ENGINEERING SCIENCE

1. The yield of an open well can be computed by conducting

   (A) Porosity test
   (B) Field permeability test
   (C) Recuperation test
   (D) Equilibrium test

2. The valve that regulates water in an outflow pipe of an overhead reservoir is

   (A) Gate valve
   (B) Reflux valve
   (C) Scour valve
   (D) Air-relief valve

3. Very fine suspended and colloidal particles are removed from water by a process called

   (A) Softening
   (B) Coagulation
   (C) Disinfection
   (D) Plain-sedimentation

4. The amount of chlorine available in water after disinfection is called

   (A) Residual chlorine
   (B) Free chlorine
   (C) Free available chlorine
   (D) Combined available chlorine

5. Aeration of water is done to remove

   (A) Suspended impurities
   (B) Floating impurities
   (C) Dissolved salts
   (D) Dissolved gases

6. The average domestic water consumption per capita per day for an Indian city is taken as …… as per IS:1172-1963.

   (A) 85 litres
   (B) 100 litres
   (C) 135 litres
   (D) 200 litres

Only for reference. Do not copy

7. Nitrates more than 50 ppm in water leads to a disease called

(A) Typhoid
(B) Methemoglobinemia
(C) Gastroenteritis
(D) COVID-19

8. The product of Young's modulus and moment of inertia is known as

(A) Modulus of rigidity
(B) Bulk modulus
(C) Flexural rigidity
(D) Torsional rigidity

9. When a body of mass m attains a velocity v from rest in time t, then the kinetic energy of translation is

(A) mv^2
(B) mgv^2
(C) $0.5\ mv^2$
(D) $0.5\ mgv^2$

10. Mass moment of inertia of a uniform thin rod of mass 'M' and length 'l' about its mid-point and perpendicular to its length is

(A) $(2/3)Ml^2$
(B) $(1/3)Ml^2$
(C) $(3/4)\ Ml^2$
(D) $(4/3)Ml^2$

11. When a body is subjected to a direct tensile stress (p) in one plane, then maximum normal stress occurs at a section inclined at …… to the normal of the section.

(A) 0^o
(B) 30^o
(C) 45^o
(D) 90^o

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12. The presence of Coliform Bacteria in water is an indication of

(A) Radioactive wastes
(B) Excess fertilizer
(C) Decaying animals and plants
(D) Human feces

13. Which of the following sanitizers is a surface active agent?

(A) Meta phosphate
(B) Tetra phosphate
(C) Teepol
(D) None of the above

14. Which of the following is found in the intermediate zone of a waste stabilisation pond?

(A) Aerobic bacteria
(B) Algae
(C) Organic solids
(D) Facultative bacteria

15. …… is formed when temporary hard water is boiled.

(A) Calcium bicarbonate
(B) Carbon dioxide
(C) Hydrogen chloride
(D) Calcium sulphite

16. The most commonly used non-empirical formula for calculating the flow velocity of underground water is

(A) Hazen's formula
(B) Bernoulli's equation
(C) Darcy's formula
(D) Lacy's formula

17. The type of trap commonly used for receiving waste water from kitchen sinks and bathrooms is

(A) Gully trap
(B) Intercepting trap
(C) Reverse trap
(D) Floor trap

Only for reference. Do not copy

18. The purpose of providing a surge chamber in a water conveyance system is to

(A) Store water
(B) Increase the velocity in a pipeline
(C) Prevent overflow
(D) Absorb sudden rises of pressure

19. The dimensionless number that signifies the ratio of inertial forces to viscous forces is

(A) Prandtl number
(B) Mach number
(C) Reynolds number
(D) Sherwood number

20. A non Newtonian fluid that behaves as a rigid body at low stresses but flows as a viscous fluid at high stress is

(A) Bingham plastic
(B) Pseudoplastic
(C) Rheopectic
(D) Dilatant

21. The components of velocity along the x-axis and the y-axis are $u = ax^2 + bxy + cy^2$ and $v = cxy$ respectively in a two dimensional flow. Under what condition will the flow field be continuous?

(A) $a + c = 0$
(B) $2a + c = 0$
(C) $2b + c = 0$
(D) $b + c = 0$

22. The type of motion exhibited by a fluid element that moves from one position to another and undergoes change in its dimensions is

(A) Rotation
(B) Angular Deformation
(C) Linear Deformation
(D) Linear Translation

Only for reference. Do not copy

23. …… is the flow of a viscous fluid in the space between two surfaces, one of which is moving tangentially relative to the other.

