 101. Emission trading, asset out in article 17 of the
 - (A) Montreal protocol
 - (B) Kyoto protocol
 - (C) Earth sumit 1972
 - (D) None of the above
 - (E) Answer not known



- 102. USGBC stands for
 - (A) U.S. Government Bank Council
 - (B) United Nations Governing Committee
 - (C) U.S. Green Building Council
 - (D) U.S. Governing Building Committee
 - (E) Answer not known
- 103. Which of the following is used green building certification in India?
 - (A) IGBC
 - (B) GBI
 - (C) GBCI
 - (D) ICGB
 - (E) Answer not known

- 104. In the context of environmental auditing, "non-conformance" refers to
 - (A) A legal violation
 - (B) A financial loss
 - (C) A marketing failure
 - (D) A deviation from established environmental policies or standards
 - (E) Answer not known
- 105. ISO: International Organisation for Standardization (ISO) commitment was enable for Life Cycle Assessment (LCA) in the year ______ enforcing guidelines.
 - (A) 1960
 - (B) 1970
 - (C) 1994
 - (D) 1999
 - (E) Answer not known
- 106. Which country was introduced ecolabelling first in the year 1978?
 - (A) Germany
 - (B) USA
 - (C) UK
 - (D) Japan
 - (E) Answer not known



- 107. The scheme of eco-labelling was introduced by the ministry of environment and forests in the year
 - (A) 1991
 - (B) 1996
 - (C) 1992
 - (D) 1990
 - (E) Answer not known
- 108. _____ is a voluntary International Standard for Environmental Management Systems (EMS).
 - (A) ISO 14001
 - (B) ISO 11002
 - (C) ISO 12202
 - (D) ISO 2020
 - (E) Answer not known
- 109. Which of the following is not true when it comes to "Ecolabelling"?
 - (A) It identifies overall environmental preference of a product
 - (B) It is a self-styled environmental symbol
 - (C) It is awarded by impartial third party to products
 - (D) It refers to provision of information to consumers about relative environmental quality of a product
 - (E) Answer not known



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- 110. ISO 26000 is the recognised standard for
 - (A) Corporate Social Responsibility (CSR)
 - (B) Council for Scientific Research
 - (C) Common Science Research Board
 - (D) Committee on Social Response
 - (E) Answer not known
- 111. Which of the following country has been invited to open talks on joining OECD?
 - (A) India
 - (B) Israel
 - (C) Brazil
 - (D) China
 - (E) Answer not known
- 112. Which SDG emphasizes healthy lives and promoting well-being for all ages?
 - (A) Quality education
 - (B) Good health and well being
 - (C) Gender equality
 - (D) Life on land
 - (E) Answer not known



- 113. What project helped to mainstream the concept of competencies in education policy circles?
 - (A) UNESCO Global Schools Project
 - (B) United Nations SDG Taskforce
 - (C) OECD'S Definition and Selection of Competencies (DESECO)
 - (D) International Baccalaureate initiative
 - (E) Answer not known

114. Match the following type:

Match the International Convention Treaty with their respective agenda.

Convention/Treaty

Cause/Agenda

- (a) Montreal protocol
- 1. Persistent organic pollutant
- (b) Stockholm convention
- 2. Sustainable development
- (c) Kyoto protocol
- 3. Ozone layer
- (d) Rio-declaration
- 4. Green house gas emission

	(a)	(b)	(c)	(d)
(A)	3	1	4	2
(B)	2	3	4	1
(C)	3	4	2	1
(D)	2	1	4	3

(E) Answer not known





43 393-Environmental and Chemical Engineering [Turn over

- 115. According to environmental protection agency, the clean air Act, 1970 helped to reduce emissions of which one of the following remains a more difficult to control.
 - (A) NOx
 - (B) Pd
 - (C) SO_2
 - (D) CO
 - (E) Answer not known
- 116. Assertion [A]: The most significant pollutant emitted by bagasse-fired boilers is particulate matter
 - Reason [R] : Auxilliary fuels (fuel oil or Natural gas) may be used during startup of the boiler when the moisture content of the bagasse is too high.
 - (A) [A] is false but [R] is true
 - (B) Both [A] and [R] are true; and [R] is the correct explanation of [A]
 - (C) [A] is false, [R] is true
 - (D) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
 - (E) Answer not known



