

Q001: Which of the following is **not** a consequence of global warming?

- (A) Thickening of ice cap at the poles
- (B) Worsening health effects
- (C) Rising sea level
- (D) Increased storm frequency and intensity

Q002: A city has the following characteristics: Width=5 km, Length (along the wind direction) = 10 km, u (wind speed) = 2.5 m/s, H (atmospheric mixing height) = 1000 m, the upwind, or background, concentration of nitrous oxide is $b = 10 \mu\text{g}/\text{m}^3$. The emission rate per unit area is $q = 4 \times 10^{-6} \text{ g/s.m}^2$. What is the steady-state concentration of nitrous oxide, in $\mu\text{g}/\text{m}^3$, over the city (assume there is no chemical reaction)?

- (A) 26
- (B) 30
- (C) 16
- (D) 20

Q003: In which one among the following categories of protected areas in India are local people **not** allowed to collect and use the biomass?

- (A) Wildlife Sanctuaries
- (B) National Parks
- (C) Wetlands declared under Ramsar Convention
- (D) Biosphere Reserves

Q004: 'Kalibangan' an Indus valley civilization site is located in which district of Rajasthan?

- (A) Bikaner
- (B) Jaipur
- (C) Hanumangarh
- (D) Jaisalmer

Q005: Proximate Analysis of Waste will give information about

- (A) Calorific value, C:N ratio, Field Capacity and Metal Content
- (B) BOD, COD, pH and Temperature
- (C) Molecular composition (C, H, N, O, P, etc.)
- (D) Moisture content, Volatile Combustible Matter, Fixed Carbon and Ash Content

Q006: In design of an ASP based treatment system, two important design parameters are food to microorganism (F/M) ratio and mean cell residence time (MCRT). Which of the following are used for the computation of the F/M ratio?

- (A) Aeration tank volume and mixed liquor suspended solids
- (B) Biochemical Oxygen Demand (BOD) of wastewater and Flow of wastewater
- (C) BOD of wastewater and mixed liquor volatile suspended solids
- (D) MLSS and Biological Oxygen Demand of wastewater

Q007: In trickling filters, the wastewater is distributed over media upon which biological film growth develops containing living organisms that

- (A) helps in oxidation of the organic material
- (B) filters water
- (C) allows water to flow
- (D) generates organic material

Q008: As per SWM Rules, horticulture waste from parks and gardens should be:

- (A) Collected along with the MSW and treated at disposal site
- (B) Collected and treated chemically
- (C) Collected and treated offsite
- (D) Collected separately and treated onsite

Q009: The stability of the stratosphere is due to which of the following reasons?

- (A) Strong wind currents
- (B) Absorption of solar energy by ozone layer
- (C) Weak wind currents
- (D) Pressure is minimal

Q010: Which solar project of Rajasthan in 2020 was recognized as the largest cluster of photovoltaic power plants in a single region in the world, with the installed power exceeding the 2.2 GW?

- (A) Pavagada Solar Park
- (B) Kurnool Ultra Mega Solar Park
- (C) Bhadla Solar Park
- (D) Charanka Solar Park

Q011: Which metals can be recovered from mobile phones?

- (A) Copper, silver, gold, palladium
- (B) Copper, tin, indium
- (C) Copper, glass, Lead, steel
- (D) Copper, lead, iron, tin

Q012: Diophantus's (Often known as the father of Algebra) youth lasted one sixth of his life. He grew a beard after one twelfth more. After one seventh more of his life, he married. 5 years later, he and his wife had a son. The son lived exactly one half as long as his father, and Diophantus died four years after his son. How many years did Diophantus live?

- (A) 104 years (B) 84 years (C) 64 years (D) 74 years

Q013: An upflow anaerobic sludge blanket reactor, with 6 hours hydraulic detention time, is designed to treat 5MLD of wastewater with COD of 400 mg/L. What will be the volumetric organic loading rate (kg COD/m³d)?

- (A) 1.25 (B) 1.6 (C) 1.2 (D) 3.3

Q014: Who was the first person from Rajasthan to receive the Padma Vibhushan Award?

- (A) Daulat Singh Kothari (B) Rajesh Pilot
(C) JRD Tata (D) Ghanshyam Das Birla

Q015: Many chemicals are used in a conventional water treatment plant such as Alum, PAC, Chlorine, etc. Which of the following describes what is Alum?

- (A) Coagulant (B) Flocculent (C) Catalyst (D) Disinfectant

Q016: The recently discovered new height of Mt. Everest is 8848.86 m above the sea level. If the atmospheric lapse rate is 6 Kelvin per 1000 m and is maintained till the tip of the Mt. Everest and the temperature of the Earth at mean sea level is 25°C, then the air temperature at the tip of the Mt. Everest is _____.