(A) Poiseuille flow
(B) Couette flow
(C) Froude flow
(D) Rotational flow

24. A submerged orifice 1 metre wide has height of water 3 metres from the bottom of the orifice and 2 metres from the top of the orifice. The difference in water levels on both sides of the orifice is 1 metre. What is the discharge through the orifice if $C_d = 0.6$?

(A) 6.5 m^3/sec
(B) 8.5 m^3/sec
(C) 3.9 m^3/sec
(D) 2.6 m^3/sec

25. Which of the following can be used to predict pressure drop for fully developed flow in a circular pipe?

(A) Moody chart
(B) Mollier chart
(C) Reynolds chart
(D) Scatter chart

26. Which of the following is not the reason for minor head loses in a pipe?

(A) Valves
(B) Bends
(C) Friction
(D) Tees

27. Water flows through a pipe of 0.5 m diameter and 9 km length at a velocity of 1.09 m/sec. What is the head loss due to friction if the coefficient of friction is 0.005?

(A) 21.8 m
(B) 26.5 m
(C) 15.5 m
(D) 32.8 m

Only for reference. Do not copy

28. The line which gives the sum of pressure head and datum head of a flowing fluid in a pipe with respect to some reference line is called

(A) Total energy gradient line
(B) Isotropic line
(C) Hydraulic gradient line
(D) Isobaric line

29. Which nozzle is used to accelerate a hot, pressurized gas passing through it to a higher supersonic speed in the thrust direction?

(A) Pascal nozzle
(B) de Laval' nozzle
(C) Bernouille's nozzle
(D) Toricelli's nozzle

30. A rectangular earthen channel is 1.2 m wide and 1 m deep. It has a longitudinal slope of 1 in 1000. The hydraulic mean depth of the channel will be

(A) 0.55 m
(B) 1 m
(C) 0.68 m
(D) 0.37 m

31. Which of the following does not belong to the category of grey water?

(A) Wastewater from bathroom sinks
(B) Wastewater from showers and tubs
(C) Wastewater from washing machines
(D) Wastewater from toilet flushing

32. Identify the instrument used to detect and measure odour dilution

(A) Chromatography
(B) Olfactometer
(C) Spectrophotometer
(D) Anemometer

Only for reference. Do not copy

33. Which of the following is not an advantage of circular sewer?

(A) A circular section gives the least perimeter for a given area, and therefore has the maximum hydraulic mean depth for running full and half full conditions
(B) It is the most economical section since it requires minimum quantity of material for its construction
(C) The section has uniform curvature and hence prevents the possibility of deposits anywhere within the section
(D) Circular sewers are suitable where variation in discharge of sewage is very large

34. …… allow storm water or wastewater sewers to pass under obstructions such as rivers.

(A) Lateral sewer
(B) Outfall sewer
(C) Depressed sewer
(D) Main sewer

35. When …… is present in water at a concentration greater than 0.3 ppm, the water will have a brown tinge.

(A) Manganese
(B) Magnesium
(C) Iron
(D) Zinc

36. Which of the following processes adds dissolved oxygen to a natural stream?

(A) Oxidation of organic matter
(B) Photosynthesis
(C) Nitrification
(D) Respiration by aquatic life

37. The process of overgrowth of plants and algae in lakes is known as

(A) Photosynthesis
(B) Eutrophication
(C) Respiration
(D) Transpiration

Only for reference. Do not copy

38. One of the reasons for rising sludge in the secondary clarifiers of activated sludge plants is

(A) Sedimentation
(B) Coagulation
(C) Flocculation
(D) Denitrification

39. Which of the following activated sludge process has the maximum BOD removal efficiency?

(A) Extended aeration
(B) Step aeration
(C) Modified aeration
(D) Conventional

40. Settling of particles takes place by the contact of impurities present in wastewater with each other in …… settling.

(A) Flocculent settling
(B) Discrete settling
(C) Compression settling
(D) Hindered settling

41. Which of the following statements is not true for a rapid sand filter?

(A) High filter rate (4000 – 12000 litres per hour per square metre of surface), small land requirements
(B) Effective in removing bacteria, viruses, fluoride, arsenic, salts, odour and organic matter
(C) Backwashing takes only a few minutes and filters can be put back into operation instantly
(D) Highly effective for removal of turbidity (usually < 0.1-1 NTU)

