



VIZAG IAS ACADEMY

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PRELIMS TEST SERIES 2023

General Studies

Test - 7

TOPICS COVERED

ENVIRONMENT

- Climate Change
- Global Warming
- Pollution and its impact
- Acid rain and its impact
- Ozone depletion and its effects
- Waste and waste management

SCIENCE & TECHNOLOGY

- Physics
- Chemistry
- Biology
- Biotechnology

RELATED CURRENT AFFAIRS

1. Consider the following microorganisms:

1. Theobacillus
2. Beggiatao
3. Azitobactor

Which of the above play an important role in sulphur cycle?

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

2. Which of the following is the purpose of the secondary treatment of industrial waste water and sewage?

- a) Increase the chlorine content
- b) Reduce the COD
- c) Reduce the BOD
- d) Discourage ammonification

3. Consider the following:

1. Excessive nutrients trigger the process of eutrophication.
2. Eutrophication increases oxygen in the water body.
3. Excessive irrigation causes eutrophication.

Which of the above statements are incorrect with regards to the eutrophication process?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

4. Identify the correct sequence of gases in the increasing order of their global warming potential:

- a) CH₄ – N₂O – CFCs – SF₆
- b) CO₂ – N₂O – CH₄ – CFC
- c) CO₂ – CH₄ – SF₆ – CFC
- d) N₂O – CH₄ – CO₂ – CFC

5. Which of the following affects Ozone concentration in troposphere?

- a) Carbon monoxide
- b) Nitrogen
- c) Sulfur dioxide
- d) Carbondioxide

6. Which of the following industries do **not** produce hazardous waste?

- a) Pharmaceutical
- b) Electroplating
- c) Sugar
- d) Chemical

7. Which of the following techniques are used for CO₂ sequestration in oceans?

1. Iron fertilization
2. Artificial upwelling
3. Basalt storage
4. Burial of Biomass
5. Sea weed farming

Select the correct answer from the codes given below:

- a) 1, 2 and 3 only
- b) 1, 2 and 5 only
- c) 1, 2, 4 and 5 only
- d) 1, 2, 3 and 5 only

8. Consider the following statements:

1. Peatlands store nearly 30% of the total carbon in our ecosystem.
2. Loss of one peatland can potentially produce huge carbon and nitrogen into the air as carbon and nitrogen gases.
3. Bogland is a wetland that accumulates peat from mosses.

Which of the above statements is correctly given?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

9. Consider the following statements:

1. Phytoplankton are the best source of carbon dioxide storage and producing oxygen.
2. Lack of lignin complex phytoplankton can quickly losses carbon dioxide from its sequestration than plants

Which of the above statements is/are **incorrect**?

- a) 1 only
- b) 2 only
- c) Both 1 and 2

d) None of the above

10. Deep sea ferromanganese nodules are found in:

- Oceanic plateau
- Oceanic ridges
- Oceanic plains
- Oceanic islands

11. Which of the following are can be used as pesticides?

- Chemical
- Bacteria
- Virus
- Fungi

Select the correct answer from the codes given below:

- 1 and 2 only
- 1, 2 and 3 only
- 1, 2 and 4 only
- 1, 2, 3 and 4

12. Consider the following characteristic features:

- It is non – inflammable gas.
- It is a greenhouse gas
- It is also known as laughing gas

Which of the following gases have the above characteristic features?

- Nitrous oxide
- Nitrogen dioxide
- Sulphur dioxide
- Carbon dioxide

13. Which of the following are natural greenhouse gases?

- Carbon dioxide
- Water vapour
- Nitrous oxide
- Sulphur hexafluoride
- Methane

Select the correct answer from the codes given below:

- 1, 2 and 3 only
- 1, 2, 3 and 4 only
- 1, 2, 3 and 5 only
- 1, 2 and 5 only

14. Which of the following heavy metals cause water pollution due to industrial wastes?

- Cadmium
- Arsenic
- Lead
- Uranium
- Copper
- Mercury

Select the correct answer from the codes given below:

- 1, 2, 3 and 4 only
- 2, 3, 4, 5 and 6 only
- 1, 2, 3, 5 and 6 only
- 1, 2, 3, 4, 5 and 6

15. Consider the following with regards to fly ash:

- It is a major waste product of non-thermal power industries.
- It is used as fertilizer.
- It increases the porosity of the soil.
- It is used in cement industry.

