No. of Pages. 24

Code No.	Y – 3050

Register Number :

Name :

Time : 2 Hours

Max.Marks : 100

Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2026

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 marked **only** in the "**OMR Sheet**" provided.
3. **Negative marking** : **0.25 marks** will be deducted for each wrong answer .

INSTRUCTIONS FOR FILLING THE OMR SHEET

- The OMR sheet should not be folded or crushed.
- Use only blue/black ball point pen to fill the circles.
- Use of pencil is strictly prohibited.
- Circles should be darkened completely and properly.
- Cutting and erasing on this sheet is not allowed.
- Do not leave any stray marks on the sheet.
- Do not use marker or white fluid to hide the mark.
- WRONG METHODS

CORRECT METHOD

Choose appropriate answer from the options in the questions.

(100 × 1 = 100 marks)

1. If relative humidity is high and temperature increases, the air will

   A. Become saturated

   B. Become less humid

   C. Maintain same moisture

   D. Increase pressure

2. A city experiences poor air quality during winter mornings due to

   A. High wind speed

   B. Temperature inversion trapping pollutants

   C. Increased humidity

   D. Strong convection

3. The layer of the atmosphere where weather phenomena occur is

   A. Stratosphere B. Mesosphere

   C. Troposphere D. Thermosphere

4. Normal decrease of temperature with altitude is called

   A. Inversion B. Pressure drop

   C. Gradient D. Lapse rate

5. Saturation mixing ratio depends mainly on

   A. Temperature B. Wind Speed

   C. Pressure D. Latitude

6. Which condition leads to absolute instability in the atmosphere?

   A. ELR < SALR B. ELR – DALR

   C. ELR > DALR D. ELR = SALR

7. The major reason for the temperature increase in the stratosphere is

   A. CO_2 absorption

   B. Ozone absorption of UV radiation

   C. Cloud formation

   D. Solar reflection

8. Which type of inversion is common in valleys during winter nights?

A. Frontal inversion
B. Subsidence inversion
C. Advection inversion
D. Radiation inversion

9. Why do deserts experience large diurnal temperature variation?

A. Lack of cloud cover
B. Low specific heat
C. High humidity
D. High pressure

10. Maximum insolation at the Tropic of Cancer occurs during

A. Winter solstice
B. Summer solstice
C. Equinox
D. Perihelion

11. Perihelion occurs

A. When Earth is farthest from the Sun
B. When Earth is closest to the Sun
C. At the equator
D. At poles

12. Earth's albedo refers to

A. Absorbed radiation
B. Emitted radiation
C. Reflected radiation
D. Conducted heat

13. Rapid uplift of moist air leads to

A. Adiabatic warming
B. Wind reduction
C. Pressure increase
D. Cloud formation

14. Orographic precipitation occurs when

A. Air descends
B. Air cools at sea
C. Air rises over mountains
D. Air mixes

15. A wind rose with long petals indicates

A. Weak winds
B. Frequent winds from that direction
C. High temperature
D. Low pressure

16. Which of the following hypothesis is most widely accepted for explaining the origin of the Earth and the solar system from a rotating cloud of gas and dust?

A. Tidal hypothesis
B. Big Bang theory
C. Planetesimal hypothesis
D. Nebular hypothesis

17. The Earth is best described as:

A. Perfect sphere
B. Oblate spheroid
C. Prolate spheroid
D. Flat disc

18. The age of the Earth is approximately:

A. 2.5 billion years
B. 3.8 billion years
C. 4.6 billion years
D. 5.5 billion years

19. The largest unit of geological time is:

A. Period
B. Epoch
C. Era
D. Eon

20. In the Geological Time scale, which era is famously known as the “Age of Reptiles”?

A. Precambrian
B. Mesozoic
C. Cenozoic
D. Palaeozoic

21. The term “Anthropocene” has been proposed as a new geological epoch. What primarily characterizes this proposed epoch?

A. The natural separation of the supercontinent Pangea
B. The evolution of the first hominid species
C. A sudden global cooling event causing massive glaciation
D. Significant and globally recognizable human impact on Earth’s geology and ecosystems

22. The discovery of alternating magnetic stripes on the ocean floor provided crucial evidence for sea floor spreading. What do these stripes represent?

A. Variations in ocean salinity and temperature over millions of years.
B. Periodic reversals of the Earth’s magnetic field recorded in cooling magma
C. Different types of sediment deposited by ancient turbidity currents.
D. Scars left by massive tectonic plates scraping against one another.