42. Which of the following aerobic processes is based on the symbiotic action between algae and bacteria?

(A) Oxidation ditch
(B) Rotating biological contactor
(C) Oxidation pond
(D) Membrane bioreactor

Only for reference. Do not copy

43. Temperature inversion occurs in

(A) Stratosphere
(B) Troposphere
(C) Ionosphere
(D) Exosphere

44. Which of the following is not a secondary pollutant?

(A) Ozone
(B) Peroxyacyl nitrates
(C) Nitric acid
(D) Sulphur dioxide

45. What is the emf if the current changes from 6A to 4A in 2 seconds and the inductance is 8H?

(A) 8 V
(B) 2 V
(C) 4 V
(D) 6 V

46. What is the current leaving a parallel circuit if the currents in the three branches of the circuit are 5A, 6A and 7A?

(A) 7 A
(B) 18 A
(C) 11 A
(D) 5 A

47. A RC circuit consists of a 100microF capacitor in series with a 80ohm resistor. What is the time constant?

(A) 125 sec
(B) 0.008 sec
(C) 0.01 sec
(D) 12.5 sec

48. The relative permeability of a substance is less than that of free space. The substance will be

(A) Ferromagnetic
(B) Paramagnetic
(C) Diamagnetic
(D) Both paramagnetic and ferromagnetic

Only for reference. Do not copy

49. …… is the ability of a material to allow the passage of magnetic lines of flux.

(A) Permeance
(B) Reluctance
(C) Resistance
(D) Conductance

50. An inductor with a ferromagnetic core has an inductance of 2000 H. The current changes from 5A to 6A and the flux changes from 760 to 800 Wb. Calculate the number of turns.

(A) 100
(B) 200
(C) 300
(D) 50

51. The current flowing in the inductive circuit is 2A in 4s. The inductance is 15H. What will be the power in the circuit?

(A) 120 W
(B) 60 W
(C) 30 W
(D) 240 W

52. Excavation is to be carried out on a moderately firm ground for a depth of 1.5 m. Which arrangement will you use to prevent the sleep of earth in foundation trenches?

(A) Vertical sheeting
(B) Sheet piling
(C) Stay bracing
(D) Runner

53. …… is a temporary framework used in construction demolition, maintenance or repair works.

(A) Shoring
(B) Grouting
(C) Underpinning
(D) Scaffolding

Only for reference. Do not copy

54. Which of the following compounds tend to retard the setting of cement and discourage the strength of concrete in early stages?

(A) Chlorides
(B) Sulphates
(C) Nitrates
(D) Phosphates

55. "Loudness which corresponds to the magnitude of the sensation is proportional to the logarithm of the intensity of the sound". Which of the following laws governs this statement?

(A) Weber and Fechner's law
(B) Huygens–Fresnel law
(C) Loretz law
(D) Beer-Lambert law

56. The total set of greenhouse gas emissions caused by an individual, event, organisation or product is known as

(A) Ecological footprint
(B) Carbon footprint
(C) Ecological pyramid
(D) Energy pyramid

57. The loss of ……. in wastewater may make it septic.

(A) Organic compounds
(B) Nitrates
(C) Dissolved oxygen
(D) Carbon content

58. Which of the following is not a 'waste-to-energy conversion' technique for solid waste?

(A) Incineration
(B) Gasification
(C) Pyrolysis
(D) Composting

59. The number of steps involved in sulphur cycle is

(A) Six
(B) Five
(C) Eight
(D) Three

Only for reference. Do not copy

60. Which of the following microorganism performs nitrification in the natural environment?

(A) Diazotrophs
(B) Cyanobacteria
(C) Nitrobacter
(D) Nitrosomonas

61. Hot spots of biodiversity have

(A) high density of hot springs
(B) high density of biodiversity
(C) high density of endangered species only
(D) None of the above

62. Cultivation, and harvesting of timber is permitted in …… if they do not interfere with the project.

(A) National parks
(B) Biosphere reserves
(C) Sanctuaries
(D) Protected areas

63. Which of the following is not a design consideration for highways?

(A) Sight distance
(B) Cross section
(C) Settlement
(D) None of the above

64. An environmental impact assessment carried out for a policy or programme is known as

(A) Strategic EIA
(B) Cumulative EIA
(C) Project EIA
(D) Rapid EIA

65. …… is a system where water is distributed under low pressure through the piped network in a pre-determined pattern and applied to each plant.

