

Programme Code : 75

INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY
AMARKANTAK (M.P.)

ENTRANCE EXAMINATION, APRIL 2017

PG Programme
ENVIRONMENTAL SCIENCE

Question Booklet Sl. No.

109008

QUESTION BOOKLET

NAME HALL TICKET NO

CENTRE INVIGILATOR'S SIGN.....

Time : 2 hours

Max. Marks : 100

INSTRUCTIONS TO THE CANDIDATES

1. Write your NAME and HALL TICKET NUMBER clearly as it appears in the Hall Ticket before attempting the paper. Incorrect or illegible entry of your name / number may cause your paper to be rejected for evaluation.
2. No candidate will be allowed to enter the examination hall 30 minutes after the commencement of the examination.
3. No candidate will be allowed to leave the hall 30 minutes prior to completion of the examination.
4. This Booklet has 16 pages including this page containing 100 questions. All questions have to be answered in OMR sheet only using BLACK/BLUE BALL POINT PEN. No additional Booklet will be issued.
5. The scientific calculators are allowed.
6. Any candidate causing disturbance in the hall or indulging in copying in any form or attempting to help others will be debarred from the Examination.
7. Each question carries 1 mark. **There is no negative marking.**
8. Return this question Booklet to the invigilator after completion of the examination.

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All questions have to be answered in OMR sheet only. Each question carries 1 mark. (100 × 1 = 100)

1. The study of weather is called
 - A. Geology
 - B. Biogeography
 - C. Comparative anatomy
 - D. Meteorology

2. Which one of the following is the cleanest source of energy?
 - A. Hydropower
 - B. Fossil fuel
 - C. Nuclear power
 - D. Wind energy

3. Which of the following is a biodegradable waste?
 - A. Plastics
 - B. Polythene
 - C. Glass
 - D. None of these

4. In spring which of the following occurs?
 - A. The days are longer & nights are shorter.
 - B. The nights are longer & days are shorter.
 - C. Days and nights are of almost equal duration.
 - D. None of the above.

5. Milibar is the unit of
 - A. Heat
 - B. Temperature
 - C. Current
 - D. Atmospheric pressure

6. How many agroclimatic zones are there in Chhattisgarh?
 - A. 3
 - B. 5
 - C. 2
 - D. 6

7. The amount of rainfall during summer monsoon season of Chhattisgarh is
 - A. 1210mm
 - B. 900mm
 - C. 1500mm
 - D. 800mm

8. The sun radiation comes on the earth is in the form of
 - A. Short wave radiation
 - B. Long wave radiation
 - C. X rays
 - D. Radio waves

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9. The study of rocks is known as
A. Petrology
B. Biotechnology
C. Mineralogy
D. Geology
10. Wheat is a
A. Rabi crop
B. Kharif crop
C. Monsoon crop
D. None of these
11. World Meteorological Day is observed on
A. 5th June
B. 5th July
C. 15th June
D. 23rd March
12. Which is not a Geological Hazard?
A. Earthquakes
B. Volcanic eruptions
C. Landslides
D. Drought
13. Hardness is commonly measured in terms of
A. CaCO₃ equivalence
B. CaSO₄ equivalence
C. MgCO₃ equivalence
D. MgSO₄ equivalence
14. The maximum water pollution is caused by
A. Detergents
B. Pesticides
C. Industrial wastes
D. Ammonia
15. The biggest reservoir of carbon is
A. Atmosphere
B. Ocean
C. Soil
D. Vegetation
16. The older alluvium of relatively high land which are not submerged under water during floods is
A. Bhangar
B. Khadar
C. Panplains
D. Floodplian