- (A) -18.09°C (B) -38.09°C (C) -28.09°C (D) -8.09°C

Q017: A fabric filter is treating 30,000 cubic feet per minute of air (acfm) with an average air to cloth ratio of 2 ft/min. The bags are 8.0 inches in diameter and 12 feet long. Estimate the number of bags in the baghouse closest to the computed value

- (A) 1200 bags (B) 80 bags (C) 200 bags (D) 600 bags

Q018: Some of the oxygen demand parameters for an organic compound / wastewater are Theoretical (ThOD), Chemical (COD), Ultimate BOD (UBOD). If an organic compound is assumed to be completely biodegradable, which of the following is true?

- (A) COD = ThOD = UBOD (B) COD > ThOD = UBOD
(C) COD = UBOD < ThOD (D) ThOD > UBOD > COD

Q019: Ozone is a secondary pollutant because

- (A) It is highly toxic (B) It has three atoms of oxygen
(C) It is formed in the troposphere (D) The origin of ozone is from stratosphere

Q020: COD to BOD ratio for sewage (municipal wastewater) typically lies in the range of

- (A) 1.6 - 1.9 (B) 8.5 - 9.2 (C) 10.1 - 11.2 (D) 4.6 - 5.2

Q021: Expert Appraisal Committee (EAC) and State Expert Appraisal Committee (SEAC) are constituted by MoEF&CC for recommending the issuance of EC for projects. Which category of projects are considered by EAC for recommending issue of EC?

- (A) B1 (B) A (C) A1 (D) B2

Q022: As an approximate percentage, what part of area of India, does Rajasthan cover?

- (A) 17.3% (B) 10.4% (C) 2.3 % (D) 5.3%

Q023: Which is the state bird of Rajasthan?

- (A) Ostrich (B) The Peacock
(C) The Great Indian Bustard (D) The Parrot

Q024: The size of a wooden block is 5 cm x 10 cm x 20 cm. How many whole such blocks you will take to construct a solid wooden cube of minimum size?

- (A) 6 (B) 12 (C) 8 (D) 16

Q025: Which of the following are contradictory plumes?

- (A) Lofting and fumigating (B) Looping and coning
(C) Fumigating and trapping (D) Neutral and lofting

Q026: Central Pollution Control Board has specified use-based classification of surface waters in India. There are five categories A, B, C, D, and E defined in the classification. Use of river as drinking water source without conventional treatment but after disinfection will be which class / category according to above classification?

- (A) A (B) E (C) C (D) D

Q027: A rectangular channel (width = w and depth = d) connects the cascade aerator and flash mixer in a conventional water treatment plant. Being open channel, flow is calculated using the Manning's formula, i.e., $V = (1/n) \cdot (R^{2/3} S^{1/2})$. How is R calculated?

- (A) $R = (b \cdot d) / (2b + d)$ (B) $R = (b \cdot d) / (b + 2d)$
(C) $R = 2(b \cdot d) / (b + d)$ (D) $R = (b + 2d) / (b \cdot d)$

Q028: What will be the range of AQI for purple colour representing poor category

- (A) 201 – 300 (B) 301 and Above (C) 151 – 200 (D) 0 – 50

Q029: Sun and Earth both behave as a black body with black body temperatures given as 6000K for Sun and correspondingly for Earth as 298K. The ratio of the wavelengths corresponding to the maximum amount of radiations emitted by the Sun to that of the Earth comes out to be

- (A) 2.4×10^{-3} (B) 20.134 (C) 0.049 (D) 405.387

Q030: Which country launched 'Vulture Action Plan 2020-25', to actively increase the number of vultures?

- (A) Australia (B) India (C) Brazil (D) China

Q031: Which of the following statement(s) is/are correct about Lagoons and backwaters?

- I. They are coastal lakes which have their connection with the sea through small openings
II. They exhibit a gradient in salinity from freshwater to marine depending upon the extent of influence of the sea water.

- (A) Both I and II (B) Only II (C) Only I (D) Neither I nor II

Q032: Which of the following bacterial genera causes problem of foaming in activated sludge process?

- (A) *Nitrospira* (B) *Nitrosomonas* (C) *Nocardia* (D) *Nitrobacter*

Q033: Underflow sludge from clarifier has solids concentration of 2% and volumetric flow rate of 1000 m³/day, what will be the dry solids flow rate in kg/day?

- (A) 20000 (B) 10000 (C) 500 (D) 50

Q034: Municipal sewage sludge can be used as a fertilizer but is rendered unsuitable by presence of which of the following contaminants?

- (A) Organic matter (B) Nitrates (C) Phosphates (D) Heavy metals

Q035: If the average temperature of the sun is increased, the wavelength of peak solar radiation would:

- (A) Shift to a shorter wavelength (B) Impossible to tell from given information
(C) Shift to a longer wavelength (D) Remain the same

Q036: As per CPCB, the used masks, gloves and tissues or swabs contaminated with blood / body fluids of COVID-19 patients, including used syringes, medicines, etc., if any generated should be treated as:

- (A) Biomedical waste (B) Hazardous waste
(C) Infective waste (D) Municipal solid waste

Q037: Who is considered as the Kuldevi of Yaduvanshi dynasty of Karauli?