(A) Micro irrigation
(B) Nano irrigation
(C) Petite irrigation
(D) Flood irrigation

Only for reference. Do not copy

66. Which of the following weirs has less head loss?

(A) Ogee shaped
(B) Broad crested
(C) Sharp crested
(D) Narrow crested

67. Earth's curvature is considered in …… survey.

(A) Plane
(B) Basement
(C) Geodetic
(D) None of the above

68. The value of …… is zero at point of contraflexure.

(A) Shear force
(B) Bending moment
(C) Strain energy
(D) Centre of gravity

69. …… support offers resistance against vertical and horizontal moments.

(A) Hinged
(B) Simple
(C) Fixed
(D) Inclined

70. …… is the phenomenon of slow growing strain under a stress for a period of time.

(A) Yielding
(B) Breaking
(C) Creeping
(D) None of the above

71. The process of finding area of plane curves is often called

(A) Quadrature
(B) Revolution
(C) Convolution
(D) Mapping

Only for reference. Do not copy

72. The probability of hitting a target is 0.3. What is the mean and variance?

(A) 0.7, 0.21
(B) 0.3, 0.21
(C) 0.4, 0.75
(D) 0.1, 0.75

73. …… is the dot product of two vectors A and B.

(A) Cartesian product
(B) Outer product
(C) Inner product
(D) Final product

74. ……in columns is a type of mechanical failure which occurs in materials due to the application of compressive load.

(A) Sagging
(B) Creeping
(C) Melting
(D) Buckling

75. The number of shear stress components that can act on a 3-D object is

(A) 3
(B) 6
(C) 9
(D) 2

76. A transformer has a primary current of 300 mA rms and is plugged into a 120 V rms source. The secondary is providing 20 V across a 12 omega.gif load. What is the efficiency of the transformer?

(A) 92%
(B) 80%
(C) 98%
(D) 85%

77. …… is the distance travelled by a signal's energy in the time it takes for one cycle to occur.

(A) Frequency
(B) Amplitude
(C) Wavelength
(D) Period

Only for reference. Do not copy

78. The majority carriers in a “p” type material is

(A) Dopants
(B) Electrons
(C) Holes
(D) Bonds

79. …… are found in the upper part of an aquatic ecosystem.

(A) Nektons
(B) Benthos
(C) Arthropods
(D) Plankton

80. The tendency of biological systems to resist change is called

(A) Heliotropism
(B) Homeostasis
(C) Home tropism
(D) Evolution

81. …… is considered as a common indicator organism of sewage pollution in a water body.

(A) Escherichia coli
(B) Eicchornia Crassipes
(C) Lemna paucicostata
(D) Entamoeba histolytica

82. The concentration of DDT …… as it travels along the food chain.

(A) decreases
(B) remains constant
(C) increases
(D) fluctuates randomly

83. …… acts as an absorbing barrier for ultraviolet radiations in the stratosphere.

(A) Argon
(B) Ozone
(C) Oxygen
(D) Fluorocarbon

Only for reference. Do not copy

84. The international treaty that aims at the reduction of ozone depleting substances

(A) Kyoto protocol
(B) Montreal protocol
(C) Basel convention
(D) Ramsar treaty

85. Which of the following is the most harmful environmental pollutant?

(A) Animal waste
(B) Sewage
(C) Nutrients in excess
(D) Non-biodegradable chemicals

86. The concentration of many harmful pollutants has been found to increase in higher trophic levels. This phenomenon is known as

(A) Biomagnification
(B) Eutrophication
(C) Biodegradation
(D) Bioremediation

87. Fish death occurs in water bodies contaminated by sewage. The main reason for such occurrences is

(A) Pathogen
(B) Reduction in oxygen concentration
(C) Foul smell
(D) Clogging of grills by silt

88. Which of the following is a non-ionizing radiation with specific biological effects?

(A) Gamma rays
(B) X-rays
(C) UV radiation
(D) Beta rays

89. …… is considered as an indicator of sulphur dioxide pollution

(A) Mosses
(B) Lichens
(C) Climbers
(D) Grasses

Only for reference. Do not copy

90. The phenomenon by which an organism produces one or more biochemicals that influence the germination, growth, survival, and reproduction of other organisms is known as