23. Continental drift theory was proposed by:

A. Harry Hess
B. Alfred Wegener
C. James Hutton
D. Charles Lyell

24. Mid-Oceanic ridges are associated with:

A. Convergent plate boundary
B. Divergent plate boundary
C. Transform boundaries
D. Passive margins

25. Fossils of the same species are found in South America and Africa. This supports:

A. Sea-floor spreading
B. Continental drift
C. Isostasy
D. volcanism

26. Diastrophic forces are responsible for:

A. Weathering
B. Erosion
C. Crustal deformation
D. Rainfall

27. Which ocean relief feature is characterized by a gently sloping, relatively shallow underwater area that extends outward from the edge of a landmass?

A. Oceanic trench
B. Continental shelf
C. Continental slope
D. Abyssal plain

28. A wide continental shelf is most likely associated with:

A. Active margins
B. Passive margins
C. Mid-oceanic ridges
D. Trenches

29. Fine sediments are transported further offshore because they:

A. Are heavier
B. Settle quickly
C. Remain suspended longer
D. Are unaffected by currents

30. Ocean salinity is mainly influenced by:

A. Wind
B. Evaporation and precipitation
C. Volcanism
D. Currents

31. Sea surface salinity is generally highest at:

A. Polar regions, where melting glaciers input freshwater.

B. At the mouth of major river systems

C. Subtropical regions

D. Equatorial regions

32. In the vertical structure of the ocean's temperature, the "thermocline" refers to:

A. The well-mixed, warm surface layer of the ocean.

B. A transitional layer where water temperature decreases rapidly with depth

C. The deepest layer of the ocean, which maintains a Constant freezing temperature

D. A layer where salinity increases rapidly with depth

33. A coastal region experiences unusually high tidal ranges during certain times of the year when the Sun, Moon and Earth are aligned. This condition is best described as:

A. Neap tide

B. Spring tide

C. Perigean tide

D. Slack water

34. A rocky coastline shows notches, caves and arches formed at the base of cliffs. The dominant erosional process responsible is:

A. Hydraulic action and abrasion

B. Chemical weathering

C. Aeolian transport

D. Biological activity

35. A mountain range is formed due to compression between plates. This is an example of:

A. Exogenic force

B. Diastrophic force

C. Weathering

D. Mass wasting

36. Which of the following refers to actions taken to reduce the impact of a hazard?

A. Emergency response
B. Mitigation
C. Preparedness
D. Recovery

37. Which is the correct expansion of NDMA?

A. National Disaster Mitigation Authority
B. National Disaster Mitigation Academy
C. National Disaster Management Authority
D. National Disaster Management Academy

38. Which of the following best describes the Ring of Fire?

A. A region of intense desertification around the equator
B. A belt of frequent earthquakes and active volcanoes surrounding the Pacific Ocean
C. An area of high rainfall and tropical forests
D. A zone of polar ice caps and glaciers

39. In which year did the Indian Ocean Tsunami occur?

A. 2001
B. 2002
C. 2003
D. 2004

40. Which among the following is considered a slow-onset disaster?

A. Urban flood
B. Landslide
C. Earthquake
D. Drought

41. _____ is a secondary disaster of earthquake.

A. Tsunami
B. Glacial melting
C. Cyclone
D. Urban flood

42. In disaster management, vulnerability is best defined as:

A. The probability of occurrence of a hazard
B. The degree to which a system is susceptible to, or unable to cope with, adverse effects of hazards
C. The speed of recovery after a disaster
D. The magnitude of a disaster event

43. Which of the following scenarios best illustrates a hazard NOT becoming a disaster?

A. An earthquake strikes a densely populated city, causing casualties
B. A cyclone making landfall and destroying infrastructure
C. A volcanic eruption occurring in an uninhabited area
D. Flooding in a poorly planned urban area

44. The Coriolis force is important in cyclone formation because it:

A. Increases sea surface temperature
B. Causes the rotation of the cyclone system
C. Initiates cloud formation
D. Reduces atmospheric pressure

45. Which of the following combinations best explains rapid cyclone intensification?

A. Cold ocean waters and strong wind shear

B. Warm waters, high moisture, and low vertical wind shear

C. High pressure and dry air

D. Weak winds and low humidity

46. Assertion (A) : Not all hazards result in disasters.

Reason (R) : The impact of a hazard depends on the vulnerability and preparedness of the affected population.