17. In case of reflection and refraction of electromagnetic radiation
- A. angle of incidence = angle of reflection
 - B. angle of incidence = angle of refraction
 - C. angle of refraction = difference of the angles of incidence and refraction
 - D. angle of refraction = sum of the angles of incidence and refraction
18. The relation $PV = RT$ can describe the behaviour of a real gas at
- A. High temperature and high density
 - B. High temperature and low density
 - C. Low temperature and low density
 - D. Low temperature and high density
19. Decibel is the unit used for
- A. Speed of light
 - B. Intensity of heat
 - C. Intensity of sound
 - D. Radio wave frequency
20. The momentum of a body is given by
- A. Mass x Velocity
 - B. Mass x Time
 - C. Mass x Acceleration
 - D. None of these
21. The density of water is
- A. 1 g/cm^3
 - B. 1.5 g/cm
 - C. 32 g/cm^3
 - D. none of these
22. The saturated vapour pressure of water at 100°C is
- A. 750 mm of Hg
 - B. 760 mm of Hg
 - C. 76 mm of Hg
 - D. 7.6 mm of Hg
23. The process of solid changing into liquid upon the supply of heat is called
- A. Condensation
 - B. Evaporation
 - C. Melting
 - D. Boiling
24. Which of the following is NOT a constituent of the atmosphere?
- A. Aluminum
 - B. Oxygen
 - C. Nitrogen
 - D. Carbon Dioxide

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25. Natural sources of air pollution come from
- A. Internal combustion engines
 - B. Coal-fired electrical plants
 - C. Salt from sea spray, cattle, soil dust, volcanic dust
 - D. Birds
26. UV radiation can cause
- A. Skin Cancer
 - B. Bone marrow depression
 - C. Pulmonary dysfunction
 - D. Infertility in human
27. Global warming is the increase of surface temperature over
- A. Land
 - B. Ocean
 - C. Land and Ocean
 - D. Snow area
28. The dimensions of angular momentum are
- A. MLT^{-1}
 - B. MLT^{-2}
 - C. ML^2T^{-1}
 - D. MLT^{-2}
29. The coefficient of thermal conductivity depends upon
- A. Temperature difference of two surfaces
 - B. Area of the plate
 - C. Thickness of the plate
 - D. Material of the plate
30. The mass of the atom is determined by
- A. Neutrons
 - B. Neutron and proton
 - C. Electron
 - D. Electron and neutron
31. The river Ganga flows through how many states?
- A. 4
 - B. 3
 - C. 5
 - D. 2
32. Which one of following is not Agro-based industry?
- A. Cement Industry
 - B. Jute Industry
 - C. Cotton textile Industry
 - D. Sugar Industry

33. Deforestation refers to
- A. Planting of trees B. Cultivation of crops
C. Disappearance of forests D. Depletion of forests
34. A simple pendulum of length 1 m is taken to a height R which is the radius of the earth. If the acceleration due to gravity on the surface of the earth is g m/s^2 , what is the period of the pendulum at this height?
- A. 2s B. 3s
C. 4s D. 1s
35. Loss of weight of solid wastes when dried to a constant weight at a temperature of 100-105°C reflects
- A. Energy content
B. Moisture content of the waste
C. Carbon content of the waste
D. Volatile substances present in waste
36. What quantity of NaOH will be required to prepare 1 liter 40% NaOH?
- A. 400 gm B. 400 mg
C. 40 mg D. 4 mg
37. A food web consists of
- A. Interlinking of food chain
B. A set of similar consumers
C. Abundant in nature
D. A portion of food chain
38. A body of weight W_1 is suspended from the ceiling of a room through a chain of weight W_2 . The ceiling pulls the chain by a force
- A. W_1 B. W_2
C. $W_1 + W_2$ D. $W_1 \times W_2$
39. Biodiversity is richer in
- A. Tropical Regions B. Temperate Regions
C. Polar Regions D. Oceans

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40. During photosynthesis carbon dioxide combines with water in the presence of sunlight to form
A. Protein
B. Carbohydrate
C. Vitamin
D. Amino Acid
41. An inverted Pyramid of biomass is represented by
A. Aquatic ecosystem
B. Ecosystem of a big tree
C. Grassland ecosystem
D. Tropical fresh ecosystem
42. Which among these is not a green house gas?
A. CO₂
B. CH₄
C. N₂O
D. N₂
43. The number of moles of solute present in 1 kg of a solvent is called its
A. Molality
B. Molarity
C. Normality
D. Formality
44. The law which states that the amount of gas dissolved in a liquid is proportional to its partial pressure is
A. Dalton's law
B. Gay Lussac's law
C. Henry's law
D. Raoult's law
45. The metal that is used as a catalyst in the hydrogenation of oils is
A. Ni
B. Pb
C. Cu
D. Fe
46. Kryolite is an ore of
A. Fe
B. Al
C. Cu
D. Ni
47. What is the number of moles of CO₂ which* contains 16 g of oxygen?
A. 0.4 mole
B. 0.5 mole
C. 0.2 mole
D. 0.5 mole
48. A soil absorbs incoming solar radiation of an amount of
A. 0.05
B. 0.1
C. 0.15
D. 0.2