Which of the above statements are **incorrect**?

- 1 only
- 1 and 2 only
- 1 and 3 only
- 3 and 4 only

16. Consider the following statements:

- High endemism seen in biological hotspots.
- Mouse deer is endemic to the eastern Himalayas.
- Double humped camel is endemic to western Himalayas.

Which of the above are incorrect statements?

- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1, 2 and 3

17. Which of the following is energy intensity reducing measure?

- Development of renewable energy.
- Use of fuel reuse technology
- Reducing the dependency on conventional fuels.
- Both A and B

18. Consider the following with regards to the micro plastic/microbeads pollution?

1. Microbeads are used in cosmetic products.
2. Aquatic animals are threatened due to microplastics entered into their food chain.
3. Microplastics cause hormonal changes in aquatic birds.

Which of the above statements are correct?

- a) 1 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1 and 3 only

19. Which of the following is an ex Situ bioremediation technique?

- a) Bioventing
- b) Biosparging
- c) Composting
- d) Bioaugmentation

20. Which of the following are decomposers in an ecosystem?

1. Bacteria
2. Fungi
3. Algae
4. Viruses
5. Earth worms

Select the correct answer from the codes given below

- a) 1, 2 and 4 only
- b) 1, 2 and 5 only
- c) 1, 2, 3 and 4 only
- d) 1, 2, 4 and 5 only

21. Which of the following is / are results of the excessive use nitrogenous fertilizers?

1. Increased acidity of soil
2. Leaching of nitrate to the ground-water
3. Depletion of stratospheric Ozone

Select the correct option using the code given below:

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

22. Identify the wetland of India on the basis of below information:

1. This is one of the Ramsar wetlands in India and is world's one of the largest lagoons.

2. Since it had "undergone, to be undergoing, or to be likely to undergo change in its ecological character brought about by human action", it was placed in Montreux record of the Ramsar Convention but was later removed from it due to conservation efforts.

3. If you visit this wetland, you get a chance to see the rare and endangered 'Irrawady Dolphin'

Select the correct option from the codes given below:

- a) Bhitarkanika
- b) Mangroves Kolleru Lake
- c) Chilika Lake
- d) Ashtamudi Wetland

23. Which of the following is/are consequence of deforestation?

1. Reduction in atmospheric moisture
2. Increase in emissions of carbon dioxide
3. Increase in thickness of ice sheets on earth
4. Slope stabilization

Select the correct option from the codes given below:

- a) 1 only
- b) 1 and 2 only
- c) 1, 2 and 4 only
- d) 1, 2, 3 and 4

24. Which of the following statements are correct regarding to the Hydrocarbons?

1. The burning of fossil fuels is the main source of emission.
2. Endophytic bacteria can reduce hydrocarbons from the polluted soil.

Select the correct option from the codes given below:

- a) Only 1
- b) Only 2
- c) Both 1 & 2
- d) Neither 1 & 2

25. In which of the following industries, Hydrofluorocarbons are used?

1. Refrigerants
2. Aerosol propellants
3. Fire retardants

Select the correct option from the codes given below:

- a) 1 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

26. In recent times, health concerns have been raised concerning human exposure to coal tar. The various applications of Coal Tar include:

1. Manufacturing of hair dyes, soaps and detergents
2. Construction of roads and pavements
3. Manufacturing of paints
4. Manufacturing of photographic materials

Which among the above statements is/are correct?

- a) 1 and 2 only
- b) 1, 2 and 3 only
- c) 1, 3 and 4 only
- d) 1, 2, 3 and 4

27. Which of the following plants is extremely sensitive towards sulphur dioxide?

- a) Tomato
- b) Onion
- c) Potato
- d) Corn

28. Which of the mentioned devices are used for removing vapour phase/gaseous pollutants?

1. Thermal oxidisers
2. Absorption towers
3. Catalytic converters

Select the correct answer from the codes given below:

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

29. Which of the following type of pollution is Cultural eutrophication?

- a) Noise pollution
- b) Thermal pollution
- c) Soil pollution
- d) Water pollution

30. Which of the following air pollution control device has maximum efficiency?

- a) Spray tower
- b) Wet cyclonic scrubber
- c) Dynamic precipitator
- d) Electrostatic precipitator

31. Which of the following factor does **not** effect the dry weather flow?

- a) Infiltration of ground water
- b) Population growth
- c) Rate of water supply
- d) Temperature conditions

32. Consider the following statements:

1. Oil spillage and oil pollution in water environment release toxic organic materials like polycyclic aromatic hydrocarbons (PAHs) into the food chain.
2. Only certain anaerobic bacteria can degrade oil spillage.
3. Oil spillage increases the water surface tension.