A. Both (A) and (R) are true, and (R) is the correct explanation of (A)

B. Both (A) and (R) are true, but (R) is not the correct explanation of (A)

C. (A) is true, but (R) is false

D. (A) is false, but (R) is true

47. Why slow-onset disasters are often underestimated?

A. Their impacts are gradual and less immediately visible

B. They cause no economic loss

C. They occur only in developed countries

D. They do not affect human populations

48. Which of the following best represents a socio-economic causative factor of disasters?

A. Poverty, inequality, and lack of access to resources

B. High population density in hazard-prone areas

C. Unplanned urbanization leading to informal settlements

D. Seasonal monsoon variability affecting livelihoods

49. In the context of landslide zonation mapping, which of the following parameters is LEAST relevant?

A. Slope gradient
B. Lithology
C. Land use/land cover
D. Soil temperature

50. What is an "atmospheric window" in remote sensing?

A. Areas of the sky with no clouds
B. Parts of the EMR spectrum that pass through the atmosphere easily
C. Gaps in the ozone layer
D. The physical lens on a satellite

51. Sardar sarovar dam is situated in _____ river.

A. Mahanadhi
B. Godavari
C. Krishna
D. Narmada

52. How does clear, deep water mainly interact with Near-Infrared (NIR) light?

A. It reflects most of it
B. It transmits most of it
C. It scatters most of it
D. It absorbs most of it

53. Which type of scattering causes the sky to look blue?

A. Mie scattering
B. Rayleigh scattering
C. Non-selective scattering
D. Raman scattering

54. How does healthy green vegetation reflect light in the visible red and Near-Infrared (NIR) regions?

A. High reflection in red, high in NIR
B. Low reflection in red, high in NIR
C. High reflection in red, low in NIR
D. Low reflection in red, low in NIR

55. Which tool is best for detecting a tsunami in the deep, open ocean?

A. Coastal tide gauges
B. Doppler weather radar
C. Bottom pressure sensors
D. Satellite cameras

56. Why is Doppler radar used to track severe storms and cyclones?

A. It measures the chemical makeup of rain
B. It detects the speed and direction of moving rain
C. It measures cloud temperatures
D. It predicts earthquakes

57. According to Wien's Displacement Law, what happens to the radiation an object emits as it gets hotter?

A. It emits shorter wavelengths
B. It emits longer wavelengths
C. It stops emitting radiation
D. It only emits visible light

58. Which satellite orbit is best for constantly watching a single area to track a cyclone?

A. Sun-synchronous Polar orbit
B. Geostationary orbit
C. Low Earth orbit
D. Highly elliptical orbit

59. What do coastal tide gauges primarily measure during a cyclone?

A. Air pressure
B. Wind speed
C. Storm surge height
D. Ocean currents

60. Which type of radiation is best for taking satellite images of the ground through thick clouds?

A. Visible light
B. Thermal infrared
C. Microwave
D. Near-infrared

61. When solar energy hits a leaf, it can be reflected absorbed, or pass completely through it.

What is the process of passing completely through called?

A. Emission
B. Transmission
C. Scattering
D. Refraction

62. Which instruments are specifically placed in coastal waters to measure the height of ocean swells and the direction of water flow during a hurricane?

A. Bottom pressure sensors
B. Seismographs
C. Wave and current recorders
D. Thermometers

63. Which remote sensing application is most directly used to monitor the effects of global climate change on oceans?

A. Tracking daily changes in high and low tides
B. Measuring long-term sea level rise using satellite altimetry
C. Mapping the bottom of the ocean trench
D. Counting the number of fishing boats in coastal areas

64. Which part of the electromagnetic (EMR) spectrum is the only part that human eyes can naturally see?

A. Ultraviolet
B. Visible light
C. Infrared
D. Microwave

65. How do meteorologists use thermal infrared satellite images to check the strength of a cyclone?

A. By measuring the physical weight of the clouds
B. By observing the temperature of the cloud tops and the storm's eye
C. By calculating the exact amount of rainfall hitting the ground
D. By listening to the sound waves produced by the storm

66. Which greenhouse gas is primarily released from agricultural activities such as rice cultivation and livestock farming?