- (A) Living mother (B) Sheetla Mata (C) Kaila Devi (D) Karni Mata

Q038: When Environmental Lapse Rate (ELR) is less than Adiabatic Lapse Rate (ALR), then which of the following occurs?

- (A) Sub adiabatic lapse rate (B) Super adiabatic lapse rate
(C) Neutral lapse rate (D) Adiabatic lapse rate

Q039: Which one of the following is **not** a site for in-situ method of conservation of flora?

- (A) Biosphere reserve (B) Botanical garden
(C) Wildlife sanctuary (D) National park

Q040: The Leopold Matrix lists ____ specified actions and ____ Environmental items.

- (A) 90, 100 (B) 99, 100 (C) 100, 90 (D) 100, 99

Q041: Purpose of air pollution control equipment in an incineration plant is to control:

- (A) NO_x , SO_x , PM (B) CO , SO_x , PM (C) CO , SO_x , RSPM (D) NO_x , SO_x , CO

Q042: Which of the following plume prevails under stable atmospheric conditions?

- (A) Neutral (B) Fumigating (C) Fanning (D) Lofting

Q043: Particles of what size are filtered by the nasal passage?

- (A) $>50\ \mu\text{m}$ (B) $>1\ \text{mm}$ (C) $>10\ \mu\text{m}$ (D) $>500\ \mu\text{m}$

Q044: Geo-net is a ____ material used for drainage of ____

- (A) Fibrous, Liquids (B) Synthetic, Liquids (C) Ceramic, Liquids (D) Synthetic, Gases

Q045: Mixing requirement in the aeration tank should be in the range of ____ W/m^3 of the tank volume

- (A) 5 – 10 (B) 100 – 120 (C) 50 – 60 (D) 15 – 26

Q046: The pyrolysis process is highly endothermic and it is also known as ____ distillation

- (A) Fractional (B) Destructive (C) Vacuum (D) Steam

Q047: The National Green tribunal (NGT) hears matters relating to

- (A) Water, climate change, forests (B) Biodiversity, climate change, forests
(C) Biodiversity, climate change, water, forests (D) Biodiversity, forests, water

Q048: What is the order of waste management hierarchy, from **least to most** favored?

- (A) Prevention-Recycle-Reuse-Disposal (B) Reuse-Disposal-Prevention-Recycle
(C) Disposal-Recycle-Reuse-Prevention (D) Recycle-Prevention-Disposal-Reuse

Q049: Which one of the following is **not** a permissible application of materials made from construction and demolition waste?

- (A) Drainage layer in leachate collection system at the bottom of sanitary landfill
(B) Liner system in a sanitary landfill
(C) Drainage Layer in top cover system above gas collection layer of sanitary landfill
(D) Daily cover sanitary landfill

Q050: Grain bowl of Rajasthan state is:

- (A) Kota (B) Sriganganagar (C) Jhalawar (D) Hanumangargh

Q051: The major difference between activated sludge systems and aerated lagoons is that

- (A) In aerated lagoons, settling tanks and sludge recirculation are absent.
(B) Aerated lagoon does not require external aeration
(C) Aerated lagoon is an attached growth process
(D) Aerated lagoon is a batch process

Q052: Which one of the following groups of animals belongs to the category of endangered species?

- (A) Snow Leopard, Swamp Deer, Rhesus Monkey and Saras (Crane)
- (B) Lion-tailed Macaque, Blue Bull, Hanuman Langur and Cheetal
- (C) Great Indian Bustard, Musk Deer, Red Panda and Asiatic Wild Ass
- (D) Kashmir Stag, Cheetal, Blue Bull and Great Indian Bustard

Q053: Who was awarded for her achievements in mountaineering on the International Day of Women 2019?

- (A) Asha Jhajharia
- (B) Poonam Sharma
- (C) Poonam Yadav
- (D) Asha Jain

Q054: Which of the following scattering phenomena is responsible for the blue colour of the sky?

- (A) Non-selective scattering
- (B) Diffraction
- (C) Mie scattering
- (D) Rayleigh scattering

Q055: It is desirable to know the frequency of sound along with its decibel level because

- (A) Frequency alone decides the annoyance level
- (B) Perceptible noise to human ear relates to both frequency and sound pressure
- (C) Sound pressure and frequency are important for sonic boom
- (D) Decibel level depends on frequency of sound

Q056: At a municipal solid waste management facility the Trommel Screens are used for

- (A) Separating light materials from heavy
- (B) Separating non-ferrous metals
- (C) Separating ferrous metals
- (D) Separation as per the size

Q057: Which of the following is **incorrect** regarding the fabric filters?

- (A) They have low efficiency in comparison to Electrostatic precipitator for ultra fine particles
- (B) They can handle large volume of gas at relatively high speed
- (C) They are liable to chemical attack
- (D) They can remove very small particle

Q058: How many AQI categories are defined in the report on National Air Quality Index published by CPCB?

- (A) 8
- (B) 5
- (C) 4
- (D) 6

Q059: Which of the following technologies is based on phytoremediation principle?