Which of the above statements are incorrect with regards to the oil spillage and oil pollution?

- a) 1 and 2
- b) 2 only
- c) 2 and 3
- d) 3 only

33. Which of the following results happened due to bacterial contamination to the water and soil?

1. Cause the corrosion of iron and steel pipes embedded in soil.
2. Cause the reddish brown deposits in a tank.
3. Formation of green slime over water.

Select the correct answer from the codes given below:

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

34. Which of the following processes are involved in the pre-treatment stage of land farming?

1. Soil excavation
2. Soil screening
3. Storage
4. Bio-enrichment

Select the correct answer from the codes given below:

- a) 1, 2 and 3 only
- b) 2, 3 and 4 only
- c) 1, 2 and 4 only
- d) 1, 2, 3 and 4

35. Which of the following is correctly described Bioconcentration?

- a) It is the concentration of a pollutant in an organism compared to that present in the environment.
- b) It is the concentration of a biological material in an ecosystem.
- c) It is the concentration of a biological pollutant in an unit of water.
- d) It is the concentration of a biological pollutant in an unit of soil material.

36. Which one of the following is the anthropogenic radiative forcing of climate?

- a) Aerosols
- b) Cement
- c) Paper
- d) Glass

37. Consider the following with regards to the xenobiotics?

1. They are naturally produced chemical products in an organism.
2. They have mutagenic ability.
3. Some xenobiotics can be used as food additives.

Which of the above statements are correct?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

38. Which of the following statements are **incorrectly** given?

1. Bio magnification is the concentration of pollutant across the food chain.
2. Bio accumulation is the accumulation of pollutant in the first organism of the food chain and not entire the food chain.

Select the correct answer from the codes given below:

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) None of the above

39. Which among the following process is a competitive and sustainable alternative for sustainable environment?

- a) Bio-leaching
- b) Bio-remediation
- c) Bio-fortification
- d) Immobilization

40. Which of the following environmental cleaning methods require relatively lower temperature and pressure?

- a) Biological method
- b) Physical method
- c) Physio-chemical method
- d) Chemical method

41. Dead zones in water is caused due to which of the following issues?

- a) Harmful algal blooms
- b) Bio-remediation
- c) Bio-degradation
- d) Bio-magnification

42. Which of the following health issues are caused in humans due to air pollution?

1. Diarrhea
2. Chronic obstructive pulmonary disease
3. Irritation of eyes
4. Headache and Anxiety

Select the correct answer from the codes given below:

- a) 1 and 2 only
- b) 2 only
- c) 2 and 3 only
- d) 2, 3 and 4 only

43. Consider the following statements:

1. Organic and inorganic contaminants can be removed by both physical and chemical methods.
2. Only organic contaminants can be removed by biological methods.

Which of the above statements is/are **incorrect** with regards to the remediation method?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) None of the above

44. Which of the following are correctly given?

1. Lichens are best indicators of soil pollution.
2. Coral reefs are best indicators of marine water pollution.
3. Crows are best indicators of air pollution.