49. The luster of a metal is due to
A. Its high density
B. Its high polishing
C. Its chemical inertness
D. Presence of free electrons
50. The oil used in the froth floatation process is
A. Coconut oil
B. Olive oil
C. Kerosene oil
D. Pine oil
51. The method that cannot be used for removing permanent hardness of water is
A. Adding sodium carbonate
B. Base exchange process
C. Boiling
D. Demineralisation
52. Mirage is due to
A. Unequal heating of different parts of the atmosphere
B. Magnetic disturbances in the atmosphere
C. Depletion of ozone layer in the atmosphere
D. Cold waves
53. The dominant gas in biogas is
A. CH_4
B. N_2O
C. CO
D. H_2
54. EIA is a tool to identify
A. Environmental impact of a development project
B. Environmental impact of climate change
C. Economic impact of a project
D. Environmental impact of flood
55. Acid rain is caused by
A. SO_2 and NO_2
B. SO_2 and O_2
C. NO_2 and O_2
D. CO and CO_2
56. Decomposition or alteration of a chemical substance by water is known as
A. Electrolysis
B. Methanogenesis
C. Hydrolysis
D. synthesis

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57. Measure of the number of gram-equivalent weights of a compound per liter of solution is known as
- A. Molarity
B. Molality
C. Normality
D. Solubility
58. Which of the following is biotic component of the ecosystem?
- A. Fungi
B. Solar light
C. Temperature
D. Humidity
59. ISO-14000 standards deal with
- A. Environment management systems
B. Environmental impact assessment
C. Safety management
D. Quality Control
60. Chhattisgarh borders the states of Madhya Pradesh in the
- A. Northwest
B. Northeast
C. South
D. Southeast
61. The term 'gene' was first used by
- A. Johannsen
B. Mendel
C. Lemark
D. Cuvier
62. Ordinary table salt is sodium chloride. What is baking soda?
- A. Potassium chloride
B. Potassium carbonate
C. Potassium hydroxide
D. Sodium bicarbonate
63. The largest organ of human body is
- A. Brain
B. Heart
C. Skin
D. Liver
64. How many rational and irrational numbers are possible between 0 and 1?
- A. Infinite
B. Finite
C. 0
D. 1

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65. If $A = \{5, 6, 7\}$ and $B = \{7, 8, 9\}$ then $A \cup B$ is equal to
A. $\{5, 6, 7, 8, 9\}$ B. $\{5, 6, 7\}$
C. $\{7, 8, 9\}$ D. None of these
66. The first step in photosynthesis is
A. Joining of three carbon atoms to form glucose
B. Formation of ATP
C. Ionization of water
D. Excitement of an electron of chlorophyll by a photon of light
67. An algae rich in proteins is
A. Chlorella B. Oscillatoria
C. Ulothrix D. Spirogyra
68. Which of the following is used to determine the rate of transpiration in plants?
A. Porometer/hygrometer B. Potometers
C. Auxanometer D. Tensiometer/barometer
69. The actual location or place where an organism lives is called
A. Habitat B. Ecosystem
C. Niche D. Biome
70. In plants, water is absorbed by the root hairs, by a process called
A. Respiration B. Transpiration
C. Osmosis D. Perspiration
71. Vermi compost prepared by using earthworms
A. Inhibits the decomposition of plant waste
B. Speeds up the process of decomposition of plant waste
C. Enhances the water holding capacity of the soil
D. Prevents the diseases
72. Which group of organisms are not constituents of a food chain?
A. Grass, lion, rabbit
B. Plankton, man, fish, grasshopper
C. Wolf, grass, snake, tiger
D. Frog, snake, eagle, grass, grasshopper