- 117. On the use of paper mill wastewater for irrigation, it is observed that percolates from the field had no colour and no lignin. Which of the following (in the soil) could be attributed to the aforesaid observation?
 - (A) Base exchange capacity
 - (B) Acid exchange capacity
 - (C) Presence of monovalent salts
 - (D) Presence of magnesium ions
 - (E) Answer not known
- 118. Identify the fungus involved in degradation of chlorinated lignin derivatives of paper industry.
 - (A) White rot fungus
 - (B) Red rot fungus
 - (C) Grey mould
 - (D) Blue mould
 - (E) Answer not known
- 119. Which type of treatment is necessary for the petrochemical industry waste water before it is subjected to biological treatment?
 - (A) Flotation
 - (B) Flocculation
 - (C) Filtration
 - (D) Oxidation
 - (E) Answer not known



120. Assertion [A]: Mechanical collectors and wet scrubbers are commonly used to control particulate emission in

bagasse -fired boilers.

Reason [R] : Bagasse fly ash is abrasive primarily due to its

high content of silica and Alumina.

- (A) [A] is true but [R] is false
- (B) Both [A] and [R] are true; and [R] is the correct explanation of [A]
- (C) [A] is false, [R] is true
- (D) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
- (E) Answer not known
- 121. The source of mercury in the Minamata bay was traced by a
 - (A) Chemical plant

(B) Pulp and paper plant

(C) Paint industry

- (D) Leather industry
- (E) Answer not known
- 122. Which of the following are incorrectly matched?
 - (1) Odour and Taste Chemical pollutants
 - (2) Total Dissolved solids Physical pollutants
 - (3) Arsenic pollution Herbicides and Pesticides
 - (4) Chromium Electroplating
 - (A) (1) and (2)
 - (B) (1) and (4)
 - (C) (2) and (3)
 - (D) (2) and (4)
 - (E) Answer not known



123.	Which of the followings are the raw materials used for the manufacture of the Pesticide BHC?							
	(A)	Benzene and Chlorine	(B) Benzene and Hexane					
•	(C)	Benzene and Ethanol	(D) Benzene and Methanol					
	(E)	Answer not known						
124.		Cement is made by heating limestone with clay at °C ir a kiln.						
	(A)	1600°C	(B) 1450°C					
	(C)	1200°C	(D) 850°C					
	(E)	Answer not known						
125.	In su	igar production, the mixture of	crystals and syrup is called as					
	(A)	Massecuite	(B) Solution					
•	(C)	Molasses	(D) Bagasse					
	(E)	Answer not known						
126.	_	Gas Desulfurization (FGD) ut	nits in coal-based thermal power					
	(A)	Remove particulate matter						
	(B)	Reduce SO_2 emissions						
_	(C)	Capture CO ₂ emissions						
	(D)	neutralize acidic rain water						
	(E)	Answer not known	PYRAMID					
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(POLLUTION CONTROL BOARD)

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- 127. According to CPCB norms in India, which of the following best describes the treated effluent discharge limits for large pulp and paper mills?
 - (A) BOD<100 mg/L, pH 4-10
 - (B) BOD<30 mg/L, TSS<50 mg/L, pH 6.5-8.5
 - (C) TDS<500 mg/L, BOD<60 mg/L
 - (D) COD<500 mg/L, pH 5-9
 - (E) Answer not known
- 128. _____ types of plastic are recyclable.
 - (A) 1, 2, 4, 5

(B) 2, 3, 5, 6

(C) 1, 3, 5, 7

- (D) 1, 2, 4, 6
- (E) Answer not known
- 129. Inertial separators are primarily used for
 - (A) Collection of medium size and coarse particles
 - (B) Collection of fine particles
 - (C) Collection or respirable particles
 - (D) Collection of toxic gases
 - (E) Answer not known