Select the correct answer from the codes given below:

- a) 1 and 2 only
- b) 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

45. Which of the following are used for bioremediation?

1. Viruses
2. Algae
3. Bacteria
4. Fungi
5. Plants

Select the correct answer from the codes given below:

- a) 1, 2 and 3 only
- b) 3 and 4 only
- c) 2, 3, 4 and 5 only
- d) 1, 2, 3, 4 and 5

46. Which of the following pollutants cause reproductive hormonal issues?

- a) Plastic pollutants from mobiles and tabs.
- b) Metallic pollutants from tanning industry
- c) Hydrocarbons from coal industry
- d) Oil spill in ocean waters

47. Which of the following are caused as a result of the altered primary productivity of water bodies?

1. Algal blooms
2. Adverse health effects
3. Reduction in water quality
4. Increase BOD and COD

Select the correct answer from the codes given below:

- a) 1, 2 and 3 only
- b) 2, 3 and 4 only
- c) 1, 2 and 4 only
- d) 1, 2, 3 and 4

48. Consider the following statements:

1. India is third largest producer of e – waste in the world.
2. Re – cycling of e waste is around 10% of the total e – waste in India.
3. Highest e – waste is produced from IT and telecom equipment in India.

Which of the above statements is/are **incorrect** with regards to the e waste production in India?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 3 only
- d) 1, 2 and 3

49. Consider the following statements:

1. India houses majority of the air polluted habitats in the top 100 spots according to the World Air Quality Index.
2. Nearly 70% of surface water is not suitable for consumption in India.

Which of the above statements is/are correct with regards to the pollution situation in India?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) None of the above

50. Which of the following is **NOT** a persistent organic pollutant?

- a) DDT
- b) Hexachlorobenzene
- c) Volatile organic compounds
- d) Endrine

51. Consider the following Statements:

1. Temperatures in India have risen by 0.7 °C since 1900s, thereby changing the climate in India.
2. Last one decade has registered as hottest decade in the last century.
3. Climate change causes the increasing rainbow formation days in majority of the countries in the world.

Which of the above statements are correct with regards to the climate change effects?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

52. Consider the following statements:

1. India is second largest consumer of plastics.
2. India is second largest producer of coal.
3. India is second largest producer of renewable energy.

Which of the above statements are **incorrect**?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

53. Environmental Kuznets curve:

- a) Semi-circle Curve Suggesting increase in per-capita income increases the pollution
- b) U-shaped curve A suggesting the level of development and carbon emission
- c) Suggest A U-shaped relationship between the carbon emission and Ozone layer depletion
- d) Suggest bell-shaped Relationship between the concentration of certain pollution emission and per-capita real GDP.

54. Which of the following gases is released from rice fields in the most prominent quantities?

- a) Carbon dioxide
- b) Methane
- c) Carbon monoxide
- d) Sulphur dioxide

55. Which one of the following result takes place due to global warming?

- a) Maintaining steady temperature
- b) Changes in the rainfall
- c) Increasing biodiversity
- d) Causing less pollution

56. Which of the following are uses of biochar?

1. Carbon sink
2. Amendment of soil
3. Slash and char farming
4. Concrete additive

Select the correct answer from the codes given below:

- a) 1 and 2
- b) 1, 2 and 3
- c) 2, 3 and 4
- d) 1, 2, 3 and 4

57. Which one of the following cause global warming?

- a) Radiative forcing
- b) Earth gravitation force
- c) Oxygen
- d) Centripetal force

58. How human activity has influenced global warming?

- a) By planting more trees
- b) By causing changing in gravitational force
- c) By changing the radiative balance governing the Earth
- d) By protecting environment

59. What happens when seasonal transmission of vector species due to climate change?

- a) Increase the spread of diseases
- b) Decreased the spread of diseases
- c) Vector species itself die
- d) Vector species do not spread disease

60. Consider the following with regards to the pellet fuels:

1. Pellet fuels (or pellets) are a type of solid fuel made from compressed organic material.
2. Pellets can be made from industrial waste and co-products, food waste, agricultural residues, energy crops, and untreated lumber.

Which of the above statements are **incorrect**?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) None of the above

61. Which of the following statements regarding metals are correct?

1. Gold has the highest electrical conductivity of all metals.
2. All metals except mercury exist as solids at room temperature.
3. The ability of metals to be drawn into thin wires is called ductility and gold is the most ductile metal.

Choose the correct option using the codes given below:

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

62. Which of the following pairs regarding acids and bases are correctly matched?

1. Acetic acid - Vinegar
2. Lactic acid - Curd
3. Calcium Hydroxide - Lime water
4. Formic acid - Ant's sting
5. Ascorbic acid - Citrus fruits

Choose the correct option using the codes given below:

- a) 1, 2, 3 and 4 only
- b) 2, 4 and 5 only
- c) 1, 4 and 5 only
- d) 1, 2, 3, 4 and 5

63. Consider the following statements about the digestive process in humans:

1. Food mixed with highly acidic gastric juice gets neutralised by the secretions of pancreas.
2. Small intestine is the main site for the absorption of water and nutrients in the alimentary canal.

