# SYBT

# ATKT

# Examination

# Sem IV

# October 2024

SYBT ATKT
03/10/24

D.B.J. College Chiplun
Sem IV ATKT Examination October 2024
Class: S.Y.B.Sc. (Biotechnology) Subject: Medical Biotechnology
Date: 03-10-24 Time: 2.00 Pm to 4.30 pm Paper no: I

Marks-75

**Note:** Attempt **all** questions.
**All questions** carry **equal** marks.
For **Q.2.Q.3 and Q.4** attempt A and B **OR** C and D
Draw **neat labeled diagrams** wherever necessary.

**Q.1 A) Answer the following. (Any fifteen)** (15)

1. Write the name of spikes present on influenza virus.
2. Koplik's spots observed in ----------.
3. Write two symptoms of dengue in febrile phase.
4. Write the symptoms of prodrome stage in rabies.
5. ----------syndrome observed in corona infection.
6. *Histoplasma capsulatum* cause the histoplamosis disease.(State true or false)
7. Write the mode of transmission of candidiasis.
8. Gentamicin is bactericidal for ----------bacteria.
9. Define therapeutic index.
10. Trimethoprim is synthetic antibiotic.(State true or false)
11. Erythromycin is obtained from ----------.
12. Write two examples of third generation cephalosporin.
13. Pseudomonas species is resistant for which antibiotic.
14. Draw the structure of nalidixic acid.
15. The gancyclovir used in treatment of----------.
16. Echinocandins are antifungal drug.(State true or false)
17. Write two uses of nevirapine.
18. The ----------acts in the post-translational cleavage of the gag and gag-pol polyproteins into the structural proteins and enzymes critical for viral replication.
19. Write two examples of drug resistance bacteria.
20. Give an function of polyenes.

| | | | |
|---|---|---|---|
| Q.2 | A) | Explain the epidemiology of influenza. | (08) |
| Q.2 | B) | Describe pathogenesis of corona virus. | (07) |
| | | **OR** | |
| Q.2 | C) | Describe the lab diagnosis of rabies disease. | (08) |
| Q.2 | D) | Give an account on pathogenesis and lab diagnosis of histoplasmosis. | (07) |
| Q.3 | A) | Describe the discovery and design of antimicrobial agents. | (08) |
| Q.3 | B) | Explain mechanism of penicillin against pathogen. | (07) |
| | | **OR** | |
| Q.3 | C) | Describe mode of action of β-lactum antibiotics. | (08) |
| Q.3 | D) | Give an account on mechanism of aminoglycosides against pathogen. | (07) |
| Q.4 | A) | Give an account on mode of action of fusion inhibitors and non-nucleoside reverse transcriptase inhibitors. | (08) |
| Q.4 | B) | Explain use and misuse of antimicrobial agents. | (07) |
| | | **OR** | |
| Q.4 | C) | Describe the antiviral action of azidothymidine. | (08) |
| Q.4 | D) | Give an account on antifungal agent Azole and echinocandins. | (07) |
| Q.5 | | **Write short notes on any three of the following.** | (15) |

a. Prophylaxis of measles

b. Athlete's foot

c. Refampcine

d. Metroniadazole

e. Nucleotide reverse transcriptase inhibitor

S4BT ATKT
5/10/24

D.B.J College, Chiplun
Semester - IV ATKT Examination Oct-2024
Class :- S.Y. B.Sc (Biotechnology) Subject :- Applied chemistry-
Date :- 05-10-24 Time :- 2.00pm to 4.30pm Paper no :- III

**Time – 2 1/2 hours** **Marks–75**

**Note:** Attempt **all** questions.
**All questions** carry **equal** marks.
For **Q.2,Q.3 and Q.4** attempt A and B **OR** C and D