- (A) Aerated lagoons
- (B) Constructed wetlands
- (C) ASP
- (D) SBR

Q060: In HEP (Habitat Evaluation Procedure) the HSI (Habitat Suitability Index) will be equal to

- (A) $HSI = (\text{Optimum habitat condition})/1000$
- (B) $HSI = (\text{Study area habitat condition})/1000$
- (C) $HSI = (\text{Study area habitat condition})/(\text{Optimum habitat condition})$
- (D) $HSI = \text{Study area habitat condition} \times \text{Optimum habitat condition}$

Q061: In an activated sludge process based wastewater treatment plant stiff white billowing foam is observed on the aeration tank surface. What does the presence of such foam indicate?

- (A) Mean cell residence time is less
- (B) F/M ratio is very low
- (C) Very high oxygen content
- (D) Hydraulic retention is high

Q062: Thickening of sludge occurs by type ____ settling

- (A) II
- (B) III
- (C) I
- (D) IV

Q063: In which state is the Indian Railways constructing the world's tallest pier Bridge?

- (A) Assam
- (B) Manipur
- (C) Uttarakhand
- (D) Mizoram

Q064: Under the current EIA notification, which is the 4th stage in the process of granting environmental clearance for new projects?

- (A) Prediction (B) Screening (C) Appraisal (D) Scoping

Q065: Hardness in water is due to certain dissolved elements in water and tends to affect the lathering of soap. The permanent hardness of water is caused by the presence of which of the following?

- (A) Chlorides and sulfates of calcium and magnesium
(B) Phosphates of sodium and potassium
(C) Carbonates and chlorides of sodium and potassium
(D) Bicarbonates of calcium and magnesium

Q066: A ____ calorimeter is a type of ____ calorimeter used in measuring the heat of combustion of a particular reaction.

- (A) Joule-Thomson, constant-volume (B) Bomb, constant-volume
(C) Joule-Thomson, constant-temperature (D) Bomb, constant-temperature

Q067: UN Climate Change Conference was held in 2018 at:

- (A) Bonn (B) Geneva (C) Paris (D) Katowice

Q068: Which organization has accepted the Indian Regional Navigation Satellite System (IRNSS) to be used for navigation in the Indian Ocean Region?

- (A) United Nations (B) International Telecommunication Union
(C) International Maritime Organization (D) World Tourism Organisation

Q069: For effective composting of municipal solid waste, moisture content of the waste should be

- (A) More than 60% by weight (B) Less than 12% by weight
(C) Between 45 to 55% by weight (D) Between 12 to 18% by weight

Q070: The color of a star indicates its

- (A) Mass (B) Temperature (C) Luminosity (D) Distance

Q071: Field capacity in a waste sample is defined as

- (A) The moisture present in the sample expressed as percentage of the wet weight
(B) The volume of air voids present in the sample
(C) The maximum amount of water that comes out from the sample subject to gravitational pull
(D) The maximum amount of moisture that can be retained in the sample subject to gravitational pull

Q072: Which one of the following correctly represents process options that can be used for energy recovery from waste (i.e., conversion of waste material into usable heat, electricity, or fuel)?

- (A) Combustion, gasification, pyrolysis, anaerobic digestion
(B) Stabilization, neutralization, gasification, pyrolysis, anaerobic digestion, landfilling
(C) Combustion, gasification, pyrolysis, aerobic digestion, landfilling
(D) Material recovery, gasification, pyrolysis, aerobic composting, neutralization

Q073: According to Gaussian Plume Model, the downwind ground level concentration (C) varies with effective stack height (H) of release as:

- (A) $\ln(C) \propto H^{-3/2}$ (B) $\ln(C) \propto H^{-1}$ (C) $\ln(C) \propto H^{-1/2}$ (D) $\ln(C) \propto H^{-2}$

Q074: As per CPHEEO manual, an acceptable value of the weir loading rate for primary clarifier design, considering an average flow condition, is ____ m³/m/day

- (A) 50 (B) 125 (C) 400 (D) 200

Q075: Winter rain in Rajasthan is known as:

- (A) Norwester (B) Kal Baisakhi (C) Mango Showers (D) Mawat

Q076: What does the aerodynamic diameter of an aerosol indicate?

- (A) Equivalent diameter of a sphere having same volume as that of the aerosol
- (B) Maximum size of aerosol particle that can float in the air
- (C) Average diameter of aerosol particles present in unit volume of air
- (D) Size of the aerosol particle when floating in air

Q077: Who was the first woman to win the Nobel Prize?

- (A) Emmanuelle Charpentier
- (B) Marie Curie
- (C) Maria Goeppert Mayer
- (D) Irène Joliot-Curie

Q078: Validity of Environmental clearance for mining projects remains for maximum of ____ year(s).