Which of the statement(s) given above is/are correct?

- a) 1 only
- b) 2 only

- c) Both 1 and 2
- d) Neither 1 nor 2

64. Which one of the following phenomena does not provide the direct evidence for the evolution of life on earth?

- a) Presence of homologous organs in different classes of organisms.
- b) Presence of wings in insects and birds for flight, showing insect's weaker wings came first and evolved in birds to be stronger.
- c) Discovery of the fossils at different depths in their chronological order of their age.
- d) Finding the fossils of organisms that are extinct today but had features intermediate to two seemingly different species of the world today.

65. Stars twinkle in the night sky because:

- a) The intensity of light emitted by them changes with time.
- b) The distance of the stars from the earth changes with time.
- c) The light from the star is scattered by the dust particles and air molecules in the earth's atmosphere.
- d) The refractive index of the different layers of the earth's atmosphere changes continuously, consequently the position of the image of a star changes with time.

66. It takes much longer to cook food at a high altitude (like on hills), because:

- a) In the hills, the atmospheric pressure is lower than that in the plains and therefore, water boils at a temperature lower than 100 degC causing an increase in cooking time.
- b) Due to low atmospheric pressure on the hills, the water boils at a temperature higher than 100 degC and therefore water takes longer to boil.
- c) In the hills the atmospheric density is low and therefore a lot of heat is lost to the atmosphere.
- d) In the hills the humidity is high and therefore a lot of heat is absorbed by the

atmosphere leaving very little heat for cooking

67. Optical fibre cables used for long-distance telecommunication and high-speed data connection, work on which of the following optical phenomena?
- Refraction
 - Total internal reflection
 - Scattering
 - Interference
68. Sound travels at different speeds in different mediums. Which of the following options denotes ascending order of speed of sound in that particular media?
- Air, Water and Steel
 - Water, Steel and Air
 - Steel, Air and Water
 - Steel, Water and Air
69. Consider the following statements regarding Earthworms:
- Earthworms break up hard soil, create tunnels that allow air and water to better penetrate, and bring important minerals to the soil.
 - They reduce the alkalinity of the soil.
 - They reduce the acidity of the soil.
- Which of the above statement/s is/are correct?
- 1 and 2 only
 - 1 and 3 only
 - 2 and 3 only
 - 1, 2 and 3
70. Which of the following is/are not the contribution of biotechnology in the field of crop production?
- Organic farming
 - Hybrid varieties
 - Crop biofortification
 - Weedicide resistant crops
 - Fragrant varieties of the Mango
- Select the correct answer from the codes given below:
- 1, 2 and 4 only
 - 1, 2 and 5 only
 - 3 and 4 only
 - 1, 2, 3, 4 and 5

71. Consider the following statements about mitochondrial DNA (mt-DNA)
- They have specific uniparental inheritance only from mothers to their child
 - They are not involved in recombinant processes and their variants are due only to mutations.

Which of the above statement/s is/are False?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

72. Which of the following statements is **incorrect**?

- Antimicrobial resistant individuals have no survival advantage over the rest of the population unless they are exposed to the same antimicrobial drug.
- Except bacterial cells other microbes like fungi and protozoan parasites do not develop resistance to the drugs to which they are already sensitive.
- Some viruses can help bacterial cells to acquire 'drug resistance' gene from other bacterial cells.
- Use of broad-spectrum antibiotics increases the probability of developing drug resistant bacteria.

73. Match the following:

Vaccine/ disease	Technology name used
A. Yellow fever of virus	1. Protein subunit
B. Hepatitis B	2. Carbohydrate/ Carbohydrate conjugate
C. Diphtheria and tetanus toxins	3. Inactivated
D. Pneumococcus virus	4. Live attenuated

Select the correct answer using the code given below:

- A B C D
- 3, 1, 2, 4
 - 4, 2, 3, 1
 - 4, 1, 3, 2
 - 3, 2, 1, 4

74. Which of the following statements regarding vaccine biotechnology are correct?

1. While the traditional vaccines makes use of proteins made from weakened or inactive virus or bacteria, DNA and RNA vaccines use part of the virus' own genes to stimulate an immune response.
2. DNA vaccines produce a lower immune response in the body than Mrna vaccines.
3. DNA vaccines have higher temperature stability in comparison to mRNA vaccines.