**Q.1** **Answer the following questions. (Any fifteen)** (15)

1. Define synthon equivalent.
2. What is starting material for synthesis of Proparacaine molecule?
3. What is disconnection?
4. Give an example of microwave assisted synthesis.
5. Define chemoselectivity.
6. Give advantages of reaction induced by ultrasound synthesis.
7. Write criteria for ideal synthesis.
8. Define green synthesis.
9. Give an example of green raw material used in green chemistry.
10. What is green reagent?
11. What is the need of green chemistry?
12. What are steroids?
13. Draw the structure of α-pinene.
14. Give an example of phenolic compound.
15. Define nanoparticals.
16. Mention electrical property of nanostructure.
17. Enlist types of nanostructures according to their dimensions.
18. Give an example of one-dimensional nanostructure.
19. What is use of nanowire?
20. Mention types of physical nanosensors.

**Q.2 A)** Explain regioselectivity with example. (08)

**Q.2 B)** Discuss in brief linear and convergent synthesis with help of examples. (07)

**OR**

**Q.2 C)** Discuss retrosynthetic analysis of any one compound. (08)

**Q.2 D)** 'In a multicomponent organic synthesis, more than two components are involved'. Justify with an example. (07)

**Q.3 A)** Explain principles of green chemistry in detail. (08)

**Q.3 B)** How alkaloids are classified on the basis of their structure and source? (07)

OR

**Q.3 C)** Discuss the role of green solvent and catalyst in industry with the help of examples. (08)

**Q.3 D)** Explain the use of ozonolysis reaction in structure determination of terpenoids. (07)

**Q.4 A)** Describe any two biological methods for synthesis of the nanomaterials. (08)

**Q.4 B)** Discuss in brief applications of nanotechnology. (07)

**OR**

Q.4 C) Explain characterization of nanomaterial using UV-visible spectroscopy. (08)

Q.4 D) Explainin detail the sol-gel method used in synthesis of nanoparticles. (07)

Q.5 **Write short notes on any three of the following.** (15)

a. FGI in retrosynthesis
b. Friedal-Craft acylation
c. E-factor
d. Essential oils
e. Nanotube

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D. B. J. college, Chiplun.

Semester-IV ATKT Examination Oct-2024

Class:- S.Y.B.Sc. Sub:- Bioinformatics & Biostatistics Paper: VI

Date:-09/10/2024 Time:- 2:00 PM to 4:30 PM

Time – 2 1/2 hours Marks–75

**Note:** Attempt **all** questions.

**All questions** carry **equal** marks.

Under **Q.2.Q.3 and Q.4** attempt A and B **OR** C and D

**Q.1 A) Answer the following (any fifteen).** (15)

1. What is a computer?
2. RAM stands for_____.
3. Name any two composite databases.
4. OWL is a non-redundant protein sequence database. (State true or false)
5. What is TrEMBL?
6. Name any two protein visualization software.
7. Define- architecture.
8. ClustalW is used to perform multiple sequence alignment. (State true or false)
9. Define- homologous sequence.
10. The most basic matrix sequence alignment method is _____.
11. Give the demerits of dynamic programming methods.
12. What is pairwise alignment?
13. Give the examples of nucleotide BLAST programmes.
14. What is Cdart?
15. The value of correlation lies between _____ and _____.
16. Chi- square denoted by_____.
17. What is the null hypothesis ratio for monohybrid test cross?
18. Give the formula for calculating S.E.
19. Give any two conditions of applying Chi- square test.
20. Define- null hypothesis.

