



IC 530

M.Sc. (IInd SEMESTER) EXAMINATION, 2023-24

AECC-I

(Environmental Chemistry)

(Minor Open Elective Course)

AFFIX PRESCRIBED
RUBBER STAMP

Paper ID

(To be filled in the
OMR Sheet)

Date (तिथि) : _____

5662

अनुक्रमांक (अंकों में) :

Roll No. (In Figures) :

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अनुक्रमांक (शब्दों में) :

Roll No. (In Words) : _____

Time : 1:30 Hrs.

समय : 1:30 घण्टे

Max. Marks : 100

अधिकतम अंक : 100

नोट : पुस्तिका में 50 प्रश्न दिये गये हैं, सभी प्रश्न करने होंगे। प्रत्येक प्रश्न 2 अंक का होगा।

Important Instructions :

1. The candidate will write his/her Roll Number only at the places provided for, i.e. on the cover page and on the OMR answer sheet at the end and nowhere else.
2. Immediately on receipt of the question booklet, the candidate should check up the booklet and ensure that it contains all the pages and that no question is missing. If the candidate finds any discrepancy in the question booklet, he/she should report the invigilator within 10 minutes of the issue of this booklet and a fresh question booklet without any discrepancy be obtained.

महत्वपूर्ण निर्देश :

1. अभ्यर्थी अपने अनुक्रमांक केवल उन्हीं स्थानों पर लिखेंगे जो इसके लिए दिये गये हैं, अर्थात् प्रश्न पुस्तिका के मुख्य पृष्ठ तथा साथ दिये गये ओ०एम०आर० उत्तर पत्र पर, तथा अन्यत्र कहीं नहीं लिखेंगे।
2. प्रश्न पुस्तिका मिलते ही अभ्यर्थी को जाँच करके सुनिश्चित कर लेना चाहिए कि इस पुस्तिका में पूरे पृष्ठ हैं और कोई प्रश्न छूटा तो नहीं है। यदि कोई विसंगति है तो प्रश्न पुस्तिका मिलने के 10 मिनट के भीतर ही कक्ष परिप्रेक्षक को सूचित करना चाहिए और बिना त्रुटि की दूसरी प्रश्न पुस्तिका प्राप्त कर लेना चाहिए।

1. Atmosphere is composed of -
 - (A) Gases
 - (B) Water vapour
 - (C) Suspended particles
 - (D) All of these
2. Up to which height from earth surface CO_2 is found in the atmosphere ?
 - (A) 120 km
 - (B) 50 km
 - (C) 90 km
 - (D) Below 10 km
3. Which of the following gas is responsible for greenhouse effect ?
 - (A) N_2
 - (B) H_2
 - (C) Ar
 - (D) CO_2
4. In which layer of the atmosphere ozone layer is found ?
 - (A) Troposphere
 - (B) Stratosphere
 - (C) Mesosphere
 - (D) Ionosphere
5. Which of the following ray is absorbed by ozone layer ?
 - (A) UV rays
 - (B) IR rays
 - (C) X-rays
 - (D) Cosmic rays

6. Which of the following causes greenhouse effect ?
- (A) N_2O
 - (B) CH_4
 - (C) Water vapour
 - (D) All of these
7. Thermosphere is also known as :
- (A) Mesosphere
 - (B) Ionosphere
 - (C) Exosphere
 - (D) Troposphere
8. Which layer of the atmosphere reflects back the radio waves ?
- (A) Ionosphere
 - (B) Exosphere
 - (C) Mesosphere
 - (D) None of these
9. Which of the following statement is false about greenhouse effect ?
- (A) CO_2 and other greenhouse gases traps energy that comes from the sun
 - (B) Greenhouse effect is the decrease in earth's temperature.
 - (C) Chlorofluorocarbons and water vapour contribute in greenhouse effect
 - (D) Global warming is caused by greenhouse gases
10. The ozone layer was discovered by the French physicists Charles Fabry and Henri Buisson.
- (A) in 1913
 - (B) in 1915
 - (C) in 1920
 - (D) in 1923