Select the correct answer using the codes given below:

- a) 1 and 3 only
- b) 1 and 2 only
- c) 2 and 3 only
- d) 1, 2 and 3

75. Which of the following Vaccine Preventable Diseases (VPD) are part of Intensified Mission Indradhanush 3.0 in India?

1. Tuberculosis
2. Diphtheria
3. Meningitis
4. Tetanus
5. Influenzae type B

Select the correct answer using the codes given below:

- a) 1, 2, 3 and 4 only
- b) 2, 4 and 5 only
- c) 2, 3, 4 and 5 only
- d) 1, 2, 3, 4 and 5

76. Consider the following:

1. Improving food production and reducing chronic undernourishment.
2. Desalination of water
3. Control insect populations
4. Detection and analysis of pollutants

Which of the above can be done with the help of Nuclear Technology?

- a) 1 and 3 only
- b) 2 and 4 only
- c) 1, 3 and 4 only
- d) 1, 2, 3 and 4

77. Consider the following statements regarding 'Transgenic Plants':

1. The aim of the transgenesis is to introduce a new trait to the plant which does not occur naturally in the species.
2. The inserted gene sequence may come from an unrelated plant or from a completely different species.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

78. Which of the following are considered as the patentable subject matters by TRIPS (Trade Related Intellectual Property Rights)?

1. Plants
2. Animals
3. Microorganisms
4. Non-biological processes used in the production of plants and animals
5. Microbiological Processes used in the production of plants and animals

Select the correct answer using the codes given below:

- a) 1 and 2 only
- b) 3, 4 and 5 only
- c) 1, 2 and 3 only
- d) 4 and 5 only

79. Which of the following statements about Nuclear Reactors is incorrect?

- a) Nuclear Reactors are used to control only nuclear fission reactions.
- b) They primarily use enriched uranium as raw material.
- c) They are used for electricity generation and in nuclear marine propulsion among others.
- d) India mainly uses Pressurized Heavy water reactors for electricity generation.

80. With reference to India's Nuclear Power, consider the following statements:

1. India has a two-stage nuclear programme.
2. In the first stage, Uranium - 238 is used as fuel of Nuclear reactors.

3. In the second stage, with the help of thorium, U-233 is used as fuel for nuclear reactors.

Which of the above statements is/are correct?

- a) 2 only
- b) 1 and 3 only
- c) 1 and 2 only
- d) 2 and 3 only

81. Which of the following are Fissile isotopes?

- 1. Thorium 232
- 2. Uranium 233
- 3. Uranium 235
- 4. Uranium 238
- 5. Plutonium 239

Select the correct codes from below:

- a) 2 and 3 only
- b) 2, 3 and 4 only
- c) 2, 3 and 5 only
- d) 1, 2, 4 and 5 only

82. Consider the following statements regarding Coronal Mass Ejections:

- 1. They are large expulsions of plasma and magnetic field from the Sun's corona.
- 2. They contract in size as they propagate away from the Sun.
- 3. The resulting magnetic storm due to CMEs can severely disrupt electrical systems and produce brilliant auroral displays.

Which of the statements given above are correct?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

83. Which of the following are direct evidences of Supermassive Black Holes?

- 1. Existence of quasars in remote active galaxies
- 2. Observations of material orbiting the centres of galaxies
- 3. Plot of the orbital motion of the star S2 around the centre of the Milky Way

Select the correct answer using the codes given below:

- a) 1 and 2 only
- b) 1, 2 and 3
- c) 1 and 3 only
- d) 2 and 3 only

84. Consider the following statements regarding Auroras:

- 1. Auroras are caused when charged particles ejected from the Sun's surface enter the Earth's atmosphere.
- 2. Unlike auroras on Earth, which are seen only near the north and south poles, discrete auroras on Mars are seen all around the planet at night time.
- 3. On the Earth, the auroras in the Northern Hemisphere are called aurora borealis whereas in the Southern hemisphere, it is called aurora australis.

