

Code No.

R – 2115

**Entrance Examination for Admission to the P.G. Courses in the
Teaching Departments, 2023**

CSS

CLIMATE CHANGE AND DISASTER MANAGEMENT

General Instructions

1. The Question Paper is having 100 Objective Questions, each carrying one mark.
2. The answers are to be (✓) 'tick marked' **only** in the "**Response Sheet**" provided.
3. **Negative marking** : **0.25 marks** will be deducted for each wrong answer .

Time : 2 Hours

Max. Marks : 100

To be filled in by the Candidate

Register Number	in Figures								
	in words								

Choose appropriate answer from the options in the questions.

(100 × 1 = 100 marks)

1. Which layer of atmosphere is responsible for Aurora Borealis?
 - a) Troposphere
 - b) Thermosphere
 - c) Stratosphere
 - d) Exosphere

DO NOT WRITE HERE

2. The jet aircrafts fly very easily and smoothly in the lower stratosphere. What could be the appropriate explanation?

- (i) There are no clouds or water vapour in the lower stratosphere.
- (ii) There are no vertical winds in the lower stratosphere.

Which of the statements given above is/are correct in this context?

- a) (i) only
- b) (ii) only
- c) Both (i) and (ii)
- d) Neither (i) nor (ii)

3. What does MoEFCC stand for?
- a) Ministry of Ecological Forestry and Climate Concerns
 - b) Ministry of Environmental Flora and Climate Conservation
 - c) Ministry of Environment, Forest and Climate Change
 - d) Ministry of Ecology, Forests and Climate Crisis
4. Which of the following best describes Earth's radiation balance?
- a) The balance between incoming solar radiation and outgoing terrestrial radiation
 - b) The balance between incoming and outgoing atmospheric radiation
 - c) The balance between incoming and outgoing oceanic radiation
 - d) The balance between incoming and outgoing geothermal radiation
5. What is the albedo effect?
- a) The ability of Earth's surface to reflect incoming solar radiation
 - b) The ability of Earth's atmosphere to trap outgoing terrestrial radiation
 - c) The ability of clouds to reflect incoming solar radiation
 - d) The ability of the ocean to absorb incoming solar radiation
6. What is relative humidity?
- a) The actual amount of water vapour in the air
 - b) The ratio of water vapour in the air to the maximum amount of water vapour the air can hold at a given temperature
 - c) The amount of moisture in the air
 - d) The dew point temperature of the air

7. Which one the following represents places with equal amount of rainfall?
- a) Isotherm
 - b) Isohel
 - c) Isobar
 - d) Isohytes
8. How is humidity typically measured?
- a) In grams per cubic meter of air
 - b) In degrees Celsius
 - c) In units of atmospheric pressure
 - d) In units of wind speed
9. What will happen if the earth's axis of the earth becomes perpendicular to the orbital plane?
- a) The duration of day hour will increase
 - b) There will be no spring tide
 - c) Seasonal cycle will stop
 - d) Orbital period of the earth will be reduced
10. What is the average distance between the Earth and the Sun?
- a) 93 million kilometres
 - b) 150 million kilometres
 - c) 230 million kilometres
 - d) 300 million kilometres
11. What is insolation?
- a) The amount of solar radiation received by the Earth
 - b) The amount of thermal energy stored in the atmosphere
 - c) The amount of energy required to maintain the Earth's temperature
 - d) The amount of solar radiation reflected back into space

12. What is absolute zero?

- a) The temperature at which water freezes
- b) The temperature at which water boils
- c) The lowest possible temperature, at which all matter has zero thermal energy
- d) The highest possible temperature, at which all matter has infinite thermal energy

13. What is the formula for converting Celsius to Fahrenheit?

- a) $F = (C + 32) \times 5/9$
- b) $F = (C \times 9/5) + 32$
- c) $F = C + 273$
- d) $F = (C - 32) \times 5/9$

14. Which place has the title of being the wettest place of India and of the world?

- a) Mawsynram
- b) Agumbe
- c) Mahabaleshwar
- d) Shillong

15. Which of the following is NOT typically included on a Wind Rose?

- a) Wind direction
- b) Wind speed
- c) Temperature change
- d) Frequency of winds

