**RET/14/Test B**

**989** **Integrated M. Phil. – Ph. D. Programme in Environment & Sustainable Development**

Question Booklet No. .....

*(To be filled up by the candidate by **blue/black ball-point pen**)*

**Roll No.** | | | | | | | | | |

**Roll No. (Write the digits in words)** .....

**Serial No. of OMR Answer Sheet** .....

**Day and Date** ..... .....

**(Signature of Invigilator)**

## INSTRUCTIONS TO CANDIDATES

(Use only ***blue/black ball-point pen*** in the space above and on both sides of the ***Answer Sheet***)

1. Within 10 minutes of the issue of the Question Booklet, Please ensure that you have got the correct booklet and it contains all the pages in correct sequence and no page/question is missing. In case of faulty Question Booklet, bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall ***except the Admit Card without its envelope.***
3. ***A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided.***
4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
5. ***On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.***
6. ***No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and Roll No. and OMR sheet No. on the Question Booklet.***
7. ***Any changes in the aforesaid-entries is to be verified by the invigilator, otherwise it will be taken as unfair means.***
8. ***This Booklet contains 40 multiple choice questions followed by 10 short answer questions. For each MCQ, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet. For answering any five short Answer Questions use five Blank pages attached at the end of this Question Booklet.***
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. ***Note that the answer once filled in ink cannot be changed.*** If you ***do not wish to attempt*** a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit ***both OMR Answer Sheet and Question Booklet*** at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

**Total No. of Printed Pages : 15**

**FOR ROUGH WORK**

# Research Entrance Test – 2014

**No. of Questions : 50**

***Time :*** *2 Hours* ***Full Marks : 200***

***Note :*** (i) This Question Booklet contains **40** Multiple Choice Questions followed by **10** Short Answer Questions.

(ii) Attempt as many MCQs as you can. Each MCQ carries **3 (Three)** marks. **1 (One)** mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question. If more than **one** alternative answers of MCQs seem to be approximate to the correct answer, choose the closest one.

(iii) Answer only **5** Short Answer Questions. Each question carries **16 (Sixteen)** marks and should be answered in **150-200** words. Blank **5 (Five)** pages attached with this booklet shall only be used for the purpose. Answer each question on separate page, after writing Question No.

1. A high level of biological oxygen demand (BOD) in a water sample indicates that the water is polluted with :
   (1) heavy metals (2) organic materials
   (3) radioactive materials (4) plastics

2. The first biosphere reserve established in India was :
   (1) Nandadevi National Park & Biosphere reserve
   (2) Nilgiri biosphere reserve
   (3) Great Rann of Kutch
   (4) Great Nicobar Biosphere Reserve

3. Mycorrhiza is a typical example of a :
   (1) symbiotic association between a fungus and bacteria.
   (2) symbiotic association between a fungus and algae.
   (3) parasitic association between a fungus and roots of higher plants.
   (4) symbiotic association between a fungus and roots of higher plants.

4. The Minamata diseases was due to :
   (1) mercury pollution (2) arsenic pollution
   (3) cadmium Pollution (4) lead pollution

5. The Red data book is published by
   (1) WWF (2) GEF (3) IUCN (4) UNEP

6. The species which are localized in a specific region is called
   (1) rare species (2) endemic species
   (3) threatened species (4) common species

7. Which of the following is biodiesel plant ?
   (1) *Solanum* (2) *Withania* (3) *Pongamia* (4) *Calotropis*

8. The respiratory roots are also known as :

(1) prop roots (2) velamen roots

(3) pneumatophores (4) still roots

9. Which of the following is an indicator of faecal contamination ?

(1) E.coli (2) Amoeba (3) Paramecium (4) Snails

10. Which organism can fixes molecular nitrogen in the roots of leguminous plants ?

(1) *Rhizobium sp* (2) *Clostridium sp*

(3) *Bacillus sp* (4) *Staphylococcus sp*

11 Which of the following stands true for the rhizosphere ?

(1) Region where soil and roots make contact

(2) Apical part of the root

(3) Epidermal part of the root

(4) Root hairs

1: The flow in the natural stream is almost always turbulent and may be assumed o be incompressible, consequently the applicable equations of motion for the luid are the :

