Instructions:

(1) Fill up strictly the details of the signs on your answer book.

(2) There are 50 questions. Each question carries one (1) mark and all are compulsory.

(3) Read the question carefully before selecting the correct option.
1. Freshly isolated cultures from mammalian systems are known as
   (A) Primary cultures
   (B) Seed cultures
   (C) Cell lines
   (D) Suspension cultures

2. An example of cultured mammalian cells is
   (A) Ova Cells
   (B) Callus Cells
   (C) Mast Cells
   (D) HeLa Cells

3. An example of products made by cultured mammalian cells include
   (A) Melanin
   (B) Rennin
   (C) Monoclonal antibodies
   (D) Gibberellins

4. Large-scale fermentation is able to produce commercially acceptable levels of high-value plant products like
   (A) Codeine
   (B) Saccharine
   (C) Casein
   (D) Xanthoproteins

5. In artificial growth conditions
   (A) Plant cells and microorganisms grow at equal rates
   (B) Plant cells cannot be grown while bacterial cells can be grown
   (C) Plant cells grow slowly in compare to microorganisms
   (D) Plant cells grow rapidly in compare to microorganisms

6. The main greenhouse gas accounting for 65% of global warming is
   (A) CFC
   (B) Ozone
   (C) Carbon Dioxide
   (D) Carbon Monoxide

7. Trans-esterification of plant oils with methanol yields
   (A) Biodiesel
   (B) Herbal Drugs
   (C) Hormones
   (D) Fertilizers

8. Papain is an enzyme obtained from
   (A) Fig plant
   (B) Bovine stomach
   (C) Escherichia bacteria
   (D) Papaya plant

9. Major industrial application of enzymes includes
   (A) In detergent and dairy industry
   (B) Neither detergent nor dairy industry
   (C) In detergent industry
   (D) In dairy industry

10. Approximately 90% of bulk enzyme production is derived from
    (A) Plant tissue culture
    (B) Chemical synthesis
    (C) Mammalian cells
    (D) Microorganisms
11 ‘Stone-wash’ look of jeans can be obtained using
(A) Rennin enzyme
(B) Cellulase enzyme
(C) Pyrolysis
(D) Amylase enzyme

12 An earlier classic example of wastewater treatment is
(A) Ground water bore wells
(B) Septic tanks
(C) Composting
(D) Landfilling

13 Large and coarse particles in wastewater are removed in
(A) Tertiary stage of treatment
(B) Quarternary stage of treatment
(C) Primary stage of treatment
(D) Secondary stage of treatment

14 One of the byproduct of wastewater treatment is
(A) Petrol
(B) Butane
(C) Nitrogen
(D) Methane

15 Which of the following is an example of fermentation products?
(A) Table sugar
(B) Turmeric
(C) Coal
(D) Cheeses

16 A good bioreactor should
(A) Exclude entrance of contaminating organisms
(B) Allow easy passage of microorganisms
(C) Work without any use of energy
(D) Only produce one specific product

17 Which of the following is a type of bioreactor?
(A) Autoclave
(B) Laminar Air Flow Cabinet
(C) CSTR
(D) Insipissator

18 The highest proportion of land-based biomass is produced as
(A) Human population
(B) Insects
(C) Agriculture products
(D) Forests

19 One of the major products of biomass includes
(A) Vaccines
(B) Fuels
(C) Vitamins
(D) Antibiotics

20 An example of starch-bearing agricultural product is
(A) Cassava
(B) Coconut husk
(C) Cane and beet juice
(D) Rice straws
21. Pure cellulose can be degraded by chemical or enzymatic hydrolysis to produce
   (A) Soluble sugars
   (B) Lignin
   (C) Glycogen
   (D) Starch

22. Whey is the byproduct coming from?
   (A) Wastewater treatment
   (B) Forest waste
   (C) Sugar industry
   (D) Dairy industry

23. Bagasse is a byproduct coming from
   (A) Forest Waste
   (B) Sewage
   (C) Agriculture waste
   (D) Dairy industry

24. Lignocelluloses are still not widely used as raw materials because they are
   (A) Chemically complex
   (B) Very hazardous
   (C) Rarely available
   (D) Expensive