- 130. Which of the following statements are true about the areas where cleaner production measures can be taken in
 - (i) Change of input materials
 - (ii) Technology change
 - (iii) Onsite reuse and recycling
 - (iv) Good operating practices
 - (A) Only (i)
 - (B) Only (iv)
 - (C) Only (i) and (ii)
 - (D) (i), (ii), (iii) and (iv)
 - (E) Answer not known



- 131. In IWWM, the concept of water reclamation and reuse primarily aims to
 - (A) Increase fresh water withdrawals
 - (B) Minimize wastewater generation
 - (C) Conserve water resources by treating wastewater for safe reuse in agriculture industry or ground water recharge
 - (D) Eliminate the need for treatment
 - (E) Answer not known



- 132. What do Volatile Suspended Solids (VSS) primarily represent in waste water analysis?
 - (A) Inorganic mineral particles
 - (B) Organic matter that can be turned off at high temperature
 - (C) Dissolved solids
 - (D) Heavy metals
 - (E) Answer not known
- 133. Which of the following Indian Organization involved in the production of blue-green algae coated granulated compost from the solid waste?
 - (A) Indian Agricultural Research Institute (IARI)
 - (B) Indian Council for Medicinal Research (ICMR)
 - (C) Botanical Survey of India (BSI)
 - (D) Indian Institute of Science (IISC)
 - (E) Answer not known
- 134. What is the name of the device for continuously measuring waste water flow at or near ground surface?
 - (A) Venturi meter

- (B) Turbine flow meter
- (C) Vortex flow meter
- (D) Parshall flame
- (E) Answer not known



135.	must	e discharging the treated was t be ensured that atleast ent in it.	_ ppm of Dissolved Oxygen is				
	(A)	4	(B)	6			
	(C)	10	(D)	2			
	(E)	Answer not known					
136.	Which of the following statements are true about the method of treatment of an industrial waste depends on various factors such as						
	(i)	Nature of industrial waste					

(A) (i) only

(ii)

(iii)

- (B) (ii) only
- (C) (i) and (ii) only
- (D) (i), (ii) and (iii)
- (E) Answer not known

BOD and COD of the effluent

Total solids present

- 137. Which wastes containing suspended matter in solid form, but little polluting matter in solution?
 - (A) Coal washeries

(B) Tanneries

(C) Electroplating

- (D) Dairies
- (E) Answer not known



138. Smoke particles are generally less that $___$ μm .

(A) 0.5

(B) 1.0

(C) 0.75

(D) 0.25

(E) Answer not known

139. A prominent method of natural disposal is

(A) Dilution

(B) Mechanical straining

(C) Sewage forming

(D) Self purification

(E) Answer not known

140. What does COD in waste water stand for?

(A) Carbon Oxygen Demand

(B) Combined Oxygen Demand

(C) Chemical Oxygen Demand

(D) Chemical Oxygen Degree

(E) Answer not known

141. The micro organism in wastewater is removed by

(A) Heating process

(B) Hydrogenation process

(C) Natural process

(D) Oxidation process

(E) Answer not known



- 142. Choose the correct usage of microelectrodes to determine
 - (1) Cyanide
 - (2) Oxygen
 - (3) Redox potential
 - (4) Radio active elements
 - (A) (1) and (4) are correct
- (B) (3) and (1) are correct
- (C) (2) and (3) are correct
- (D) (3) and (4) are correct
- (E) Answer not known
- 143. The over all reduction half reaction for decomposition of Biomass to methane is

$$CO_2 + 8H_3O^+ + 8e^- \rightarrow CH_4 + 10H_2O \ PE^{\circ}(w) = -4.13$$

Suggest under which condition this reaction occurs in water Bodies

- (A) Anaerobic decomposition
- (B) Aerobic decomposition in the presence of sulphate
- (C) Aerobic decomposition in the presence of Nitrate
- (D) Aerobic decomposition with oxygen as primary oxidising agent
- (E) Answer not known