16. What is the name of the process by which air is forced to rise, leading to cloud formation?

- a) Evaporation
- b) Condensation
- c) Advection
- d) Convection

17. What is the name of the type of cloud that forms in the shape of an anvil and is often associated with severe thunderstorms?
- a) Cumulus
 - b) Stratus
 - c) Cirrus
 - d) Cumulonimbus
18. El Niño is a phenomenon that occurs when:
- a) The trade winds in the Pacific weaken
 - b) The trade winds in the Pacific strengthen
 - c) The sea surface temperature in the Pacific decreases
 - d) None of the above
19. What is the name of the atmospheric pressure system that is associated with El Niño?
- a) Aleutian Low
 - b) Bermuda High
 - c) Azores High
 - d) Walker Circulation
20. La Niña is caused by which of the following changes in the ocean and atmosphere?
- a) Weakening of the trade winds and warming of the ocean surface in the Pacific
 - b) Strengthening of the trade winds and cooling of the ocean surface in the Pacific
 - c) Weakening of the polar vortex and cooling of the ocean surface in the Atlantic
 - d) Strengthening of the polar vortex and warming of the ocean surface in the Atlantic
21. In which hemisphere do tropical cyclones rotate counter clockwise?
- a) Northern Hemisphere
 - b) Southern Hemisphere
 - c) Both hemispheres
 - d) Neither hemisphere

22. How many working groups does Intergovernmental Panel on Climate Change (IPCC) have?
- a) One
 - b) Two
 - c) Three
 - d) Four
23. Which of the following electromagnetic radiations has the shortest wavelength?
- a) Gamma rays
 - b) Blue light
 - c) Infrared rays
 - d) Microwave
24. What is the full form of NCSCM?
- a) National Committee for Sustainable Coastal Management
 - b) National Council for Sustainable Coastal Management
 - c) National Council for Sustainable Climate Management
 - d) National Centre for Sustainable Coastal Management
25. What process is responsible for driving the movement of tectonic plates?
- a) Convection currents in the mantle
 - b) Earthquakes
 - c) Volcanic eruptions
 - d) Meteorite impacts
26. What was the name of the supercontinent that existed around 300 million years ago?
- a) Gondwana
 - b) Pangaea
 - c) Laurasia
 - d) Pannotia
27. Who is credited with the initial concept of continental drift?
- a) Charles Darwin
 - b) Isaac Newton
 - c) Alfred Wegener
 - d) James Hutton

28. The approximate age of the Earth is:
- a) 4.54 billion years
 - b) 4.54 million years
 - c) 3.54 billion years
 - d) 3.54 million years
29. What is the name of the event that marked the beginning of the Paleozoic era and the appearance of complex life on Earth?
- a) Cambrian explosion
 - b) Permian extinction
 - c) Triassic-Jurassic extinction
 - d) K-T extinction
30. What is the name of the process by which Earth's magnetic field is generated?
- a) Electromagnetic induction
 - b) Dynamo effect
 - c) Magnetohydrodynamics
 - d) None of the above
31. What is the name of the phenomenon that occurs when two tectonic plates collide and one is forced beneath the other?
- a) Subduction
 - b) Seafloor spreading
 - c) Rifting
 - d) None of the above
32. What is the name of the process by which mountains are formed?
- a) Subduction
 - b) Seafloor spreading
 - c) Rifting
 - d) Orogenesis
33. What is the name of the event that marked the end of the Mesozoic era and the extinction of the dinosaurs?
- a) Cambrian explosion
 - b) Permian extinction
 - c) Triassic-Jurassic extinction
 - d) K-T extinction

34. What is the Indian Ocean Dipole (IOD)?
- a) A periodic oscillation of sea surface temperature in the Indian Ocean
 - b) A type of tropical cyclone that forms in the Indian Ocean
 - c) An ocean current that flows from the Indian Ocean to the Atlantic Ocean
 - d) None of the above
35. What is the name of the mid-ocean ridge system where most of the sea floor spreading occurs?
- a) The Andes Mountains
 - b) The Rocky Mountains
 - c) The Himalayas
 - d) The Mid-Atlantic Ridge
36. What is liquefaction?
- a) The process by which an earthquake causes the ground to become more solid
 - b) The process by which an earthquake causes the ground to become more porous
 - c) The process by which an earthquake causes soil or sediment to lose strength and behave like a liquid
 - d) The process by which an earthquake causes rocks to melt
37. What is the name of the scale used to measure the intensity of an earthquake's shaking at a specific location?
- a) The Richter scale
 - b) The Mercalli scale
 - c) The Saffir-Simpson scale
 - d) The Beaufort scale
38. What is the name of the point within the Earth where an earthquake originates?
- a) The epicentre
 - b) The focus
 - c) The crown
 - d) The footwall