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73. The colour of tomato fruits is due to the presence of
A. Anthocyanins B. Carotenoids
C. Flavonoids D. Tannins
74. What is the study of Algae called?
A. Physiology B. Phycology
C. Mycology D. Pomology
75. Which of the following do water soluble Vitamins include?
A. Vitamin A B. Vitamin C
C. Vitamin E D. Vitamin K
76. Sulfur dioxide (SO_2) may be reduced in air, if
A. Catalytic converters are used in cars
B. Car pools are used
C. Filters or scrubbers are used in chimneys
D. Ozone friendly products are introduced
77. If lead accumulation occurs for long in body, outcomes may include
A. Death B. Coma
C. Lead poisoning D. All of these
78. Amount of Nitrogen (N_2) present in dry air is
A. 0.2 B. 0.78
C. 0.48 D. 0.68
79. Second step in process of growing rice is
A. Sowing B. Transplanting
C. Preparing the main field D. Ploughing the field
80. Congo Basin is located in
A. Asia B. South America
C. North America D. Africa

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81. Plantation agriculture is practiced in countries that are located in
- A. Hot desert zone B. Tropical climate zones
C. Temperate climate zones D. Monsoon climate zones
82. 95 to 99.5% portion of plant tissues are made up of
- A. N, P and K B. C, H and O
C. Ca, Mg and C D. None of these
83. In chemical weathering the composition of minerals
- A. Changed
B. Unaffected
C. Remain the same as in original rocks
D. None of above
84. High tides occur when
- A. The earth, the sun and the moon are in a straight line, (the sun being in the middle)
B. The position of the sun and moon form a right angle with the earth's centre
C. The sun, the earth and the moon are in a straight line (the earth being in the middle)
D. The earth, the moon and the sun are in a straight line (the moon being in the middle)
85. Comets revolve around
- A. The Earth B. The Sun
C. The Venus D. No single heavenly body
86. A planet whose mass and radius is twice the Earth's will accelerate due to gravity
- A. 32 m/sec^2 B. 19.6 m/sec^2
C. 4.9 m/sec^2 D. 9.8 m/sec^2

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87. The moon does not fall onto the earth despite the attraction between the earth and the sun because of
- A. The sun's opposing attraction
 - B. The centrifugal reaction
 - C. A gravitational repulsion
 - D. The fixed orbit in which the moon rotates
88. Ocean currents originate due to
- A. Winds
 - B. Temperature difference
 - C. Difference in the density of sea water
 - D. All of the above
89. The sun is vertically overhead at the equator on
- A. 43091
 - B. 42815
 - C. 42907
 - D. 42967
90. Perihelion is
- A. The route of the moons orbit
 - B. The region at which the moon comes between the Earth and the sun and obscures the latter
 - C. The point in a planet's orbit when it is nearest to the sun
 - D. The place at which the Earth is farthest from the sun
91. Isohyets refer to
- A. Water sprouts
 - B. Sun spots
 - C. Lines drawn on a map to join places having equal rainfall
 - D. Sea living creatures
92. Endangered species are
- A. Dangerous for the life of humans
 - B. Reduced in number
 - C. Already extinct
 - D. All of these

93. Establishment of new forests where no forests existed previously is called
A. Reforestation B. Forestation
C. Neoforestation D. Aforestation
94. Diphtheria is
A. Genetic disease B. Pathogenic disease
C. Metabolic disease D. Nutritional disease
95. Benzaldehyde and acetone can be best distinguished using
A. Hydrazine B. Tollen's reagent
C. Sodium hydroxide solution D. 2, 4-DNP
96. NO_x is a mixture of
A. NO_2 and N_2O_3 B. NO and N_2O_3
C. NO and NO_2 D. NO_2 and N_2O_5
97. If $y = e^x$, then dy/dx will be
A. 1 B. e
C. $1/e^x$ D. e^x
98. The two straight lines will be perpendicular to each other, if the slopes of these two straight i.e. m_1 and m_2 is such as
A. $m_1 = m_2$ B. $m_1 m_2 = -1$
C. $m_1 + m_2 = 1$ D. $m_1 - m_2 = 1$
99. $f(x) = x^2 - x - 2$ is a polynomial of degree
A. 1 B. 2
C. 0 D. 3
100. The optimal pH for Methane production ranges between
A. 7 to 7.2 B. 5 to 5.6
C. 8 to 9.5 D. 2.3 to 4.5