**B.TECH 2nd year 4th semester , Subject code BSC 401-BIOLOGY**

**1. Each Question carries 1 mark**

1. Father of Biology is

a. Robert Brown

b. Julius Mayer

c. Aristotle

d. Kant

Ans.(c) Aristotle

2. Covid-19 is

a. Bacteria

b. Fungi

c. Yeast

d. Virus

Ans.(d) Virus

3. Robert Hooke coined the term

a. Cell

b. Nucleus

c. Bacteria

d. Chromosome

Ans.(a) Cell

4. Father of Modern Genetics is

1. Aristotle
2. Mendel
3. Darwin
4. Newton

Ans.(b) Mendel

5. Theory of Evolution was developed by

1. Mendel
2. Aristotle
3. Darwin
4. All the above

Ans.(c) Darwin

6. The process of pasteurization of milk was developed by

1. Alexander von Humboldt
2. Antoine Lavoisier
3. Louis Pasteur
4. None of the above

Ans.(c) Louis Pasteur

7. Before 1799 Biology was

1. Natural History
2. Natural Science
3. Natural Phylosophy
4. Natural Evolution

Ans.(a) Natural History

8. Jan Baptista van Helmont was put under house arrest for

1. Studying animals
2. Studying man
3. Studying insects
4. Studying plants

Ans.(d) Studying plants

9.  Binomial nomenclature, the modern system of naming organisms was formalised by

1. Alexander von Humboldt
2. Antoine Lavoisier
3. Louis Pasteur
4. Carl Linnaeus

Ans.(d) Carl Linnaeus

10. He took part in Captain [James Cook](https://en.wikipedia.org/wiki/James_Cook)'s [first great voyage](https://en.wikipedia.org/wiki/First_voyage_of_James_Cook) (1768–1771)

1. Sir Joseph Banks
2. Antoine Lavoisier
3. Louis Pasteur
4. Robert Hooke

Ans.(a) Sir Joseph Banks

11. Bacteria lack a

1. [nucleus](https://www.britannica.com/science/nucleus-biology)
2. DNA
3. Cell membrane
4. Proteins

Ans.(a) [nucleus](https://www.britannica.com/science/nucleus-biology)

12. Some bacteria can

1. cause diseases in humans
2. are harmless
3. are [beneficial](https://www.merriam-webster.com/dictionary/beneficial) ecological agents
4. All the above

Ans.(d) All the above

13. Relationships between different groups of bacteria give insights into

1. mechanisms of [evolution](https://www.britannica.com/science/evolution-scientific-theory)
2. the origin of life on Earth
3. ecological systems
4. All the above

Ans.(a) mechanisms of [evolution](https://www.britannica.com/science/evolution-scientific-theory)

14. Earth are made up of one of two basic types of cells

1. bacteria and parasites
2. eukaryotes and prokaryotes
3. animal and plant
4. yeast and algae

Ans.(b) eukaryotes and prokaryotes

15. Cells, in which the genetic material is enclosed within a nuclear membrane

1. prokaryotes
2. Bacteria
3. eukaryotes
4. all the above

Ans.(c) eukaryotes

16. The anatomy of the camera bears more similarities to

1. retina
2. cornea
3. eyeball
4. Iris

Ans.(c) eyeball

## 17. Scope and Field of View of camera can be changed by the

## Focal length of lenses

## Curvature of lens

## Size of lens

## All the above

## Ans.(a) Focal length of lenses

## 18. Image formed by human and camera lenses is

## Erect

## Inverted

## Curved

## Flat

## Ans.(b) Inverted

## 19. **Light adjustment** in a camera is done with

## Shutter

## Aperture

## Lens

## All the above

## Ans.(b) Aperture

## 20. Eyes work in harmony with your brain to

## Create the images you perceive

## Adjusting the focus

## Translating photons into an electrical impulse

## All the above

## Ans.(d) All the above

## 21. A film in a camera is uniformly sensitive to

## Light

## Aperture

## Shutter

## All the above

## Ans.(a) Light

## 22. Fluorescence image of cells under a microscope that you can see with your eyes is quite impossible to capture for an ordinary camera because the amount of light entering the camera (and your eyes) is