A. Nitrous oxide

B. Methane

C. Carbon dioxide

D. Ozone

67. Which international treaty successfully phased out CFCs?

A. Kyoto Protocol

B. Paris Agreement

C. Montreal Protocol

D. Rio Declaration

68. The Global Framework for Climate Services (GFCS) was launched by:

A. UNDP

B. WMO (World Meteorological Organization)

C. UNEP

D. IPCC

69. Black carbon deposited on snow surfaces accelerates melting because it:

A. Reflects incoming solar radiation

B. Absorbs heat and lowers albedo

C. Neutralizes greenhouse gases

D. Increases soil fertility

70. The Arctic is warming faster than other regions. This phenomenon is known as:

A. Polar amplification

B. Radiative forcing

C. Greenhouse feedback

D. Ozone thinning

71. Carbon dioxide remains the dominant greenhouse gas due to:

A. Short atmospheric lifetime

B. High global warming potential per molecule

C. Long atmospheric persistence and large emission volumes

D. Exclusive agricultural origin

72. The sector most vulnerable to climate variability in developing countries is:

A. Agriculture

B. Software

C. Banking

D. Tourism only

73. The term *Thermohaline Circulation* refers to:

A. The movement of air in the stratosphere

B. Large-scale ocean circulation driven by density gradients (temperature and salinity)

C. The process of photosynthesis in plants

D. The cycle of ozone formation

74. The Dobson Unit is used to measure:

A. Carbon emissions

B. Rainfall intensity

C. Atmospheric ozone concentration

D. Aerosol concentration

75. The factor that is NOT considered a climate forcing is:

A. Solar variability

B. Aerosols

C. Land use change

D. Plate tectonics over short timescales

76. Representative Concentration Pathways (RCPs) are primarily used to:

A. Measure ozone depletion

B. Project future climate scenarios

C. Track earthquakes

D. Predict volcanic eruptions

77. The greenhouse gas that remains longest in the atmosphere is:

A. Methane

B. Nitrous oxide

C. CO_2

D. Water vapour

78. Climate resilience refers to:

A. Preventing all disasters

B. Ability to recover from climate impacts

C. Increasing emissions

D. Eliminating variability

79. The expansion of UNFCCC is:

A. United Nations Framework Convention on Climate Change

B. United Nations Forum for Carbon Control and Conservation

C. Universal Network for Fossil Fuel Climate Cooperation

D. United Nations Federation for Climate and Conservation

80. The approximate global average surface temperature is:

A. 10 °C

B. 12 °C

C. 15 °C

D. 20 °C

81. Climate refers to:

A. Daily weather conditions

B. Atmospheric conditions over a long period

C. Wind direction only

D. Seasonal rainfall only

82. An example of a reflective aerosol is:

A. Black carbon

B. Sulfate aerosol

C. Methane

D. Ozone

83. The European Commission's Roadmap for Climate Services aims to:

A. Ban all fossil fuels by 2025

B. Build a European market for climate services to enhance societal resilience

C. Relocate coastal cities to higher ground

D. Replace the IPCC with a European-only body

84. According to recent WMO updates (2025), atmospheric CO_2 concentration reached approximately:

A. 350 ppm

B. 390 ppm

C. 423 ppm

D. 500 ppm

85. COP30 was held in:

A. Dubai, UAE

B. Glasgow, UK

C. Belém, Brazil

D. Paris, France

86. According to recent ozone observations (2025), the Antarctic ozone hole:

A. Completely disappeared

B. Became largest ever recorded

C. Showed signs of recovery and was smaller

D. Shifted to Arctic permanently

87. The average global temperature increase since the pre-industrial period is approximately:

A. 0.2 °C
B. 1.2 °C
C. 3.5 °C
D. 5 °C

88. Radiative forcing is measured in:

A. W/m^2
B. ppm
C. Joules
D. Kelvin

89. Sea level rise is commonly measured in:

A. ppm
B. mm/year
C. kg/m^3
D. Pascal

90. Which of the following is considered one of the earliest ancestors of modern elephants?

A. Mammuthus
B. Loxodonta
C. Moeritherium
D. Stegodon

91. The landform formed by the deposition of sediments at the mouth of a river?

A. Fjord
B. Bajada
C. Alluvial fan
D. Delta

92. The State Disaster Management Authority is headed by _____

A. Governor
B. Revenue Minister
C. Chief Minister
D. Chief Secretary

93. Which among the following is a man-made disaster ?

A. Stampede
B. Flood
C. Avalanche
D. None of the above

94. Location below the Earth where an earthquake originates is known as _____

A. Eye
B. Coriolis
C. Epicenter
D. Focus

95. World Meteorological Day is observed on ;

A. 21st April
B. 22nd April
C. 21st March
D. 23rd March

96. Theme of Earth day 2026 is

A. Planet Vs Plastic
B. Our Power Our Planet
C. Invest in our Planet
D. Climate Action

97. A large amount of precipitation in a very short period of time is known as

A. Thunder storm

B. Intense rainfall

C. Cloudburst

D. Orographic rainfall

98. International agreement aims to limit global warming to well below to the pre-industrial levels is _____

A. Kyoto Protocol

B. Paris Agreement

C. Montreal Protocol

D. Stockholm Convention

99. Which of the following river is flowing toward east?

A. Periyar

B. Chalakkudy

C. Kabani

D. Chandragiri

100. Which of the following is not a renewable energy source?

A. Natural gas

B. Solar

C. Wind

D. Tidal

ROUGH WORK

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