39. What is Ring of Fire?
- a) Belt of volcanoes in the Circum-Pacific region
 - b) Belt of volcanoes in the Midcontinent region
 - c) Belt of volcanoes in the Mid-Atlantic region
 - d) None of the above
40. _____ is a region of mostly calm weather found at the centre of strong tropical cyclones.
- a) Limb
 - b) Periphery
 - c) Eye
 - d) None of the above
41. Indian Meteorological Department (IMD) calls a storm 'Super cyclone' when the wind blows
- a) More than 140 km/hour
 - b) More than 100 km/hour
 - c) More than 222 km/ hour
 - d) None of the above
42. Which one of the following is a geological disaster?
- a) Tsunami
 - b) Storm surge
 - c) Flood
 - d) Wild fire
43. Who shall be the first responders in disaster management situation?
- a) International NGOs
 - b) Central Government
 - c) State Government
 - d) Community
44. Disaster at Chernobyl (USSR), Three Mile Island (USA), and Fukushima (JAPAN) are all related to:
- a) Chemical disaster
 - b) Nuclear disaster
 - c) Extra-terrestrial disaster
 - d) Biological disaster

45. Which of the following is a slow onset disaster?
- a) Drought
 - b) Earthquake
 - c) Tsunami
 - d) None of the above
46. The combination of the probability of an event and its negative consequences is known as:
- a) Hazard
 - b) Disaster
 - c) Vulnerability
 - d) Risk
47. What is the relationship between hazard and vulnerability?
- a) Hazard and vulnerability are the same thing
 - b) Hazard and vulnerability are two sides of the same coin - one describes the potential for harm or damage, while the other describes the susceptibility to that harm or damage
 - c) Hazard and vulnerability are interchangeable terms
 - d) None of the above
48. Which of the following is a common characteristic of disasters?
- a) They affect only a small number of people
 - b) They are always caused by natural events
 - c) They can overwhelm local resources and require external assistance
 - d) None of the above
49. Which of the following is an example of a type of volcano?
- a) Stratovolcano
 - b) Lahar
 - c) Moraines
 - d) All of the above

50. What is the narrow opening of the volcano called?
- a) Dyke
 - b) Sill
 - c) Crater
 - d) Vent
51. What is the primary cause of landslides?
- a) Human activities such as deforestation and construction
 - b) Flooding and heavy rainfall
 - c) Earthquakes and volcanic activity
 - d) All of the above
52. Which of the following is NOT an example of landslide mitigation measures?
- a) Hazard mapping to identify the areas which are more prone to landslides
 - b) Construction of retaining walls to stop land slippage
 - c) Surface drainage works to divert water away from the landslide prone region
 - d) Reduction in vegetation coverage to stabilize the slope
53. Who released the first Disaster Management Plan of India?
- a) H. D. Deve Gowda
 - b) Narendra Modi
 - c) Atal Bihari Vajpayee
 - d) Manmohan Singh
54. Which agency forecast flood in India?
- a) Central Water Commission
 - b) Centre for Flood Monitoring and Prevention
 - c) Indian Flood Forecasting Agency
 - d) Meteorological Committee of India

55. Name the nodal agency to provide tsunami early warning and advisories in India.
- a) IMD
 - b) GSI
 - c) INCOIS
 - d) ISRO
56. The Environment Protection Act was enacted in the year:
- a) 1986
 - b) 1990
 - c) 1974
 - d) 2005
57. In remote sensing, a passive sensor uses:
- a) Sun as the source of energy
 - b) Flash light as a source of energy
 - c) Its own source of energy
 - d) None of the above
58. Which type of remote sensing uses sound waves to measure underwater objects?
- a) LiDAR
 - b) Radar
 - c) Sonar
 - d) Infrared
59. DEM is the digital representation of the land surface elevation with respect to any reference datum. Expand DEM.
- a) Distinctive Elevation Model
 - b) Database of Elevation Matrix
 - c) Development of Elevated Maps
 - d) Digital Elevation Model
60. The spectral region of the electromagnetic radiation which passes through the atmosphere without much attenuation is known as:
- a) Ozone Hole
 - b) Atmospheric Window
 - c) Ozone Window
 - d) Black Hole
61. Which interaction process of EMR with Earth surface features causes the heating of the Earth's surface?
- a) Reflection
 - b) Absorption
 - c) Emission
 - d) Transmission