## High

## Coloured

## Low

## Dark

## Ans.(c) Low

## 23. The front lens element of human eyes

## **Cornea**

## **Iris**

## **Retina**

## **Pupil**

## Ans.(a) **Cornea**

## **24. in** camera higher ISO gives you

## Higher sensitivity

## Larger amount digital noise

## High film speed

## All the above

## Ans.(d) All the above

## 25. before flight to create an air lift (upward force) some birds

## Just Run

## Flap their wings

## Just jump off and glide.

## All the above

## Ans.(d) All the above

## 26. Aircraft and birds both gain or lose elevation with the variation of the

## Drag force

## Lift force

## Both of them

## None of them

## Ans.(c) Both of them

## 27. Aircraft use different movable parts in their wings and tails to

## Change direction

## Horizontal and vertical movement

## Tilting

## All the above

## Ans.(d) All the above

## 28. During gliding birds spend

## Minimum energy

## Maximum energy

## Extra energy

## Double energy

## Ans.(a) Minimum energy

29. When Galileo characterized science, he based it on his knowledge of

1. Mathematics
2. Mechanics
3. Gravitational laws
4. Natural laws

Ans.(b) Mechanics

30. Galileo insisted that the book of nature is written in the language of

1. Mathematics
2. Physics
3. Chemistry
4. All of them

Ans.(a) Mathematics

31.”There is only that much genuine [richtig] science in any science, as it contains mathematics” was said by

1. Galileo
2. Descartes
3. Newton
4. Kant

Ans.(d) Kant

32. Darwin’s Origin of Species (1859), which contains

1. Mathematical formula
2. Phylogenetic diagram
3. Geometric figure
4. All of them

Ans.(b) Phylogenetic diagram

33. till 18th century Philosophy of Biology strictly based on the

1. Framework of the classical physical sciences
2. Autonomous aspects of biology
3. Both of them
4. None of them

Ans.(a) Aristotle

34. Aristotle had produced a remarkable contribution to biology, particularly to its methodology and principles in the

1. Third century b.c.
2. Fourth century b.c.
3. Fifth century b.c.
4. Sixth century b.c.

Ans.(b) Fourth century b.c.

35. In the seventeenth and eighteenth centuries foundation of biology was laid by

1. Students of the medical schools
2. Natural historians
3. Both of them
4. None of them

Ans.(c) Both of them

36. When Kant (1790), in his Critique of Judgment, was quite unsuccessful in explaining the phenomena of the living world with the help of Newtonian laws and principles, he solved his dilemma by ascribing biological processes to

1. Vitalism
2. Teleology
3. Reductionism
4. None of the above

Ans.(b) Teleology

37. It became clear in the 1950s that philosophy of biology, essentially based on

1. Logic
2. Mathematics
3. Unique concepts of biology
4. None of the above

Ans.(c) Unique concepts of biology

38. An organism is really nothing but a machine, was said by

1. Kant
2. Descartes
3. Newton
4. Gallileo

Ans.(b) Descartes

39. The movements and other manifestations of life in organisms are controlled by an invisible force, was believed by

1. Vitalists
2. Reductionists
3. Teleologosists
4. All of them

Ans.(a) Vitalists

40. Thousands of unsuccessful experiments brought end to

1. Reductionism
2. Teleology
3. Vitalism
4. Determentism

Ans.(c) Vitalism

41. The new biology was able to solve all the problems with methods of

1. Genetics
2. Molecular biology
3. Both of the above
4. None of the above

Ans.(c) Both of the above

42. Physiology of all activities of living organisms, particularly with all cellular processes, including those of the genome can be explained mechanistically by

1. Chemistry alone
2. Physics alone
3. Biology alone
4. Chemistry and physics

Ans.(d) Chemistry and physics

43. The explanation of all aspects of the living world that involve the dimension of historical time is

1. Evolutionary biology
2. Functional biology
3. Mechanistic biology
4. Molecular biology

Ans.(a) Evolutionary biology

44. The traditional concept of the diversity of the world was that it consisted of a limited number of sharply delimited and unchanging *eide* was called

1. Darwinism
2. Speciation
3. Essentialism
4. Reductionism

Ans.(c) Essentialism

45. Darwin completely rejected typological thinking and instead used an entirely different concept, now called

1. Darwin thinking
2. Population thinking
3. Racism
4. Speciation

Ans.(b) Population thinking

46. The major reason for the lesser importance of laws in biological theory formation is perhaps the greater role played in biological systems by

