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BIOLOGY – MCQ BOOKLET

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1. Subdivisions of Biology

Anatomy

1. The study of bones is done under the branch of science called

A. geology
B. serology
C. orology
D. osteology

Ans: D

BPSC Prelims Exam-65th

The scientific study of bones is called osteology.

2. 'Histology' is associated with

- **Study of tissues**
- **Study of heart diseases**
- **Study of finger prints**
- **Science of plant kingdom**

A. Study of tissues
B. Study of finger prints
C. Study of heart diseases
D. Science of plant kingdom

Ans: A

Assistant Engineer (AE) Exam -2012

Histology is a branch of biology that studies the microscopic anatomy of biological tissues.

3. What is Craniology?

A. The scientific study of the human skull in terms of shape, size etc.

B. The scientific study of the internal organs of the human torso

C. The scientific study of a particular species of cranes

D. None of the above

Ans: A

LAW OFFICER CUM JUNIOR DRAFTSMAN -2018

Craniology is a sub-discipline within physical anthropology that focuses on the study of skulls. It involves measuring and comparing skull features to understand human variation, evolution, and relationships.

Botany

4. Janaki Ammal was the first Indian woman to get a Ph.D. and an honorary D. Sc. from the University of Michigan in which subject ?

A. Physics

B. Mathematics

C. Chemistry

D. Botany

Ans: D

HAS Prelims-2019

- E. K. Janaki Ammal (1897–1984) was a renowned Indian botanist and cytogeneticist. - She obtained her Ph.D. in Botany from the University of Michigan in 1931. - The University of Michigan also awarded her an honorary D. Sc. later in her career (1956).

5. What is 'Bryology'?

A. Study of ringworm

B. Study of food

C. Study of fruit

D. Study of mosses and liverworts

Ans: D

HOMOEOPATHIC MEDICAL OFFICER 1 -2023

The question is a direct definition of a scientific term. Understanding specialized branches of science is common in UPSC examinations.

6. 'फूलों की घाटी' की खोज किसने की ?

A. जोसफ हुकर

B. विलियम मूरक्रॉफ्ट

C. फ्रैंक स्मिथ

D. नैनसिंह रावत

Ans: A

Data Entry Operator -2023

Joseph Hooker is credited with the discovery and exploration of the Valley of Flowers.

7. Match list-I with list-II and select the correct answer from the code given below the lists – List-I (Name of Scientist) A Birbal Sahni B K.C. Mehta C P. Maheshwari D M.S. Swaminathan List-II (Area of work) 1 Green Revolution 2 Embryology 3 Paleobotany 4 Plant pathology Code - (a) A-1, B-2, C-3, D-4 (b) A-3, B-4, C-2, D-1 (c) A-2, B-1, C-3, D-4 (d) A-4, B-3, C-2, D-1

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

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

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

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

Ans: B

RO ARO Mains -2021

Birbal Sahni - Paleobotany, K.C. Mehta - Plant pathology, P. Maheshwari - Embryology, M.S. Swaminathan - Green Revolution.

Cell Biology (Cytology)

8. Which one of the following is the correct sequence of passage of light in a compound microscope?

A. Condenser—Objective lens—Eyepiece—Body tube

B. Objective lens—Condenser—Body tube—Eyepiece

C. Condenser—Objective lens—Body tube—Eyepiece

D. Eyepiece—Objective lens—Body tube—Mirror

Ans: C

UPSC CDS-1-2019

The correct sequence for light passage in a compound microscope is typically Condenser -> Specimen -> Objective lens -> Body tube -> Eyepiece.

9. When using centrifuges, the contents of centrifuge tubes must be

A. Filled to the same level and placed at same locations

B. Filled to the same level and placed at opposite locations

C. Filled to the different level and placed randomly

D. All of the above

Ans: B

JUNIOR laboratory assistant -2025

Centrifuges operate by spinning samples at high speeds. Proper balancing of the centrifuge rotor is essential for safe and effective operation.

10. Example of good laboratory ethics is

A. The Intentional recording or reporting incorrect information

B. The Intentional misrepresentation of laboratory data to hide known or potential problems

C. Documenting mistakes

D. All of the above

Ans: C

JUNIOR laboratory assistant -2025

Good laboratory ethics involve principles of integrity, honesty, and responsibility in scientific research.

Ecology

11. While studying vegetation of an area, terms like 'population' and 'community' are often used. Which one of the following statements best describes a population ?

A. A group of organisms of one species, living in the same area at the same time.

B. A group of organisms of one species living in different areas during different seasons.

C. A unit consisting of biotic and abiotic components.

D. A group of organisms of more than one species, living in the same area at the same time.

Ans: A

UPSC CDS-2-2021

The defining characteristics of a biological population are that the organisms must be of the same species, live in the same geographical area, and exist at the same time.

12. Which of the following constitute a food chain ?

A. Grass Wheat Mango

B. Grass Goat Human

C. Goat Crow Elephant

D. Grass Fish Goat

Ans: B

CGPSC Prelims Exam-2016

Option B, "Grass Goat Human", represents a valid food chain where Grass is the producer, Goat is the primary consumer (herbivore) feeding on grass, and Human is a secondary or tertiary consumer feeding on the goat or products derived from it. This shows a clear sequence of who eats whom.