1) Bed-load equation (2) Reynold's equation

3) Lacey's equation (4) Lane's equation

13 A highly vesicular material derived from acidic lavas and produced in very large quantities is known as :

(1) Scoriae (2) Volcanic bomb (3) Pumie (4) Tuff

14. When cavities between the mineral grains in a rock contains fluid, it is called :

(1) Permeable rock (2) Porous rock

(3) Cavernous rock (4) Fractured rock

15. Temperature in the troposphere :

(1) Decreases with height (2) Rapidly increases with height

(3) Remains constant (4) Slowly increases with height

16. Of the following which one is a recalcitrant :

(1) Sugarcane waste (2) DDT

(3) Cellulose (4) Lignin

17. Steel units generate the following pollutants :

(1) Particulates, smoke, carbon mono-oxide, flouride

(2) $SO_2$, acid mist

(3) $NO_x$, $SO_2$, particulates

(4) $SO_2$, $NO_x$, particulates, smoke

18. The waves that carry most energy are :

(1) UV waves (2) Infra-red waves

(3) Micro-waves (4) Millimeter waves

19. For a normal distribution skewness is :

(1) 1 (2) $\infty$ (3) ½ (4) 0

20. The Law of Conservation of Energy is described by :

(1) Zeroth Law of Thermodynamics (2) First Law of Thermodynamics

(3) Second Law of Thermodynamics (4) Third Law of Thermodynamics

21. Electromagnetic Pollution is caused by :

(1) Vehicular Traffic (2) Mobile phones

(3) Aircraft noise (4) Lightning and Thunder storms

22. Weathering of Granite produces the sedimentary rock known as :

(1) Shale (2) Graywacke (3) Limestone (4) Arkose

23. Land use pattern is usually studied by the following technique :

(1) Aerial photography (2) Satellite imaging

(3) Satellite imaging and G. I. S. (4) Satellite imaging, G. I. S. and G.P. S.

24. Group of individuals of the same species that share common attributes are called

(1) Community (2) Population (3) Ecotype (4) Society

25. In our country the Van Mahotsav Day is observed on :

(1) Second of October (2) First of December

(3) Tenth of August (4) First of July

26. If waste materials contaminate the source of drinking water which of the following diseases will spread ?

(1) Scurvy (2) Typhoid (3) Malaria (4) Anaemia

27. Which one of the following statements regarding EI-NINO is **NOT** true' ?

(1) It develops as temporary replacement of usual cold Peruvian Current.

(2) It causes an increase in plankton thriving in cold Peruvian current.

(3) It is an extension of equatorial current towards the western coast of South America.

(4) It is an occasional warm current leading to an increase of about 10°C in subsurface water temperature.

28. Which of the following is a goal of environmental science' ?

(1) Understand how we interact with the environment.

(2) Live more sustainably and find ways to deal with environmental problems.

(3) Learn how life on earth has thrived and survived and understand how we interact with the environment.

(4) Learn how life on earth has thrived and survived, understand how we interact with the environment, and live more sustainably and find ways to deal with environmental problems.

29. Every day, approximately _____ new people are added to the global population.

(1) 53 million (2) 100 million (3) 83 million (4) 153 million

30. Which of the following pattern of evolution accounts for all the diversity present on earth today ?

(1) Microevolution (2) Megaevolution (3) Biodiversity (4) Speciation

31. Select the choice that correctly states the best priority for use of non-renewable resources, such as metals and plastics, from the environmentally sustainable perspective.

(1) recycle, reuse, reduce
(2) reduce, reuse, recycle
(3) reduce, recycle, refuse
(4) repurpose, recycle, remake

32. Which of the following is a social movement dedicated to the protection of the Earth's natural capital ?

(1) Ecology
(2) Environmental science
(3) Natural science
(4) Sustainability

33. Which of the following is an example of recycling ?

(1) collecting and remelting aluminum beer cans and making them into new cans
(2) cleaning and refilling soft-drink bottles
(3) selling used clothing at a garage sale
(4) using household water to water a garden

34. World Environment Day 2014 theme is dedicated to :

(1) Forest
(2) Small Islands
(3) Water pollution
(4) Biodiversity

35. Epicenter of an earthquake is a point associated with the :

(1) place where earthquake is felt
(2) place of origin of earthquake in the interior of earth
(3) point on the earth's surface just above seismic focus
(4) point over the earth's surface where first shock is felt

36. Biological Oxygen Demand (BOD) is used as a standard measure of ..... .

(1) Oxygen level in forest system
(2) Oxygen level in animals
(3) Oxygen level in water system
(4) Oxygen level in atmosphere

37. Among the following, the richest source of protein is :
(1) Ground Nut (2) Rice (3) Potato (4) Apple

38. Which one of the following does not contribute to conservation of water ?
(1) Waste water treatment (2) Waste land development
(3) Water shed protection (4) Rain water harvesting

39. Arsenic problem in India is primarily due to :
(1) Overexploitation of arsenopyrite in the less developed part of country
(2) Overexploitation of coal in Bihar and Bengal
(3) Overexploitation of ground water in the affected area
(4) Overexploitation of surface water in the affected areas

40. Acid rain is caused due to :
(1) CO and $CO_2$ (2) $SO_2$ and $O_2$
(3) $NO_2$ and $O_2$ (4) $SO_2$ and $NO_2$

***Attempt any five questions. Write answer in 150-200 words. Each question carries 10 marks. Answer each question on separate page, after writing Question Number.***

1. What is radiative forcing ?
2. Define 'sustainable development'.
3. Write an account on waste water treatment.
4. Differentiate between climate change and climate variability.
5. What are the major threats to biodiversity in India ?
6. What are the challenges of feeding a rapidly growing population.
7. Comment briefly on 'Planetary boundaries'.
8. Discuss merits and demerits of biofuels.
9. List the causes and problems of air pollution.
10. Comment briefly on the causes of Kedarnath disaster of 2013.

**Q. No. :**

*Roll No. :* .....

Q. No. :

*Roll No. : .....*

**Q. No. :**

*Roll No. : .....*

**Q. No. :**

*Roll No. : .....*

**Q. No. :**

**FOR ROUGH WORK**