Which of the statements given above are correct?

- a) 1 and 2 only
- b) 1, 2 and 3
- c) 2 and 3 only
- d) 1 and 3 only

85. Consider the following statements about neutrinos:

- 1. The neutrino is a tiny elementary particle, but it is not part of the atom.
- 2. They cannot be produced in the lab.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

86. Which of the following statements is/are **incorrect** with respect to Ozone?

- a) Ozone is formed on the upper layer of the atmosphere by the action of UV rays from the sun on oxygen.
- b) Ozone can be used as a germicide and disinfectant.
- c) The concentration of ozone formation peaks during the early hours of the morning.
- d) Both b and c are **incorrect**.

87. With reference to Raman effect, consider the following statements:

1. The Raman Effect is the very weak effect which deals with scattering of light by molecules of a medium when they are excited to different energy levels.
2. The Raman spectroscopy is used in identifying the illegal drugs without damaging the packaging materials.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

88. Consider the following statements, with reference to Human Immune system:

1. When our body encounters a pathogen for the first time, it produces anamnestic immune response.
2. T-lymphocytes produce antibodies into our blood to fight with pathogens, while B-lymphocytes help T- cells to produce them.
3. Hydrochloric Acid (HCL) produced in stomach is an example for innate immune response.

Which of the statements given above is/are correct?

- a) 1 only
- b) 1 and 2 only
- c) 3 only
- d) 1 and 3 only

89. Consider the following statements:

1. Gravity is always attractive while electromagnetic force is always repulsive.
2. The gravitational force is the force of mutual attraction between any two objects by virtue of their masses.
3. Electromagnetic force can act over large distances without any medium and is enormously strong compared to gravity.
4. Neutrinos experience strong electromagnetic force.

Which of the statements given above are correct?

- a) 1 and 3 only
- b) 2 and 4 only
- c) 2 and 3 only

d) 1 and 4 only

90. With reference to Higgs Boson particle recently seen in media, consider the following statements:

1. All matter particles acquire mass only in contact with Higgs field.
2. If the Higgs field disappeared suddenly, all matter would collapse due to dispersion of massless electrons at the speed of light.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Neither 1 nor 2
- d) Both 1 and 2

91. Consider the following statements regarding the Singularity Theory about the black hole:

1. Inside a black hole, matter is compressed down to an infinitely tiny point.
2. All conceptions of time and space completely break down at the center of the black hole.
3. Sun is a massive star and can turn into a black hole at end of the life cycle.

Which of the statements given above are correct?

- a) 1 and 2 only
- b) 1 and 3 only
- c) 2 and 3 only
- d) 1, 2 and 3

92. With reference to Human Papillomavirus (HPV), consider the following statement:

1. It is a single-stranded Ribonucleic acid that affects human beings.
2. Cervical cancer is primarily caused due to HPV.
3. Gardasil is an indigenously developed HPV vaccine in India.

Which of the statements given above are correct?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 2 only
- d) 1 and 3 only

93. With reference to the Nuclear Power plant, consider the following statements:
1. Light water reactor uses normal water as a moderator.
 2. Graphite is used as a coolant and moderator in the Pressurised heavy water reactor.
 3. Fast breeder Reactors can operate without moderators.

Which of the statements given above are correct?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

94. Consider the following statements with reference to Electromagnetic waves:

1. In vacuum, all electromagnetic waves have the same speed.
2. Electromagnetic waves can travel through solid materials.
3. They are not deflected by electric or magnetic field.

Which of the statements given above are correct?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

95. Foods that are high in water content can be cooked more quickly than other foods in a Microwave oven mainly because:

- a) Microwaves are not absorbed easily by the water molecules in food
- b) Water molecules in the food reflect the microwaves directly against the food
- c) Microwaves cause water molecules in the food to vibrate
- d) The water is not heated beyond the boiling temperature in the oven

96. Which of the following are used as indicators for testing acids?

1. Litmus paper
2. Turmeric
3. Methyl orange
4. Vanilla extract

Select the correct answer using the code given below.