(A) Allelopathy
(B) Ecological suppression
(C) Eutrophication
(D) Biomagnification

91. Which of the following techniques can be used to remove fluorides from water?

(A) Lime softening
(B) Ion exchange
(C) Reverse osmosis
(D) All of the above

92. Which of the following is a water borne disease?

(A) Scabies
(B) Hepatitis
(C) Asthma
(D) Rabies

93. The pressure inside a water droplet is 0.075 N/cm^2 greater than the outside pressure. What will be the diameter of the droplet? The surface tension may be assumed as 0.075 N/m.

(A) 0.4 mm
(B) 4 mm
(C) 0.04 mm
(D) 0.6 mm

94. The force due to pressure gradient for fluid at rest is considered as

(A) Body force
(B) Surface force
(C) Force due to motion
(D) None of the above

Only for reference. Do not copy

95. A uniform body of size 5 m long × 3 m wide × 1.4 m deep floats in water. What is the weight of the body if depth of immersion is 1 m?

(A) 143 kN
(B) 73 kN
(C) 206 kN
(D) 412 kN

96. Kinetic energy factor for a fully developed laminar flow is around

(A) 4
(B) 1
(C) 6
(D) 2

97. …… is a graph that indicates the power available at different streams of water.

(A) Hydrograph
(B) Powergraph
(C) Isobaric graph
(D) Flow graph

98. The sum of enthalpy and kinetic energy remains a constant in

(A) Isentropic flow
(B) Polytropic flow
(C) Adiabatic flow
(D) Isothermal flow

99. …… is defined as the similarity between motion of the model and the prototype.

(A) Kinematic similarity
(B) Geometric similarity
(C) Dynamic similarity
(D) Potential similarity

100. …… is used to quantify the resistance of an object in a fluid environment.

(A) Viscosity
(B) Drag coefficient
(C) Momentum coefficient
(D) Diffusion coefficient

Only for reference. Do not copy

101. A structure made of slender members which are joined together at their end points is called

(A) Support
(B) Pillar
(C) Beam
(D) Truss

102. The moment of inertia of a body does not depend on its

(A) Angular velocity
(B) Distribution
(C) Axis of rotation
(D) Mass

103. Steam is heated from 110^{o}C to 114^{o}C. Its specific heat at constant pressure is 105 J/^{o}C. The corresponding enthalpy change is

(A) 105 J
(B) 210 J
(C) 420 J
(D) 315 J

104. One percent of the people of country P are taller than 1.8 m. Two percent of the people of country Q are taller than 1.8 m. There are thrice as many people in country P as in country Q. Taking both countries together, what is the percentage of people taller than 1.8 m?

(A) 3.0%
(B) 2.5%
(C) 1.5%
(D) 1.25%

105. Identify the group of nontoxic metals commonly found in natural water.

(A) Arsenic, lead and mercury
(B) Calcium, sodium and silver
(C) Iron, manganese and magnesium
(D) Cadmium, chromium and copper

Only for reference. Do not copy

106. One kg of methane is to be completely oxidised to its end products.
The amount of CO_2 generated (in kg) during the process will be

(A) 2.75 Kg
(B) 3.2 Kg
(C) 2.5 Kg
(D) 2.1 Kg

107. At one end of a structural member subjected to compression, translation is restrained at one end and both translation and rotation are restrained at the other end. The effective length factor recommended by IS 456 : 2000 in this case is

(A) 0.80
(B) 0.70
(C) 0.65
(D) 0.50

108. Which of the following is used to determine the liquid limit of soil?

(A) Le Chatelier apparatus
(B) Casagrande's apparatus
(C) Vicat apparatus
(D) Briquette testing apparatus

109. The entries in each column of a square matrix M add up to 1.
Then an eigenvalue of M is

(A) 1
(B) 3
(C) 2
(D) 4

110. The initial setting and early strength gain of ordinary Portland cement is due to the presence of

(A) C_3A
(B) C_3S
(C) C_2S
(D) C_4AF

Only for reference. Do not copy

111. The maximum allowable shear stress for the design of reinforced concrete beam depends on the

(A) Grade of steel only
(B) Grade of concrete only
(C) Grade of concrete and grade of steel
(D) Grade of concrete and percentage of reinforcement