13. Heterotrophic organisms, chiefly bacteria and fungi that breakdown the complex compounds of dead protoplasm and release simple usable substances for other organisms are :

A. Autotrophs
B. Decomposers
C. Consumers
D. Omnivorous

Ans: B

MPSC CS Prelims-2014

In an ecosystem, organisms play different roles in the flow of energy and nutrients. Decomposers are crucial for nutrient cycling by breaking down dead organic matter.

14. Which one of the following is the correct sequence of a food chain?

A. Diatoms-Crustaceans-Herrings
B. Crustaceans-Diatoms-Herrings
C. Diatoms-Herrings-Crustaceans
D. Crustaceans-Herrings-Diatoms

Ans: A

UPSC IAS-2014

- Food chains illustrate the flow of energy through an ecosystem. - The sequence starts with producers, followed by consumers at different trophic levels. - Diatoms (phytoplankton) are producers. - Crustaceans (zooplankton) are primary consumers. - Herrings (fish) are secondary consumers.

15. Consider the following kinds of organisms :

- **1. Copepods**
- **2. Cyanobacteria**
- **3. Diatoms**
- **4. Foraminifera**

Which of the above are primary producers in the food chains of oceans?

A. 1 and 2
B. 2 and 3
C. 3 and 4
D. 1 and 4

Ans: B

UPSC IAS-2021

Primary producers in the ocean are photosynthetic organisms, primarily phytoplankton like cyanobacteria and diatoms, which form the base of the marine food web.

16. Which one of the following groups of organisms correctly makes a food chain ?

A. Grass, Goat, Human
B. Elephant, Goat, Grass
C. Tiger, Snake, Grass
D. Insect, Frog, Grass

Ans: A

UPSC CISF-AC-EXE-2023

- A food chain starts with a producer (organism that makes its own food, usually plants). - The arrows in a food chain indicate the direction of energy flow (from the organism being eaten to the organism that eats it). - The sequence is typically Producer -> Primary Consumer (Herbivore) -> Secondary Consumer (Carnivore/Omnivore) -> Tertiary Consumer, etc.

17. Necton are

A. floating organisms in water.
B. swimming organisms in water.
C. animals associated with aquatic plants.
D. sub-merged plants in water.

Ans: B

WBPSC CS Prelims-2017

Aquatic organisms are broadly classified based on their mode of life and movement in water. - Plankton are organisms (plants - phytoplankton, and animals - zooplankton) that float or drift in the water, largely dependent on currents for movement. - Benthos are organisms that live on or in the bottom substrate of an aquatic environment. - Nekton (or Necton) are organisms that are active swimmers and can move independently of water currents. This includes fish, marine mammals,

squid, etc. Options A, C, and D do not accurately describe Necton. Floating organisms are plankton. Animals associated with aquatic plants could be either plankton, benthos, or nekton depending on their mobility. Sub-merged plants are producers, not necessarily defined by their mobility in this classification.

18. In a food chain, man is

A. producer
B. only primary consumer
C. only secondary Consumer
D. primary as well as secondary consumer

Ans: D

UPPCS Prelims-2016

Humans are omnivores, consuming both plant and animal matter.

19. Composting of organic matter involves

A. Anaerobic digestion
B. Aerobic digestion
C. Fermentation
D. Combustion

Ans: B

APPSC Panchayat secretary Prelims-2016

Composting relies on microorganisms that require oxygen to break down organic waste efficiently.

20. Which form of symbiosis benefits one member of the interaction, but neither benefits nor harms the other member?

A. Parasitism
B. Commensalism
C. Sequentialism
D. Mutualism

Ans: B

WBCS_Main-Paper-4-2022

Symbiosis refers to any type of a close and long-term biological interaction between two different biological organisms. The main types are mutualism (both benefit, +/+), commensalism (one benefits, other unaffected, +/0), and parasitism (one benefits, other is harmed, +/-). Predation and competition are other types of ecological interactions but not typically classified under symbiosis in this narrow sense.

21. A population has unlimited resources and exhibits rapid and sustained population growth. This type of growth would be best described by which one of the following?

A. Exponential
B. Logistic
C. Sigmoidal
D. Parabolic

Ans: A

WBCS_Main-Paper-4-2022

Exponential population growth occurs when resources are unlimited, allowing the population to grow at a constant per capita rate. The growth rate accelerates as the population size increases, leading to a J-shaped growth curve.

22. Upper part of sea aquatic ecosystem contains

A. plankton
B. nekton
C. plankton and nekton
D. benthos

Ans: C

WBCS_Main-Paper-4-2022

The upper part of the sea, specifically the photic or sunlit zone, is home to a diverse range of organisms. Plankton (phytoplankton and zooplankton) are microscopic or small organisms that drift in the water column and form the base of the food web in this zone (phytoplankton are primary producers). Nekton are actively swimming organisms like fish, marine mammals, and squid that inhabit and feed within this zone. Benthos refers to organisms that live on or within the seafloor, which is typically below the upper parts of the ocean.