62. Which of the following phenomenon can be tracked and monitored through Doppler radar?
- a) Storms
 - b) Earthquake
 - c) Volcanic eruption
 - d) Tsunami
63. Indian Space Research Organisation (ISRO) headquarter is located in:
- a) Mumbai
 - b) New Delhi
 - c) Hyderabad
 - d) Bangalore
64. India's first operational remote sensing satellite is:
- a) IRS-1A
 - b) GSAT-1
 - c) Sputnik 1
 - d) TIROS-1
65. The rhythmic rise and fall of ocean water twice in a day is called
- a) Wave
 - b) Tsunami
 - c) Current
 - d) Tide
66. Which of the following greenhouse gases has the highest global warming potential?
- a) Carbon dioxide
 - b) Methane
 - c) Nitrous oxide
 - d) Sulphur hexafluoride
67. Identify the wrong statement about the disaster.
- a) Disaster disrupts the normal functioning of a society
 - b) Disaster causes human, material, and economic or environmental losses
 - c) All natural disasters occur without any warning or signs
 - d) Disasters can be of anthropogenic origin, other than the natural origin

68. _____ is the geological process in which earthen materials are worn away and transported by natural forces such as wind or water.
- a) Metamorphism
 - b) Continental drift
 - c) Erosion
 - d) Isostasy
69. Freon consist of chemical compounds made up of
- a) Chlorine, fluorine and nitrogen
 - b) Chlorine, fluorine and carbon
 - c) Chlorine, hydrogen and nitrogen
 - d) Fluorine, oxygen and carbon
70. Which is the innermost layer of the Earth?
- a) Core
 - b) Mantle
 - c) Crust
 - d) Lithosphere
71. The Earth rotates around its axis from
- a) North to South
 - b) South to North
 - c) East West
 - d) West to East
72. Which of the following best describes the relationship between climate change and extreme weather events?
- a) There is no relationship between climate change and extreme weather events
 - b) Climate change may increase the frequency or severity of some extreme weather events
 - c) Climate change may decrease the frequency or severity of some extreme weather events
 - d) Climate change completely stops all the extreme weather events
73. When is Earth Day celebrated?
- a) April 22
 - b) May 22
 - c) June 22
 - d) July 22

74. Which international treaty sets out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C above the pre-industrial levels and pursuing efforts to limit it to 1.5°C?
- a) Basel Convention
 - b) Ramsar Convention
 - c) Paris Agreement
 - d) Montreal Protocol
75. What is the main source of natural aerosols?
- a) Volcanic eruptions
 - b) Forest fires
 - c) Ocean spray
 - d) All of the above
76. Which of the following is not a greenhouse gas?
- a) Methane
 - b) Carbon monoxide
 - c) Nitrous oxide
 - d) Chlorofluorocarbons
77. The Tropic of Cancer passes through how many states in India?
- a) 6
 - b) 7
 - c) 8
 - d) 9
78. What is the primary difference between climate and weather?
- a) Climate refers to short-term atmospheric conditions, while weather refers to long-term trends
 - b) Climate refers to long-term atmospheric conditions, while weather refers to short-term trends
 - c) Climate and weather are the same thing
 - d) Climate refers to atmospheric conditions in cities, while weather refers to atmospheric conditions in rural areas
79. Which of the following is a potential solution to reduce carbon emissions?
- a) Renewable energy
 - b) Carbon capture and storage
 - c) Reforestation
 - d) All of the above