**Q.2 A)** Explain in detail the I/O units of a computer. (08)

**Q.2 B)** Give an account on pattern databases. (07)

**OR**

**Q.2 C)** Explain in detail primary databases with examples. (08)

**Q.2 D)** Discuss in brief scope of bioinformatics. (07)

**Q.3 A)** Elaborate on BLAST. (08)

**Q.3 B)** Discuss in detail the procedure for carrying out MSA. (07)

**OR**

**Q.3 C)** Elaborate on pairwise sequence alignment. (08)

**Q.3 D)** Discuss in detail the need of phylogenetic analysis. (07)

**Q.4 A)** What is correlation? Describe in detail the types of correlation. (08)

**Q.4 B)** The following table gives the classification of 100 workers according to sexand the nature of work. Justify whether the nature of work is independent of the sex of the worker.(Critical value= 3.84) (07)

| | Skilled | Unskilled |
|---|---|---|
| Male | 40 | 20 |
| Female | 10 | 30 |

**OR**

**Q.4 C)** What is regression? Discuss the types of regression. **(08)**

**Q.4 D)** Compute bxy, byx and r for the following data: **(07)**
x,y : (5, 2), (7, 4), (8, 3), (4, 2), (6, 4).

**Q.5** **Write short notes on any three of the following.** **(15)**

**a.** CATH
**b.** Characteristics of computer
**c.** FASTA
**d.** Kendall's rank correlation
**e.** Types of Chi- square

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D. B. J. College, Chiplun.
Semester:- III ATKT Examination Oct 2024
Class:- S.Y.B.Sc. Sub: Research Methodology Paper - VII
Date:- 10/10/2024 Time: 2:00 PM to 4:30 PM

SYBT
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Time - 2 1/2 hours

**Note**: Attempt **all** questions. Marks 75

**All questions** carry **equal** marks

For **Q.2.Q.3 and Q.4** attempt A and B **OR** C and D

Draw **neat labeled diagrams** wherever necessary

Q.1 A) **Answer the following. (Any fifteen)** (15)

1. Give significance of stratified sampling.
2. Write the two importance of execution of the project in research process.
3. Descriptive research includes surveys and fact -finding enquiries of different kinds. State (true or false)
4. What is the purpose of doing research?
5. Good research is empirical. State (true or false)
6. Write the importance of Scientific method.
7. Enlist the parts included in the main text of the report.
8. Write two merits of telephone interview.
9. What is dependent variable?
10. Give two demerits of collection of data through questionnaires.
11. The effect of extraneous variable should be minimized in research. State(true or false)
12. Write the importance of hypothesis testing research studies.
13. What is the pantry audits?
14. Define consumer panels.
15. Quotations should be placed in quotation marks and----------spaced, forming an immediate part of the text.
16. Define- interpretation.
17. The usefulness and utility of research findings lie on proper interpretation. State true or false.
18. Define- chronological development
19. Give the size of the page used for writing a report.
20. anon., is the abbreviation for----------.

| | | | |
|---|---|---|---|
| **Q.2** | **A)** | Describe the different steps involved in research process. | **(08)** |
| **Q.2** | **B)** | Explain the research approaches in detail. | **(07)** |
| | | **OR** | |
| **Q.2** | **C)** | Describe the problems encountered by researchers in India. | **(08)** |
| **Q.2** | **D)** | Explain the importance of research methodology in research. | (07) |
| **Q.3** | **A)** | Distinguish between primary and secondary data. | (08) |
| Q.3 | **B)** | Explain in detail observation method of research design. | (07) |
| | | **OR** | |
| **Q.3** | **C)** | Elaborate on Telephone interview method. | (08) |
| **Q.3** | **D)** | Describe the basic principles of experimental designs. | (07) |
| **Q.4** | **A)** | Describe the precautions that the researcher should take while interpreting his findings. | (08) |
| **Q.4** | **B)** | Elaborate on technical reports in research. | (07) |
| | | **OR** | |
| **Q.4** | **C)** | Describe in brief the layout of a research report. | (08) |
| **Q.4** | **D)** | Explain the technique and importance of oral presentation of research findings. | (07) |
| **Q.5** | | **Write short notes on any three of the following.** | (15) |

**a.** Motivation in research

**b.** Conceptual vs Empirical research

**c.** Use of mechanical devices in data collection

**d.** Extraneous variables

**e.** Mechanics of writing a research report