- (A) 30
- (B) 10
- (C) 5
- (D) 1

Q079: In setting up a wastewater treatment plant, based on ASP, which of the following sequences is correct? Here A is Aeration Tank, B is Secondary Clarifier, C is Equalization Tank, and D is Grit Chamber

- (A) A-B-C-D
- (B) B-A-C-D
- (C) D-C-A-B
- (D) C-D-A-B

Q080: United Nations conference on the Human Environment was held at Stockholm in which of the following years?

- (A) 1981
- (B) 1972
- (C) 2004
- (D) 1974

Q081: In which country, a 500-meter-high coral reef has been discovered for the first time in 120 years?

- (A) Brazil
- (B) Australia
- (C) India
- (D) Japan

Q082: Which one is **not** an international agreement/protocol related to environmental protection?

- (A) Paris Agreement
- (B) London Declaration
- (C) Montreal Protocol
- (D) Kyoto Protocol

Q083: When is earth day observed?

- (A) 5 June
- (B) 24 September
- (C) 20 March
- (D) 22 April

Q084: Which of the following statement(s) is/are correct?

- I. The name "coronavirus" comes from the crown-like projections on the virus's surfaces. "Corona" in Latin means "halo" or "crown."
- II. The new coronavirus, SARS-CoV-1, causes COVID-19.
- III. WHO announced COVID-19 outbreak as a pandemic on 11 February 2020
- IV. WHO has declared year 2020 as the Year of the Nurse and the Midwife

- (A) Only II and III
- (B) Only II, III and IV
- (C) All I, II, III and IV
- (D) Only I and IV

Q085: Which river of Rajasthan is known as 'Van Ki Asha' (Hope of the forest)?

- (A) Mahi
- (B) Chambal
- (C) Banas
- (D) Luni

Q086: Sundarban Biosphere is located in

- (A) West Bengal
- (B) Maharashtra
- (C) Rajasthan
- (D) Jammu and Kashmir

Q087: Which out of the following is an exclusively suspended growth system/process?

- (A) Rotating biological contactors
- (B) Moving bed biological reactors
- (C) Trickling filters
- (D) Sequential batch reactors

Q088: Which of the following is **not** an advance thermal treatment technique?

- (A) Plasma systems
- (B) Pyrolysis
- (C) Mass burning
- (D) Gasification

Q089: The Ministry of Environment, Forest and Climate Change (MoEF&CC) has published the draft Environment Impact Assessment (EIA) Notification 2020, with the intention of replacing the existing EIA Notification, 2006 under the Environment (Protection) Act, 1986. Which of the following is/are the key change(s) from existing regulation?

- I. Removal of several activities from the purview of public consultation.
- II. A list of projects has been included under Category B2, expressly exempted from the requirement of an EIA.

(A) Only II (B) Only I (C) Neither I nor II (D) I and II both

Q090: Co-processing of municipal solid waste fraction, which is non-biodegradable, non-recyclable is suitably done if the calorific value of the waste is

- (A) More than 500 kcal/kg after adding supplementary fuel
- (B) Less than 500 kcal/kg without adding supplementary fuel
- (C) More than 1500 kcal/kg without adding supplementary fuel
- (D) Less than 1500 kcal/kg after adding supplementary fuel

Q091: Which word has become "Word of the Year 2020" in the Cambridge Dictionary?

- (A) Covid (B) Quarantine (C) Lockdown (D) Corona

Q092: To save on transportation time, the fuel transfer stations should be set up in large cities where disposal sites are more than:

- (A) 20 km away (B) 10 km away (C) 15 km away (D) 5 km away

Q093: Which is the largest source for production of nitrous oxide?

- (A) Fossil fuel combustion (B) Fertilizer industry
- (C) Chemical industry (D) Bacterial action

Q094: Government has issued advisory for import and possession of exotic live species under which agreement?

- (A) CITES (B) UNFCCC (C) CMS (D) CBD

Q095: Loktak Lake, one of the largest freshwater lakes in North East India and famous for floating Keibul Lamjao National Park, is located in

- (A) Manipur (B) Assam
- (C) Arunachal Pradesh (D) Nagaland

Q096: In wind analysis the 'Richardson number' indicates?

- (A) Convective heat production only (B) Mechanical turbulence only
- (C) Mechanical turbulence and convective heat production
- (D) Critical fluid energy

Q097: Which system/body recovers about half of recyclables generated by household in India?

- (A) Urban Local Bodies (B) Waste recycling center
- (C) Kabadi system and waste pickers (D) Municipality/Nagar Nigam

Q098: The stoichiometric oxygen requirement for biological oxidation of ammonia to nitrate is ____ g of O₂ per g of ammonia removed

- (A) 6.50 (B) 0.25 (C) 8.00 (D) 4.57

Q099: Hawa Mahal of Jaipur was designed by

- (A) Lal Chand Ustad (B) Vidyadhar Bhattacharya
- (C) Sawai Jai Singh (D) Bhagat Jain

Q100: What does PAH stand for in terms of environmental chemistry?