11. Which of the following are ozone identifying substances.
- (A) Chlorofluorocarbons
 - (B) Halons
 - (C) CCl_4
 - (D) All of these
12. Photochemical smog, is also known as -
- (A) London Smog
 - (B) Los Angeles smog
 - (C) Sulfurous smog
 - (D) None of these
13. London smog were caused due to -
- (A) Nitrogen oxides
 - (B) Chlorofluorocarbons
 - (C) Sulphur bearing fossil fuels
 - (D) Electric Vehicles
14. Which of the following are air sampling techniques for particulate pollutants ?
- (A) Filtration
 - (B) Impingement
 - (C) Sedimentation
 - (D) All of these
15. Which of the following step may reduce air pollution.
- (A) Use of low sulphur fuel
 - (B) Nuclear power plants for electricity
 - (C) Use of CNG
 - (D) All of these

16. Sustainability consists of three P's. Which of the following is not among them ?
- (A) People
 - (B) Planet
 - (C) Plant
 - (D) Profit
17. The term "green chemistry" was introduced in the mid-1990s by -
- (A) August Kekule
 - (B) Paul Anastas
 - (C) G.H. Brundtland
 - (D) None of these
18. Which of the following is not principle of green chemistry ?
- (A) Atom efficiency
 - (B) Safer Products by Design
 - (C) Waste Prevention
 - (D) Avoidance of safer process
19. E-factor is defined as mass ration of waste to -
- (A) Substrate
 - (B) Product
 - (C) Reagent
 - (D) Solvent
20. _____ is the mass of carbon in the product obtained divided by the total mass of carbon present in the reactants -
- (A) Reaction Mass Efficiency (RME)
 - (B) Atom Efficiency (AE)
 - (C) Carbon Efficiency
 - (D) Atom Economy

21. Claisen Rearrangement is an example of -
- (A) 100% Atom Economy
 - (B) 90% Atom Economy
 - (C) 100 E-factor
 - (D) All of these
22. Which of the following is the greenest solvent ?
- (A) Formaldehyde
 - (B) Benzene
 - (C) Ethanol
 - (D) Water
23. The use of solar power is covered within Green Chemistry Principle #6, which is ?
- (A) Atom economy
 - (B) Design for energy efficiency
 - (C) Design benign chemicals
 - (D) Less hazardous synthesis
24. Bio-polymers exemplify Green Chemistry Principle #10, which is ?
- (A) Catalysis
 - (B) Prevent waste
 - (C) Benign solvents & auxiliaries
 - (D) Design for degradation
25. Used to indicate the level of contaminants present, the term "PPM" means ?
- (A) Parts-per-micron
 - (B) Parts-per-million
 - (C) Parts-per-mass
 - (D) Parts-per-molecule

26. When the government of India did pass the water (Prevention and control of Pollution) Act ?
- (A) 1999
 - (B) 1974
 - (C) 1896
 - (D) 2010
27. How much percent of impurities are enough to make domestic sewage unfit for humans ?
- (A) 0.1 percent
 - (B) 1 percent
 - (C) 5 percent
 - (D) 10 percent
28. Which of the following are the suspended solids in the domestic sewage ?
- (A) Ammonia
 - (B) Sand
 - (C) Calcium
 - (D) Bacteria
29. Which of the following are the colloidal materials present in domestic sewage ?
- (A) Calcium
 - (B) Sand
 - (C) Ammonia
 - (D) Fecal matter
30. Which of the following are the dissolved materials present in domestic sewage ?
- (A) Sand
 - (B) Clay
 - (C) Nutrients
 - (D) Bacteria

31. Which materials are easily removed from the polluted water ?
- (A) Liquid
 - (B) Solids
 - (C) Dissolved
 - (D) Nutrients
32. Which materials are hard to remove from the polluted water ?
- (A) Sand
 - (B) Plastic
 - (C) Solids
 - (D) Dissolved salts
33. Which sewage contains biodegradable waste such as organic matter ?
- (A) Medical waste
 - (B) Plastic waste
 - (C) Domestic waste
 - (D) Wild waste
34. Who is responsible for the degradation of biodegradable organic matter present in the domestic sewage ?
- (A) Animals
 - (B) Humans
 - (C) Plastic
 - (D) Bacteria and other microbes
35. How is the amount of biodegradable organic matter in sewage estimated ?
- (A) Chemical Oxygen Demand
 - (B) Physical Oxygen Demand
 - (C) Biological Oxygen Demand
 - (D) None of these