112. The faintest sound that a normal healthy individual can hear has a sound pressure of

(A) 0.2 μPa
(B) 2 μPa
(C) 55 μPa
(D) 20 μPa

113. Two curves $x^2 = 4y$ and $y^2 = 4x$ intersect at point (0, 0).
What is the angle of intersection?

(A) 0^o
(B) 30^o
(C) 45^o
(D) 90^o

114. The shear force at a section of beam under bending is equal to zero then the bending moment at the section is

(A) Maximum
(B) Minimum
(C) Zero
(D) None of the above

115. The minimum essential treatment to be given to the water from a deep tube well to make it potable

(A) Coagulation and flocculation
(B) Disinfection
(C) Filtration
(D) Settling

116. The analysis of river water shows that nitrates are present in excess. This indicates

(A) recent pollution of water with sewage
(B) immediate pollution of water with sewage
(C) past pollution of water with sewage
(D) no pollution of water with sewage

Only for reference. Do not copy

117. It is proposed to use Lacey's method for designing a stable channel for a discharge of Q m^3/s with silt factor 'f'. The mean flow velocity (m/s) in the channel will be

(A) $(Qf^2/140)^{1/6}$
(B) $(Qf/140)^{1/3}$
(C) $(Q^2f^2/140)^{1/6}$
(D) $0.48\ (Q/f)^{1/3}$

118. Which of the following can be used to measure the amount of actual evapotranspiration released by plants?

(A) Lysimeter
(B) Bolometer
(C) Thermoscope
(D) Manometer

119. It is required to maintain a minimum dissolved oxygen content of …… in a river for the survival of aquatic life.

(A) 0 mg/L
(B) 2 mg/L
(C) 4 mg/L
(D) 8 mg/L

120. …… is a dimensionless parameter measuring the ratio of "the inertia force on an element of fluid to the weight of the fluid element".

(A) Reynolds number
(B) Froude number
(C) Nusselt number
(D) Prandtl number

121. Which of the following waste water treatment operations involves mass transfer?

(A) Aeration
(B) Sedimentation
(C) Screening
(D) Equalisation

Only for reference. Do not copy

122. The dimensionless number which is defined as the ratio of the convective mass transfer to the mass diffusivity

(A) Schmidt number
(B) Prandtl number
(C) Sherwood number
(D) Grashoff number

123. Which of the following has the highest capability of producing precise output when compared to the remaining methods?

(A) Theodolite surveying
(B) Traverse surveying
(C) Terrestrial photogrammetry
(D) Aerial photogrammetry

124. Identify the feature which is not applicable to remote sensing.

(A) Electro-magnetic spectrum
(B) Interaction of energy with atmosphere
(C) Interaction of energy with satellite
(D) Electromagnetic energy

125. …….. indicates the process of measuring depth below the water surface.

(A) Contouring
(B) Sounding
(C) Triangulation
(D) Traversing

126. The average percentage of water present in human body is

(A) 60
(B) 40
(C) 90
(D) 20

127. The largest producer of biofuel in the world is

(A) India
(B) Argentina
(C) Brazil
(D) United States of America

Only for reference. Do not copy

128. Which of the following is not essential for growing plants in hydroponics?

(A) Water
(B) Air
(C) Soil
(D) Nutrients

129. Identify the organism which acts as primary decomposers and recyclers of most of the dead plant material.

(A) Bacteria
(B) Fungi
(C) Protozoa
(D) Plankton

130. …… is a symbiotic association between a fungus and a plant.

(A) Fungal mantle
(B) Mycelium
(C) Mycorrhizae
(D) Thallus

131. The presence and role of ……. within an ecosystem has a disproportionate effect on other organisms within the system.

(A) Keystone species
(B) Dominant species
(C) Super species
(D) Precious species

132. ……. are special ecosystems in which the water level fluctuates dramatically in different seasons.

(A) Coral reefs
(B) Wetlands
(C) Deep oceans
(D) Brackish water

133. Sunderbans, a delta of Ganges River is an example of

(A) Lake ecosystems
(B) Pond ecosystem
(C) Brackish water ecosystem
(D) River ecosystem

Only for reference. Do not copy

134. Which of the following is a multilateral treaty to promote shared responsibilities in relation to importation of hazardous chemicals?