- (A) Polyethylene Acetic Hydride (B) Polynuclear Aromatic Hydrides
- (C) Polycyclic Aromatic Hydrocarbons (D) Polycyclic Acetic Hydrocarbons

Q101: Green crackers have been introduced as a replacement of normal crackers. Which of the following is **not** true about these?

- (A) These have less emissions
- (B) They are less harmful than conventional
- (C) They are marked with logo of NEERI
- (D) These emit lot of green fumes

Q102: A PM_{10} sampler runs for 24 hours; at a flow rate of $1.1 \text{ m}^3/\text{min}$ for first 12 hours and at $0.9 \text{ m}^3/\text{min}$ for last 12 hours due to pressure drop. Under the same environmental conditions, the tare weight of the filter was 4.800 g, and final weight after the sampling (i.e. with PM_{10}) was 4.809 g. What is the 24-hour average PM_{10} concentration, in $\mu\text{g}/\text{m}^3$, in the air?

- (A) 7.55
- (B) 9.25
- (C) 6.25
- (D) 4.95

Q103: Which of the following statements is **not** correct?

- (A) Dioxins and furans are extremely difficult and costly to measure.
- (B) The presence of chlorinated hydrocarbons like PVC in our waste results in the release of dioxins and furans when the waste is burnt at more than 950°C .
- (C) Dioxins and furans are among the most dangerous chemical agents. They are known to be carcinogenic and can lead to impairment of immune, endocrine, nervous, and reproductive systems.
- (D) The presence of chlorinated hydrocarbons like PVC in our waste results in the release of dioxins and furans when the waste is burnt at less than 850°C .

Q104: With reference to gas generation at a municipal solid waste landfill, concentration of ____ shall **not** exceed ____ of the lower explosive limit.

- (A) Methane gas, 66.6%
- (B) Carbon monoxide gas, 25%
- (C) Carbon monoxide and methane, 66.6%
- (D) Methane gas, 25%

Q105: The 5-day BOD (BOD_5) of a wastewater sample is calculated as 100 mg/L . What is the ultimate BOD_u at 20°C if $k_{20} = 0.2 \text{ day}^{-1}$?

- (A) 200 mg/L
- (B) 168 mg/L
- (C) 100 mg/L
- (D) 158 mg/L

Q106: Particle diameter of Tobacco smoke ranges between

- (A) $0.0001 - 10.0 \mu\text{m}$
- (B) $0.01 - 1.0 \mu\text{m}$
- (C) $10.0 - 100.0 \mu\text{m}$
- (D) $1.0 - 100.0 \mu\text{m}$

Q107: Which of the following has the highest albedo?

- (A) Vegetation
- (B) Plateau surfaces
- (C) Fresh snow
- (D) Water surface

Q108: Which of the following processes is **not** simulated in Air Quality Modelling (AQM)?

- (A) Evapo-transpiration
- (B) Removal
- (C) Advection
- (D) Diffusion

Q109: BOD concentration of sewage for any given city will **not** be dependent on which of the following parameters?

- (A) Water consumption per capita
- (B) Population of the city
- (C) Organics released per capita
- (D) Commercial /Institutional water consumption in the city

Q110: A tailor had a number of shirt pieces to cut from a roll of fabric. He cut each roll of equal length into 10 pieces. He cut at the rate of 45 cuts a minute. How many rolls would be cut in 24 minutes?

- (A) 240
- (B) 120
- (C) 450
- (D) 45

Q111: In the habitat based methods for Biological Impact Assessment considering HUVs (Habitat Unit Values) the impact is equal to (Here HUV_{wp} = with project HUV and HUV_{wop} = without project HUV)

- (A) HUV_{wp} / HUV_{wop}
- (B) $HUV_{wp} + HUV_{wop}$
- (C) $HUV_{wp} * HUV_{wop}$
- (D) $HUV_{wp} - HUV_{wop}$

Q112: With reference to Membrane bioreactor which one of the following statements is true?

- (A) MLSS in the aeration tank is equal to ASP
- (B) MLSS in the aeration tank is much lower than ASP
- (C) No requirement of MLSS
- (D) MLSS in the aeration tank is much higher than ASP

Q113: Which city has the largest waste dump in India in terms of area?

- (A) Chennai
- (B) Mumbai
- (C) Kolkatta
- (D) Delhi

Q114: Type 1 plastic (polyethylene terephthalate) is commonly found in

- (A) Laundry detergent bottles
- (B) Irrigation pipes
- (C) Soft drinks and water bottles
- (D) Shopping bags

Q115: If mankind is able to stop the rise of earth's temperature and stabilize it, which of the statements is true?

- (A) Incoming or outgoing energy has no relation with earth's temperature
- (B) Incoming and outgoing energy from the earth system is same
- (C) Energy dissipated from earth system exceeds incoming energy
- (D) Incoming energy exceeds outgoing energy in the earth system

Q116: Under the current EIA notification, which category of projects would **not** require conducting an EIA study?

- (A) B2
- (B) A2
- (C) B1
- (D) A

Q117: Which of the following is **not** a basic unit of 'SI System of Units'?