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AKILA NEET SCORE: 459



CHARU DHARSHINI NEET SCORE: 487



- 144. How the ECOSAN concept is most beneficial in Agricultural field
 - (A) By the complete recovery of toxic metals from powered water sources
 - (B) By the complete recovery of all nutrients from faces, urine and gray water
 - (C) By the complete removal of toxic chemicals from waste water
 - (D) By the complete recovery from microbial contaminants from waste water
 - (E) Answer not known
- 145. In acidic conditions, the protonated metal oxide surface, electro statically attract
 - (A) Cations

(B) Anions

(C) Amphoteric ions

- (D) Organic compounds
- (E) Answer not known
- 146. Which of the following gas doesn't absorb infrared radiations?
 - (A) O_2

(B) H_2O

(C) CO_2

- (D) CH_{Λ}
- (E) Answer not known
- 147. Among the following water contaminants which one leads to skeletal fluorosis and hypocalcification?
 - (A) Chloride

(B) Fluoride

(C) Phosphate

- (D) Calcium
- (E) Answer not known



- 148. In hydrocarbon analysis the flame ionization detector response is roughly proportional to the number of
 - (A) C-atoms

(B) O - atoms

(C) H-atoms

- (D) N-atoms
- (E) Answer not known
- 149. The indicator cannot be shared in solution because it
 - (A) Undergoes change in colour
 - (B) Undergoes reduction reaction
 - (C) Evaporates quickly
 - (D) Decomposes overtime
 - (E) Answer not known
- 150. Which of the following methods is involved in the green synthesis of (PET) polyethylene Terephthalate are:
 - (1) Closed looped recycling
 - (2) Open looped recycling
 - (3) Methanolysis
 - (4) Transesterification
 - (A) (1), (3) and (4) are correct
 - (B) (3), and (4) are correct
 - (C) (2), and (3) are correct
 - (D) (2), (3) and (4) are correct
 - (E) Answer not known



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Examination Held On 4.8.2025



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 $151. \ \, \text{Match the gases in column A}$ with their approximate percentage in the Earth's is atmosphere in column B

Column A (Gas)

Column B (Approximate % by volume)

- (a) Nitrogen (N₂)
- 1. 21%
- (b) Oxygen (O_2)
- 2. 0.93%
- (c) Argon (Ar)
- 3. 78%
- (d) Carbon Dioxide
- 4. 0.04%

 (CO_2)

	(a)	(b)	(c)	(d)
(A)	3	1	2	4
(B)	1	2	3	4
(C)	4	3	1	2
(D)	2	4	1	3
(E)	Ans	swer no	t knov	vn

- - (A) $(CH_3)_2S$

(B) NH_4HS

(C) $CaSO_4$

- (D) Na_2SO_3
- (E) Answer not known



153.	Which	of	the	following	is	the	most	important	among	biogenic
	hydroc	arb	ons?							

- (a) Ethylene
- (b) Methane
- (c) Both (a) and (b)
- (d) Neither (a) nor (b)
- (A) (b)

(B) (c)

(C) (d)

- (D) (a)
- (E) Answer not known
- 154. As the wind blows, soil particles are dislodged and begin to roll on the soil surface in a process called
 - (A) Soil mining

(B) Soil flying

(C) Soil washing

- (D) Saltation
- (E) Answer not known
- 155. The biodegradation process of surface soil is inhibited due to the presence of
 - (A) Carbon rich Nitrogen poor nutrients
 - (B) Nitrogen rich and phosphorus poor nutrients
 - (C) Chloride rich and sodium poor nutrients
 - (D) Nitrogen rich and carbon poor nutrients
 - (E) Answer not known



156.	3. Which of the following waste is also known as "end - of life" (EOL)?			
	(A)	Biomedical waste	(B)	Radioactive waste
	(C)	e- waste	(D)	Plastic waste
•	(E)	Answer not known		
157.	Who	is the pioneering legislation for	· e-w	vaste management?
	(A)	The SWISS $EE - 1996$		
	(B)	The SWISS OREE -1995		
	(C)	The SWISS ORDEE – 1998		
	(D)	The SWISS ORRDE – 1990		
	(E)	Answer not known		
158.	Arra	nge the layers of secure landfill	s in	chronological order
	(i)	A thick polythene liner		
	(ii)	Absorbent cushion layer		
	(iii)	Clay layer		
	(iv)	Gravel layer		
	(A)	(i), (ii), (iii), (iv)	(B)	(iv), (ii), (i), (iii)
	(C)	(iii), (iv), (i), (ii)	(D)	(ii), (iii), (iv), (i)
	(E)	Answer not known		
159.		berately dismantiling buildings lown as	s the	e salvage materials for reuse
	(A)	Recycling	(B)	Waste segregation