36. Who utilizes the maximum amount of oxygen in the upstream of sewage discharge ?
- (A) Animals
 - (B) Microorganisms
 - (C) Humans
 - (D) Plants
37. What happens when the maximum amount of oxygen in the upstream of sewage discharge is utilized by microbes ?
- (A) Natality of aquatic plants
 - (B) Natality of aquatic fishes
 - (C) Mortality of aquatic creatures
 - (D) Mortality of bacteria
38. What is the excess growth of plankton in water due to the presence of nutrients called ?
- (A) Fungal bloom
 - (B) Algal bloom
 - (C) Plantae bloom
 - (D) Animal bloom
39. Which of the following is the effect of high BOD ?
- (A) More birth of aquatic plants
 - (B) More birth of fishes
 - (C) Higher dissolved oxygen
 - (D) Lower dissolved oxygen

40. What do BOD and COD stand for ?
- (A) Biological Oxygen Demand and Chemical Oxygen Demand respectively
 - (B) Chemical Oxygen Demand and Biological Oxygen Demand respectively
 - (C) Botanical Oxygen Demand and Chemical Oxygen Demand respectively
 - (D) Basic Oxygen Demand and Chemical Oxygen Demand respectively
41. Which of the following statements is correct about achieving sustainable development ?
- (A) Sustainable development can be achieved by restricting the usage of renewable resources
 - (B) Sustainable development can be achieved by controlling the growth rate of world's population
 - (C) Sustainable development can be achieved by controlling the menace of pollution
 - (D) All of the above
42. Which of the following statements is true about global warming ?
- (A) Global warming has led to large scale deforestation
 - (B) Global warming has led to a rise in the sea levels
 - (C) Global warming has led to a rapid increase in the population across several countries
 - (D) Global warming has led to a huge amount of waste generation

43. Which of the following was the main purpose behind setting up the Central pollution control board (CPCB) ?
- (A) The main purpose of the Central Pollution Control Board was to regulate air pollution
 - (B) The main purpose of the Central Pollution Control Board was to regulate water pollution
 - (C) The main purpose of the Central Pollution Control Board was to regulate noise pollution
 - (D) The main purpose of the Central Pollution Control Board was to regulate deforestation
44. Which of the following statements is correct ?
- (A) Tides are a conventional source of energy
 - (B) Sun is a conventional source of energy
 - (C) Wind is a conventional source of energy
 - (D) Dried dung is a conventional source of energy
45. Which of the following statements about the ozone shield is accurate ?
- (A) Ozone shield is found in the troposphere
 - (B) Ozone shield is found in the stratosphere
 - (C) Ozone shield is found in the exosphere
 - (D) Ozone shield is found in the mesosphere
46. Where undertaken, EIA should be used to help determine whether consent is given for development -
- (A) Never
 - (B) Hardly Ever
 - (C) Often
 - (D) Always

47. The primary reason for Environmental impact assessment is to-
- (A) Mitigate existing environmental impacts of development
 - (B) Predict the size of impacts of developments
 - (C) Describe proposed developments
 - (D) Identify the environmental consequences of development in advance
48. Which of the following is true about the environment ?
- (A) The environment includes only biotic factors
 - (B) The environment includes only abiotic factors
 - (C) The environment includes both biotic and abiotic factors
 - (D) The environment includes neither biotic nor abiotic factors
49. The primary reason for Environmental impact assessment is to -
- (A) Mitigate existing environmental impacts of development
 - (B) Predict the size of impacts of developments
 - (C) Describe proposed developments
 - (D) Identify the environmental consequences of development in advance
50. Impacts on which of the following should not be considered in an EIA ?
- (A) Ecological
 - (B) Human Health
 - (C) Social
 - (D) Impacts on environmental consultants