- (A) Meter
- (B) Second
- (C) Mole
- (D) Gram

Q118: According to National Ambient Air Quality Standards, the annual average concentration of Nitrogen Dioxide (NO₂), in µg/m³, in ecologically sensitive areas, as notified by Government of India is:

- (A) 30
- (B) 20
- (C) 80
- (D) 40

Q119: Who is the only Indian Actor to have featured in the TIME magazines list of "100 most influential people of 2020"?

- (A) Rajnikant
- (B) Shahrukh Khan
- (C) Akshay Kumar
- (D) Ayushmann Khurrana

Q120: Jaswant animal fair is conducted in which district of Rajasthan?

- (A) Jaisalmer
- (B) Karoli
- (C) Kota
- (D) Bharatpur

Q121: Sloughing is the process in which

- (A) Weakening of attached biofilm occurs due to shearing action of wastewater
- (B) Re-establishment of biofilm due to high organic loading
- (C) Microorganisms grow in dense films on reaction with organic matter
- (D) Endogenous metabolism occurs at the biofilm surface

Q122: Which national park in India has set up the country's first quarantine facility for animals?

- (A) Ranthambore National Park
- (B) Gir Forest National Park
- (C) Kaziranga National Park
- (D) Jim Corbett Park

Q123: Poor operation in _____ unit leads to mud ball formation.

- (A) Trickling filter
- (B) Rapid sand filter
- (C) Anaerobic filter
- (D) Pressure filter

Q124: In addition to temperature difference in stack gases and ambient environment, what are the other two factors which affect the plume rise?

- (A) Horizontal wind speed and frictional velocity
- (B) Cross wind speed and adjacent height of the building
- (C) Cross wind velocity and frictional velocity
- (D) Horizontal wind speed and stack exit velocity

Q125: Which of the following gases varies significantly over time and place at the atmospheric boundary level?

- (A) Ozone
- (B) Oxygen
- (C) Carbon dioxide
- (D) Water vapour

Q126: Characterization of Municipal solid waste is done through ____ method

- (A) Quartering
- (B) Chemical
- (C) Proximate
- (D) Ultimate

Q127: The Air (Prevention and Control of Pollution) Act, 1981 has ____ chapters

- (A) 24
- (B) 14
- (C) 4
- (D) 7

Q128: Drinking Water Quality is assessed in terms of its physical, chemical, microbiological, and radiological parameters as defined in the Standard Specification of Drinking Water Quality published by Bureau of Indian Standards (BIS). Which of the following is this document?

- (A) IS-16075:2015
- (B) IS-1172:1993
- (C) IS-10500:2012
- (D) IS-2296:1982

Q129: The National Environmental Policy Act (NEPA) of 1969 (Pub. L. 91-190) of USA became effective on

- (A) December 31, 1969
- (B) January 1, 1969
- (C) January 1, 1970
- (D) December 31, 1970

Q130: If MACHINE is coded as 19-7-9-14-15-20-11, what will be the code of DANGER?

- (A) 13-7-20-9-11-25
- (B) 11-7-20-16-11-24
- (C) 13-7-20-10-11-25
- (D) 10-7-20-13-11-24

Q131: As per the EIA Notification 2006, the validity of EC for River Valley Project remains for

- (A) 25 years
- (B) 5 years
- (C) 10 years
- (D) 15 years

Q132: In the field of meteorology a "tetroon" is a tool used to study ____

- (A) Wind patterns
- (B) Temperature deviations
- (C) Pressure variations
- (D) Humidity

Q133: Which of the following is **not** the tributary of Banas River?

- (A) Khari
- (B) Mansi
- (C) Morel
- (D) Kothari

Q134: As per CPHEEO, Sanitary landfill should be constructed at minimum ____ distance from habitation?

- (A) 500 m
- (B) 400 m
- (C) 300 m
- (D) 200 m

Q135: The contaminant that adheres to the porous material is called

- (A) Sorbent
- (B) Sorbate
- (C) Adsorbent
- (D) Sorption

Q136: BrahMos Aerospace is a joint venture company set up by Russia's Mashinostroyeniya and which other company of India?

- (A) ISRO
- (B) HAL
- (C) BHEL
- (D) DRDO

Q137: As per Bio-medical Waste Management Rules, 2016, which method of disposal is permitted only in rural or remote areas where there is no access to common bio-medical waste treatment facility?

- (A) Autoclaving
- (B) Deep burial
- (C) Disinfection
- (D) Incineration

Q138: From which district of Rajasthan does the Tropic of Cancer pass through?

- (A) Jaisalmer
- (B) Jalore
- (C) Banswara
- (D) Kota

Q139: If the absolute temperature of a black body becomes half, the maximum energy emitted by the black body changes by a factor of ____.

- (A) 4 (B) 1/4 (C) 1/16 (D) 16

Q140: When wastewater is discharged in a stream / river, the organic matter starts decomposing and oxygen present in water is consumed by bacteria, causing a DO-deficit ($D = D_{\text{sat}} - D_t$) in river water. The DO-deficit is known to follow first order reaction kinetics. Which one out of the following correctly represents this reaction kinetics, if t is time, D_0 is DO-deficit at time $t = 0$, D_t is DO-deficit at time t and k is reaeration rate?