Deconstruction

Answer not known

(C)

(E)

(D) Source reduction

- 160. The hazardous and other wastes (management and Transboundary movement) rules were published by the Government of India in the ministry of Environment, forest and climate change in
 - (A) January 25, 2000

(B) March 20, 2003

(C) May 15, 2009

(D) July 24, 2015

(E) Answer not known

161. The only state which is successfully running waste-to-electricity plants through anaerobic digestion in India is

(A) Gujarat

(B) Sikkim

(C) Tamil Nadu

(D) Assam

- (E) Answer not known
- 162. Metal present in printed circuit board and cables acts as catalyst for dioxin formation.

(A) Mercury

(B) Fluoride

(C) Copper

(D) Magnesium

- (E) Answer not known
- 163. Among the following polymers, which one is thermoplastics in nature
 - (A) Aliphatic polyester

(B) Epoxy polymers

(C) Carboxymethyl cellulose

(D) Polystyrene

(E) Answer not known



164.	. Which one of the following polymer does not undergo hydrolysis and hydrobio degradability?				
	(A)	Polyesters		(B) Polyamides	
	(C)	Polyurethanes		(D) Polypropylene	
	(E)	Answer not known			
165.	_	ct the correct prime objectiven statements:	ctive	of solid waste management from	
	(i)	Solid waste mount to en	vironi	mental threat.	
	(ii)	To trim down the disposematerial.	sal of	solid waste along with salvaging	
	(iii)	Energy from solid waste	es.		
	(iv)	To reduce pollution load	in gro	ound level.	
	(A)	(i), (ii), (iii), (iv)		(B) (i), (ii), (iii)	
•	(C)	(ii), (iii)		(D) (i), (ii), (iv)	
	(E)	Answer not known			
166.	Duri agen		wast	e ———— used as bleaching	
	(A)	$\mathrm{HCl}\ \mathrm{or}\ \mathrm{H}_{2}\mathrm{SO}_{4}$	•	(B) CO_2	
	(C)	NaOH		(D) H ₂ O ₂ or chlorine oxide	
	(E)	Answer not known	,		
167.		rehabilitation excavating rolled and environmental	_	d re-disposing waste is more nd manner called	
	(A)	Leachate management		(B) Slope stabilization	
	(C)	Phased approach		(D) Landfill mining	
	(E)	Answer not known			
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- 168. Which of the following are resilient and almost impossible to compact?
 - (A) Plastics

(B) Tires

(C) Chemicals

- (D) E-waste
- (E) Answer not known
- 169. Applying specifically engineered and micro organisms that are designed to break down contaminant is called
 - (A) In situ bioremediation
- (B) Ex situ bioremediation

(C) Biostimulation

- (D) Bioaugmentation
- (E) Answer not known
- 170. The process by which a water body becomes overly enriched with nutrients leading to excessive growth of algae and other plant life called
 - (A) Oligotrophication
- (B) Eutrophication

(C) Subtrophication

- (D) Zerotrophication
- (E) Answer not known
- 171. Difference in the level of oxygen is the expression of the capacity to consume oxygen by the sewage, which is expressed in

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- (A) PPM Parts Per Million
- (B) RPM Revolution Per Minute
- (C) MPL Moles Per Liter
- (D) GPL Grams Per Liter
- (E) Answer not known



- 172. When the wastes generated at traffic congested locations will be collected?
 - (A) During early morning
- (B) During night hours
- (C) First part of the day
- (D) Second part of the day
- (E) Answer not known
- 173. Which of the statements given below are correct?
 - (i) Density separation of solid wastes can be accomplished by air classifiers.
 - (ii) Iron recovery from solid wastes can be done by magnetic separators.
 - (iii) Aluminium separation can be done by eddy current separators.
 - (A) (i) and (ii) only