1. Chance and randomness.
2. The uniqueness of a high percentage of phenomena in living systems
3. The historical nature of events
4. All the above

Ans.(d) All the above

47. Most theories in biology are based on

1. Laws
2. Concepts
3. Theories
4. Formulas

Ans.(b) Concepts

48. The zig zag motion of pollen in water was observed by

1. Julius Mayer
2. Robert hooke
3. Robert Brown
4. Einstein

Ans.(c) Robert Brown

49. The waves whipped sea water are warmer than calm waters was observed by

1. Robert hooke
2. Robert Brown
3. Einstein
4. Julius Mayer

Ans.(d) Julius Mayer

50. Brownian motion was successfully explained after 68 years of discovery by

1. Robert Brown
2. Einstein
3. Julius Mayer
4. Newton

Ans.(b) Einstein

51. Biological systems are richly endowed with capacities such as metabolism, replication

regulation, adaptedness, growth, and hierarchical organization Owing to their

1. Simplicity
2. Randomness
3. Complexity
4. Uniqueness
5. Ans.(c) Complexity

52. Biological processes are controlled by

1. Natural laws
2. Genetic programs
3. All of the above
4. None of the above

Ans.(c) All of the above

53. Evolutionary biology tries to find the answer to

1. “Why?” questions
2. “What?” questions
3. “When?” questions
4. “Which?” questions

Ans.(a) “Why?” questions

54. Chance with respect to functional and adaptive outcome is rampant in the production of

1. Aberration
2. Variation
3. Mutation
4. Selection

Ans.(b) Variation

55. Biology got its autonomy after rejection of

1. Physicalist laws of essentialism,
2. Determinism,
3. Reductionism and being explained by concepts
4. All of the above

Ans.(d) All of the above

56. Some facts about bacteria are listed. Tick the odd one

a. small size

b. simple design

c. low metabolic capabilities

d. flourish in almost any environment

Ans c

57. Prokaryotic and eukaryotic cells differ in many other ways. Tick the odd one

a. [lipid](https://www.britannica.com/science/lipid) [composition](https://www.merriam-webster.com/dictionary/composition)

b. structure of key metabolic [enzymes](https://www.britannica.com/science/enzyme)

c. responses to antibiotics and [toxins](https://www.britannica.com/science/toxin)

d. lack DNA

ans d

58. Bacteria have one circular \_\_\_\_\_\_\_ that contains all of their genetic information

* 1. DNA
  2. [chromosome](https://www.britannica.com/science/chromosome)
  3. Nucleus
  4. RNA

Ans b

59. For many bacterial species there are thousands of different strains (called serovars, for serological variants), which differ from one another mainly or solely in the

* 1. antigenic identity
  2. antibiotic identity
  3. antiviral identity
  4. antibacterial identity

Ans a

60. Different serovars of enteric bacteria—such as [*E. coli*](https://www.britannica.com/science/E-coli) and [*Salmonella enterica*](https://www.britannica.com/science/Salmonella-enteritidis), for example—are often found to be associated with the ability to inhabit different host animals or to cause different diseases. Formation of these numerous serovars reflects the ability of bacteria to respond effectively to the intense defensive actions of the

1. respiratory system
2. reproductive system
3. immune system
4. metabolic system

Ans c

61. Microbiologists often identify bacteria by the presence of specific molecules on their cell surfaces, which are detected with specific

* 1. antigens
  2. [antibodies](https://www.britannica.com/science/antibody)
  3. Enzymes
  4. Signals

Ans b

62. Antibodies have remarkable specificity, and the substitution of even one [amino acid](https://www.britannica.com/science/amino-acid) in a [protein](https://www.britannica.com/science/protein) might prevent that protein from being recognized by an

* 1. [antibody](https://www.britannica.com/science/antibody)
  2. Drug
  3. Enzyme
  4. Bacteria

Ans a

63. One of the most useful staining reactions for bacteria is called the

1. Blue stain
2. Red stain
3. Green stain
4. [Gram stain](https://www.britannica.com/science/Gram-stain)

Ans d