80. What is carbon sequestration?
- a) The process of releasing carbon into the atmosphere
 - b) The process of removing carbon from the atmosphere and storing it in a carbon sink
 - c) The process of converting carbon dioxide into oxygen
 - d) None of the above
81. _____ is a scheme or a market-based system where firms (or countries) buy and sell carbon permits as part of a programme to reduce carbon emissions.
- a) Carbon trading
 - b) Carbon taxation
 - c) Carbon footprint
 - d) None of the above
82. Which of the following is NOT an Indian remote sensing satellite?
- a) Oceansat
 - b) Resourcesat
 - c) Cartosat
 - d) Sentinel
83. Which one of the following statements is not valid for aerosols?
- a) Aerosols are minute particles suspended in the atmosphere
 - b) Aerosols can be natural or artificial
 - c) Aerosol particles vary greatly in size, source, chemical composition, amount and distribution in space and time
 - d) Aerosols have no effects on the Earth's climate and air quality
84. What is a climate service?
- a) It is a service offered by a research organization to capture carbon
 - b) It is a business that sells carbon offsets
 - c) It is the provision of climate information in such a way as to assist decision-making
 - d) It is a research organization that studies climate change

85. _____ is ground below the Earth's surface that has been continuously frozen for at least two consecutive years and in most cases, for hundreds or thousands of years.

a) Permafrost	b) Regolith
c) Dyke	d) None of the above
86. _____ is a carbon-based aerosol produced by the incomplete combustion of fossil fuels, biofuels, and biomass.

a) Blue carbon	b) Black carbon
c) Green carbon	d) None of the above
87. What is the average salinity of sea water?

a) 15 parts per thousand	b) 35 parts per thousand
c) 70 parts per thousand	d) 85 parts per thousand
88. How many goals are there in the Sustainable Development Goals of the United Nations?

a) 17	b) 23
c) 34	d) 45
89. According to the Ministry of Earth Sciences, which state in India suffered erosion along about 60.5% of its coast over the period from 1990 to 2018?

a) Gujarat	b) Goa
c) West Bengal	d) Kerala
90. Which of the following ultraviolet rays is more dangerous?

a) UV-A	b) UV-B
c) UV-C	d) None of the above

91. The abbreviation NMSHE, in the context of Climate Action Plan of Govt. of India, stands for:
- a) National Mission on Solar - Hydro Energy
 - b) National Mission for Sustaining Himalayan Ecosystem
 - c) National Mission for Sustainable Hydrogen Energy
 - d) National Mission on Survey of Himalayan Ecology
92. The concentration of carbon dioxide in Earth's atmosphere as on February 2023 is:
- a) 275 ppm
 - b) 300 ppm
 - c) 380 ppm
 - d) 420 ppm
93. Which current is called Humboldt Current?
- a) Benguela Current
 - b) Peru Current
 - c) Dover Strait
 - d) None of the above
94. Where do warm ocean currents move?
- a) Indonesia to the Philippines
 - b) Sri Lanka to Indonesia
 - c) Away from the equator toward the poles
 - d) Away from the poles towards the equator
95. Which one of the following statements is wrong about trade winds?
- a) The trade winds are winds that reliably blow west to east just north and south of the equator
 - b) The trade winds have been used by sailors for centuries
 - c) The trade winds can be found about 30 degrees north and south of the equator
 - d) None of the above

96. _____ is the unusual rise of water that happens during a big tropical storm or cyclones.
- a) Storm surge
 - b) Tides
 - c) Swell waves
 - d) None of the above
97. Which international treaty established the principle of “common but differentiated responsibilities” for addressing climate change?
- a) Kyoto Protocol
 - b) Paris Agreement
 - c) UNFCCC
 - d) Copenhagen Accord
98. Which is the smallest ocean on Earth?
- a) Atlantic Ocean
 - b) Arctic Ocean
 - c) Indian Ocean
 - d) Southern Ocean
99. ADPC is an organisation which focuses on reducing the risks and impacts of climate-related disasters in the Asia-Pacific region. Expand ADPC.
- a) Asian Disaster Preparedness Center
 - b) Asian Disaster Prevention Council
 - c) Asia-Pacific Disaster Preparedness Committee
 - d) Asia-Pacific Disaster Prevention Center
100. What is ‘Chipko Movement’ associated with?
- a) Human rights and dignity
 - b) Control of ozone depleting substances
 - c) Prevention of hazardous waste disposal
 - d) Conservation of tress and forest

ANSWER SHEET

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
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7	A	B	C	D	E
8	A	B	C	D	E
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98	A	B	C	D	E
99	A	B	C	D	E
100	A	B	C	D	E

ROUGH WORK

ROUGH WORK

ROUGH WORK