(B) (ii) and (iii) only

(C) (i) and (iii) only

- (D) (i), (ii) and (iii)
- (E) Answer not known





174. Match the following proximate analysis with their formulas.

1.
$$\% = \left(\frac{\text{Weight of residue}}{\text{Weight of sample}}\right)$$
 100

2.
$$(\%) = \left(\frac{\text{Weight loss}}{\text{Weight of the sample}}\right)$$

3.
$$(\%) = 100 - (\% M + \% Ash + \% VM)$$

(E) Answer not known

175. Match the following

- (a) Garbage
- 1. Lawn mowers

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- (b) Rubbish
- 2. Attracts flies and insects

(c) Ashes

- 3. Incinerated to flames at 1400 1500°F
- (d) Bulky house hold waste
- 4. Cinders and clinkers

	(a)	(b)	(c)	(d)
(A)	2	3	4	1
(B)	3	4	1	2
(C)	4	1	2	3
(D)	1	2	3	4



- 176. Identify the kind of waste subjected to decay with time and evolve highly offensive odour and gases which are detrimental to health
 - (A) Organic waste

(B) Inorganic waste

(C) Trade waste

- (D) Ashes
- (E) Answer not known
- 177. Solid wastes can be made to use for
 - (A) Packing

(B) Transportation

(C) Recycling

- (D) Municipal earnings
- (E) Answer not known
- 178. Rubbish consists of all non-putrescible wastes excluding
 - (A) Rags

(B) Paper

(C) Ashes

- (D) Broken crokery
- (E) Answer not known
- 179. Arrange the following stages of composting in chronological order.
 - (i) Stabilisation stage
 - (ii) Seiving and product grading
 - (iii) Maturation stage
 - (iv) High rate composting stage
 - (A) (i), (iii), (iv), (ii)

(B) (iii), (i), (iv), (ii)

(C) (iv), (i), (iii), (ii)

- (D) (i), (iv), (iii), (ii)
- (E) Answer not known

180.	Incir abou	neration is a chemical r	eaction	n tha	t can reduce	solid w	aste to
	(A)	90% in volume and $75%$	in we	eight			
	(B)	75% in volume and $90%$	in we	eight			
	(C)	55% in volume and 80% in weight					
	(D)	80% in volume and 55%	in we	eight			
	(E)	Answer not known					
181.		ch one of the followin ogens?	g is	most	destructive	in killi	ng the
	(A)	Hypochlorite ion		(B)	Hypochlorous	s acid	
	(C)	Mono-Chloramine			Di-Chloramii		
	(E)	Answer not known		` '			
182.		ch of the following best e and Odour compounds?	_	sents	Carbon's abi	ility to	remove
	(A)	Solubility		(B)	Adsorption ca	apacity	
	(C)	Chemical reactivity			Ion exchange		J 5 y
	(E)	Answer not known		` /	O	•	
183.	proce	content of secondary sedess would predominant fied effluent					_
	(A)	Type III zone settling					
	(B)	Type II flocculent settle	ing				
	(C)	Type IV compression se	ttling				
	(D)	Floatation settling					
	(E)	Answer not known					
			65	393-	Environmenta	al and Cl	hemical



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NANTHA J (23KTP010)



(23KTP023)



SATHYA V (23KTP071)





INTERVIEW GUIDANCE













184.		-	les that change size, shape and th each other can be removed by
	(A)	Precipitation	(B) Flocculation
	(C)	Settling in contiguous zone	(D) Compression or compaction
	(E)	Answer not known	
185.		flow rate of 5000 m ³ /h with	ate of an ion-exchange column, if the total cross-sectional area of
	(A)	12500 m/h	(B) 12.5 m/h
	(C)	200 m/h	(D) 20000 m/h
	(E)	Answer not known	
196	The	adapantian dostabilization wi	th is one of the thomas
100.		agulation theory	th ———— is one of the themes
	(A)	Negatively charged, polynucl	lear Aluminium Species
	(B)	Positively charged, mononuc	lear Aluminium species
	(C)	Positively charged, polynucle	ear Aluminium species
	(D)	Negatively charged, mononu	clear Aluminum species
	(E)	Answer not known	
187.		isinfection process, bromine the reacts with water to give	is added as bromine chloride gas
	(A)	HOBr	(B) Br_2Cl_2
	(C)	HBr	(D) H_2O_2
	(E)	Answer not known	