- (A) $D_t = D_0 * \exp(k*t)$ (B) $D_t = D_0 * 2*\exp(k*t)$
(C) $D_t = D_0 * \exp(2*(k*t))$ (D) $D_t = D_0 * \exp(-k*t)$

Q141: Any project or activity specified in Category 'B' will be treated as Category 'A', if it is located in whole or in part within 10 km from the boundary of certain areas. Which of the following is **not** one of these areas?

- (A) Critically polluted area as per CPCB (B) Inter-city boundary
(C) International boundary (D) Protected area notified under Wildlife Act

Q142: According to CPHEEO Manual, recommended design range for velocity gradient (G per second) for mechanical flash mixers is:

- (A) 1 – 10 (B) 10 – 75 (C) 2000 – 4000 (D) 300 – 900

Q143: What component of MSW is significantly higher in US and UK in comparison to India?

- (A) Yard waste (B) Paper (C) Biodegradables (D) Inerts

Q144: Which of the following is **not** a natural hazard?

- (A) Earthquake (B) Tsunami (C) Volcanoes (D) Climate Change

Q145: Pugal is a breed of what in Rajasthan?

- (A) Camel (B) Cow (C) Sheep (D) Goat

Q146: In which city of Rajasthan, the observatory of the Indian Weather Department is located?

- (A) Kota (B) Jaipur (C) Jodhpur (D) Bikaner

Q147: As per the biomedical waste handling rules 2016, installation of in-house incinerator is allowed with permission from the State Pollution Control Board only when:

- (A) There is no common biomedical facility nearby
(B) The available biomedical facility is not working
(C) The biomedical waste generation is high
(D) The users of the biomedical facility are in large number

Q148: Indian Navy Day is celebrated on

- (A) 4 July (B) 4 December (C) 15 August (D) 31 January

Q149: The mean and standard deviation of a data-set of an air quality parameter are 10 and 1, respectively. On adding 2 to each data value, the mean and standard deviation will be, respectively:

- (A) 10, 1 (B) 12, 6 (C) 12, 1 (D) 10, 6

Q150: For an infinite line source Gaussian model, for a constant emission rate, the concentration in cross wind direction for a given x-coordinate can be stated as:

- (A) independent of y-coordinate
(B) decreases exponentially with y-direction
(C) increases with +y direction and decreases with -y direction
(D) increases with -y direction and decreases with +y direction

Solution of Question Booklet Type P

Q No.	Solution
Q001	A
Q002	A
Q003	B
Q004	C
Q005	D
Q006	C
Q007	A
Q008	D
Q009	B
Q010	C
Q011	A
Q012	B
Q013	B
Q014	D
Q015	A
Q016	C
Q017	D
Q018	A
Q019	C
Q020	A
Q021	B
Q022	B
Q023	C
Q024	C
Q025	A
Q026	A
Q027	B
Q028	A
Q029	C
Q030	B
Q031	A
Q032	C
Q033	A
Q034	D
Q035	A
Q036	A
Q037	C
Q038	A

Q No.	Solution
Q039	B
Q040	C
Q041	A
Q042	C
Q043	C
Q044	B
Q045	D
Q046	B
Q047	D
Q048	C
Q049	B
Q050	B
Q051	A
Q052	C
Q053	A
Q054	D
Q055	B
Q056	D
Q057	A
Q058	D
Q059	B
Q060	C
Q061	A
Q062	D
Q063	B
Q064	C
Q065	A
Q066	B
Q067	D
Q068	C
Q069	C
Q070	B
Q071	D
Q072	A
Q073	D
Q074	B
Q075	D
Q076	A

Q No.	Solution
Q077	B
Q078	A
Q079	C
Q080	B
Q081	B
Q082	B
Q083	D
Q084	D
Q085	C
Q086	A
Q087	D
Q088	C
Q089	D
Q090	C
Q091	B
Q092	C
Q093	D
Q094	A
Q095	A
Q096	C
Q097	C
Q098	D
Q099	A
Q100	C
Q101	D
Q102	C
Q103	B
Q104	D
Q105	D
Q106	B
Q107	C
Q108	A
Q109	B
Q110	B
Q111	D
Q112	D
Q113	B
Q114	C

Q No.	Solution
Q115	B
Q116	A
Q117	D
Q118	A
Q119	D
Q120	D
Q121	A
Q122	D
Q123	B
Q124	D
Q125	D
Q126	A
Q127	D
Q128	C
Q129	C
Q130	D
Q131	C
Q132	A
Q133	B
Q134	A
Q135	B
Q136	D
Q137	B
Q138	C
Q139	C
Q140	D
Q141	B
Q142	D
Q143	B
Q144	D
Q145	C
Q146	B
Q147	A
Q148	B
Q149	C
Q150	A