(A) Montreal protocol
(B) Stockholm convention
(C) Basel convention
(D) Rotterdam convention

135. …… is a suspension of fine solid particles or liquid droplets in air or another gas.

(A) Smoke
(B) Aerosol
(C) Dust
(D) Particulates

136. The controlled use of …… in conjunction with waste stabilization increases the BOD removal capacity.

(A) Water hyacinth
(B) Moses
(C) Lichen
(D) Eupatorium

137. Which of the following techniques can be used for the effective removal of emulsified oil from water?

(A) Gravity separation
(B) Screening
(C) Filtration
(D) Dissolved air floatation

138. Removal of sand, and gravel in the primary treatment of waste water is known as

(A) Coagulation
(B) Screening
(C) Grit removal
(D) Adsorption

139. Which of the following characteristics does not make a waste hazardous?

(A) Toxicity
(B) Viscosity
(C) Flammability
(D) Reactivity

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140. …… is a chemical process in which the combustible portion of the waste is combined with oxygen forming carbon dioxide and water, which are released into the atmosphere.

(A) Incineration
(B) Pyrolysis
(C) Composting
(D) Stabilisation

141. Chairperson of the National Crisis Management Committee is the

(A) Principal Secretary to the Prime Minister
(B) Cabinet Secretary
(C) Home Secretary
(D) Home Minister

142. …… is an area of land that feeds all the water running under it and draining off of it into a body of water.

(A) Water cycle
(B) Catchment area
(C) Water shed
(D) Water reservoir

143. Which of the following greenhouse gases has the highest global warming potential on a 100 year scale?

(A) Carbon tetra fluoride
(B) Nitrous oxide
(C) Methane
(D) Water vapour

144. A disease that affects a large number of people within a community, population, or region is known as

(A) Pandemic
(B) Endemic
(C) Epidemic
(D) Outbreak

145. Any substance that can disturb the development of an embryo or foetus is called

(A) Carcinogen
(B) Teratogen
(C) Mutagen
(D) Antibody

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146. Discrete groups of organisms of the same kind are called

(A) Community
(B) Colony
(C) Biome
(D) Species

147. …… is an electrical device consisting of two dissimilar electrical conductors forming an electrical junction.

(A) Pyrometer
(B) Thermocouple
(C) Galvanometer
(D) Resistance thermometer

148. …… is the torque which acts on the moving system of the instrument when it is moving.

(A) Vibrational torque
(B) Damping torque
(C) Rotational torque
(D) Inertial torque

149. Orifice plate flow meters require ……. for accurate operation.

(A) Fully developed turbulent flow
(B) Laminar flow
(C) Plug flow
(D) Transitional flow

150. Rapid growth of bacteria is observed in the …… phase of the growth curve.

(A) Lag phase
(B) Stationary phase
(C) Endogenous phase
(D) Log phase

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ANSWER KEY

Subject Name: 607 ENGINEERING SCIENCE

SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key
1	C	31	D	61	B	91	D	121	A
2	A	32	B	62	C	92	B	122	C
3	B	33	D	63	C	93	A	123	D
4	A	34	C	64	A	94	B	124	C
5	D	35	A	65	A	95	C	125	B
6	C	36	B	66	B	96	D	126	A
7	B	37	B	67	C	97	A	127	D
8	C	38	D	68	B	98	C	128	C
9	C	39	A	69	A	99	A	129	B
10	B	40	C	70	C	100	B	130	C
11	A	41	B	71	A	101	D	131	A
12	D	42	C	72	B	102	A	132	B
13	C	43	B	73	C	103	C	133	C
14	D	44	D	74	D	104	D	134	D
15	B	45	A	75	B	105	C	135	B
16	C	46	B	76	A	106	A	136	A
17	A	47	B	77	C	107	D	137	D
18	D	48	C	78	C	108	B	138	C
19	C	49	A	79	D	109	A	139	B
20	A	50	D	80	B	110	B	140	A
21	B	51	B	81	A	111	C	141	B
22	C	52	C	82	C	112	D	142	C
23	B	53	D	83	B	113	D	143	A
24	D	54	B	84	B	114	B	144	C
25	A	55	A	85	D	115	B	145	B
26	C	56	B	86	A	116	C	146	D
27	A	57	C	87	B	117	A	147	B
28	C	58	D	88	C	118	A	148	B
29	B	59	A	89	B	119	C	149	A
30	D	60	C	90	A	120	B	150	D

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