- a) 1 and 2 only
- b) 2, 3 and 4 only
- c) 1, 3 and 4 only
- d) 1, 2, 3 and 4

97. An astronaut experiences weightlessness in a space satellite. This is mainly because:

- a) The gravitational force is zero at that location in space
- b) Both the astronaut and the satellite are in free fall toward the Earth
- c) The angular momentum of the astronaut is zero
- d) The gravitational shielding is possible in space

98. The sun is visible a little before the actual sunrise and until a little after the actual sunset mainly due to:

- a) Dispersion of light through the atmosphere
- b) Refraction of light through the atmosphere
- c) Reflection of light through the atmosphere
- d) Dispersion and reflection of light through the atmosphere

99. Consider the following pairs:

Vitamins/Minerals	Deficiency Diseases
1. Vitamin A	Night blindness
2. Vitamin D	Scurvy
3. Thiamine	Beriberi
4. Iodine	Goitre

How many pairs given above are correctly matched?

- a) Only one pair
- b) Only two pairs
- c) Only three pairs
- d) All four pairs

100. Which of the following are applications of Doppler Effect?

1. It is used by police to check over-speeding of vehicles
2. It is used at airports to guide aircraft
3. Doctors use it to study heartbeats and blood flow in different parts of the body

Select the correct code from below:

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3



Key

1. B
2. C
3. B
4. A
5. A
6. C
7. D
8. D
9. D
10. C
11. D
12. A
13. C
14. C
15. A
16. B
17. C
18. B
19. C
20. B
21. D
22. C
23. B
24. C
25. D
26. D
27. A
28. D
29. D
30. D
31. D
32. C
33. A
34. A
35. A
36. A
37. B
38. D
39. B
40. A
41. A
42. D
43. B
44. B
45. C
46. A
47. D
48. B
49. C
50. C
51. D
52. C
53. D
54. B
55. B
56. D
57. A
58. C
59. A
60. D
61. B
62. D
63. C
64. B
65. D
66. A
67. B
68. A
69. D
70. B
71. C
72. B
73. C
74. D
75. D
76. D
77. C
78. B
79. A
80. A
81. C
82. C
83. D
84. B
85. A
86. C
87. C
88. C
89. C
90. D
91. A
92. C
93. C
94. D
95. C
96. D
97. B
98. B
99. C
100. D



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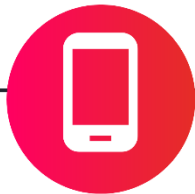
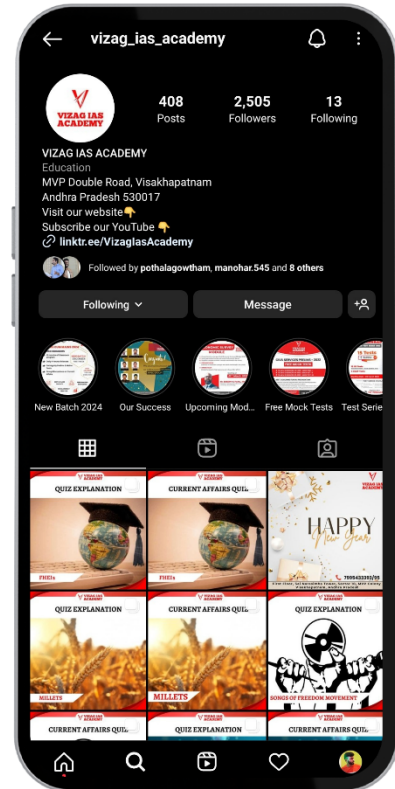
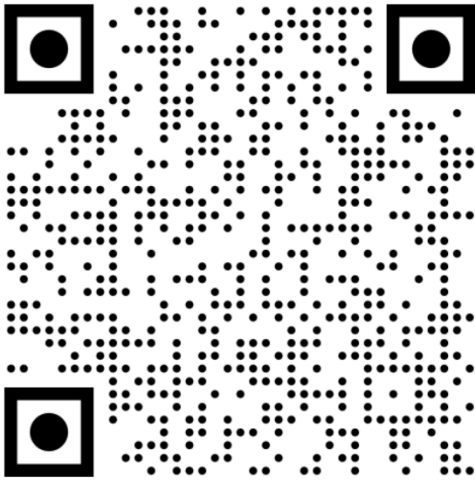
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