25. At present the most widely used and commercial value raw materials include
   (A) Corn starch
   (B) Methane
   (C) Oils
   (D) Complex Hydrocarbons
26 Sugar content of molasses is approximately
   (A) 50%
   (B) 92%
   (C) 1%
   (D) 5%

27 A distributed database and network organization pertaining to biological information in India is known as
   (A) CDFD
   (B) BIBCOL
   (C) ARPANET
   (D) BTIS-NET

28 The Indian Vaccines Corporation Limited (IVCOL) is located at
   (A) Pune
   (B) Gurgaon
   (C) New Delhi
   (D) Calcutta

29 An autonomous institution of DBT that serves as a national repository for animal cell lines and hybridomas is
   (A) NABI
   (B) RCB
   (C) CDFD
   (D) NCCS

30 The Department of Biotechnology was established under
   (A) Ministry of Science and Technology
   (B) Ministry of Health and Family Welfare
   (C) Ministry of Environment and Forestry
   (D) Ministry of Agriculture
31 Which of the following is not the part of three central core components of biotechnology?
(A) best possible environment
(B) separation and purification of an essential product.
(C) best biological catalyst
(D) best possible chemical tools

32 Issue of poverty in developing countries can be directly addressed by
(A) Anti-cancer drugs
(B) Waste water treatment plants
(C) Vaccines
(D) Successful agriculture

33 Top biotechnologies to improve health in developing countries do not include
(A) Molecular diagnostics
(B) Enzyme technologies
(C) Recombinant therapeutic proteins
(D) Recombinant vaccines

34 Scientific literacy rate of USA is around
(A) 96%
(B) 0.05%
(C) 33%
(D) 7%

35 Most important factor determining the implementation of the new biotechnologies is
(A) Government policies
(B) Acceptance by consumers
(C) Finance
(D) Availability of experts

36 A critical determinant of the time and total costs in bringing a product to market is
(A) Financial Gains
(B) Corporate rules
(C) Government Regulations
(D) Research and Development

37 The greatest area of possible biosafety concern in biotechnology is due to
(A) Use of diverse chemical tools
(B) Use of bioinformatics tools
(C) Use of diverse plant resources
(D) Use of recombinant DNA technologies
38 Biotechnology segment with MOST research and development funding in the USA is
   (A) Healthcare
   (B) Energy
   (C) Food
   (D) Plant agriculture

39 European Union (EU) has used term ‘green biotechnology” for
   (A) Food related technologies
   (B) Communication related technologies
   (C) Agriculture related technologies
   (D) Pharmaceutical related technologies

40 In the last 2 decades well ever ______ Nobel prizes have been awarded for the discoveries in modern biology.
   (A) 65
   (B) 20
   (C) 5
   (D) 12

41 The term F.D.A. can be expanded as
   (A) Film and Documentary Awards
   (B) Food and Drug Administration
   (C) Fashion and Design Association
   (D) Farmers Devoted to Agriculture

42 Biotechnology-based industries are usually
   (A) Based on research and development (R&D)
   (B) Don’t create any new employment
   (C) Labour intensive
   (D) Causing great environmental damage

43 Example of primary fixers of photosynthetic energy include
   (A) Plants and some microorganisms
   (B) All microorganisms
   (C) All animals
   (D) Plants

44 A bioprocess engineer will usually control which parameter for good process?
   (A) Gravitational Force
   (B) Centrifugal Force
   (C) Magnetic field
   (D) Temperature and pH
45  Regulatory agencies related to biotechnology like FDA usually act as
(A) Innovators
(B) Motivators
(C) Gate-Keepers
(D) Trouble-makers

46  Public attitudes to biotechnology are most often related to
(A) Large employment opportunities
(B) Good financial prospects
(C) Technological advancements
(D) Imaginary dangers

47  Genetic recombination, usually consists of
(A) Melting of DNA
(B) DNA modification using radiation
(C) Breaking and joining of DNA
(D) Chemical modification of DNA

48  Earliest and most widely used hosts of recombinant DNA technology are
(A) Plant suspension cells
(B) Bacterial cells
(C) Mammalian cells
(D) Yeast cells

49  A classic example of product made by genetic engineering is
(A) Amylase
(B) Steroids
(C) Ginseng
(D) Insulin

50  Cutting of DNA molecules during genetic engineering is usually achieved by
(A) Pyrolysis
(B) Strong acids
(C) Restriction endonucleases
(D) Ultra violet radiation