- 188. In Reverse Osmosis , the pressure on the solution side that is higher than the osmotic pressure will result in increase in
 - (A) Flux momentum

(B) Flux density

(C) Flux volume

(D) Flux mass

- (E) Answer not known
- 189. It is always desirable to have a large Height-To-Diameter (H:D) for a fixed-bed adsorption column, and it ranges from

(A) 1:3 to 1:5

(B) 2:4 to 3:9

(C) 6:1 to 9:3

(D) 3:1 to 5:1

- (E) Answer not known
- 190. The saturated dissolved oxygen concentration in tap water at 20°C is about
 - (A) 12.48 Mg/L

(B) 6.80 Mg/L

(C) 9.17 Mg/L

(D) 14.23 Mg/L

- (E) Answer not known
- 191. In a rectangular clarification basin, the flow is 30,300 m³/day. The over flow rate is 24.4 m³/d-m² and the detention time is 6h. Compute the required plan area

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(A) 1242 m^2

(B) 2484 m²

(C) 3726 m^2

(D) 4968 m²

(E) Answer not known



- - (A) Continuous

(B) Batch

(C) Fed-Batch

- (D) Semi-continuous
- (E) Answer not known
- - (A) Batch

(B) Semi-continuous flow

(C) Continuous flow

- (D) Fed batch
- (E) Answer not known
- 194. The solid-liquid interface for type III and IV suspensions can be observed through the plot of
 - (A) Time versus velocity
 - (B) Time versus distance settled
 - (C) Time versus viscosity
 - (D) Time versus density
 - (E) Answer not known



		l get removed if the primary treatment unit does	
	not have any grit chamber?		
(A)		aeration basin and secondary classifier	
(B)	(B) Removed in tricking filter and secondary classifier		
(C)	Removed in	bio filters	
(D)	Removed in	Rotating Biological contactors	
(E)	Answer not	known	
The	velocity of the	e Bar screen and opening size of the bar is	
(A)	< 1 m/sec an	d < 40 mm	
(B)	< 0.1 m/sec a	and < 4 mm	
(C)	1.2 to 1.5 m	/sec and 45 to 60 mm	
(D)	> 2 m/ sec ar	nd 50 mm	
(E)	Answer not	known	
		treatment plant, mechanical bar screens are at an angle of ——— with the horizontal	
(A)	45° to 90°	(B) 0° to 30°	
(C)	100° to 180°	(D) 200° to 270°	
(E)	Answer not	• /	
wast	tewater plant	tion and flow of nitrogen in the influent to a are 45 Mg/L and 50 L/s respectively, then the d is	
(A)	194 kg N/d	(B) 0.194 kg N/d	
(C)	Ū	(D) 0.096 kg N/d	
` '	_	` ,	
	(A) (B) (C) (D) (E) The (A) (B) (C) (D) (E) In vertypic (A) (C) (E) If the was total (A)	(A) Removed in (B) Removed in (C) Removed in (C) Removed in (D) Removed in (E) Answer not (E) Answer not (B) < 0.1 m/sec an (C) 1.2 to 1.5 m (D) > 2 m/ sec an (E) Answer not In waste water typically installed (A) 45° to 90° (C) 100° to 180° (E) Answer not If the concentrate wastewater plant total nitrogen load (A) 194 kg N/d	

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- - (A) Discharge
 - (B) Velocity
 - (C) Pressure head
 - (D) Drift velocity
 - (E) Answer not known
- 200. For a horizontal flow grit chamber, the ideal settling theory assumes that the horizontal velocity is
 - (A) uniform over depth
- (B) varying over depth
- (C) uniform over length
- (D) varying over length
- (E) Answer not known



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