

UNIT IV

15. Give an account of complex tissues.

సంక్లిష్ట కణజాలములను గురించి ప్రాయము.

Or

16. Give an account of organization of Shoot apical meristems.

కాండాగ్రమును వివరించే వివిధ సిద్ధాంతములను గురించి ప్రాయము.

UNIT V

17. Describe the anomalous secondary growth in Boerhaavia stem.

బోయెర్ హైవియా కాండంలో జరిగే అసంగత ద్వీతీయ వృద్ధిని వివరించండి.

Or

18. Explain the structure of Angiospermic wood.

అవృత బీజ కలప నిర్మాణాన్ని వర్ణించండి.

(2003BOT15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Botany

DIVERSITY OF ARCHAEGONIATAE AND
PLANT ANATOMY

(Regulation 2015–2016)

Time : Three hours

Maximum : 75 marks

PART A — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

1. Gemma cup.

జెమ్మూ కప్పు.

2. Male shoot of Funaria.

ప్ర్యానేరియాలో పురుష ప్రకాండము.

3. Plecto stele.

పెళ్లిల ప్రసరణ ఫంభము.

UNIT II

4. Pinus Male cone.
పైన్స్ పురుష శంకువు.
5. Gnetum Ovule.
సీటమ్ అండము.
6. Xylem.
దారువు.
7. Properties of wood.
కలప ధర్మాలు.
8. Redsanders.
ఎప్ర చందనం.

PART B — (5 × 10 = 50 marks)

Answer the following questions.

UNIT I

9. Explain life cycle of Marchantia,
మార్చాంటియా జీవితచరిత్రను వివరించండి.

Or

10. Describe and discuss the structure of Funaria
Capsule.
ఫునేరియా గుళిక నిర్మాణమును వర్ణించి వివరించండి.

(2003BOT15)

11. Describe the internal structure of Lycopodium.
ల్యోపోడియం అంతర్గొఱమును వర్ణించండి.

Or

12. Stelar evolution in Pteridophyte.
టెరిడోఫ్టోలో ప్రసరణ ఫంభ వరిణామము.

UNIT III

13. Describe the anatomy of Pinus Needle.
పైన్స్ సూది పత్రము అంతర్గొఱమును వివరించండి.

Or

14. Describe the anomalous secondary growth in
Gnetum stem.
సీటమ్ కాండములో అసంగత ద్వ్యాతీయ వృద్ధిని వివరించండి.

(2003BIT17)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Biotechnology

MACROMOLECULES, ENZYMOLOGY AND
METABOLISM

(Regulation 2017–2018)

Time : Three hours

Maximum : 75 marks

SECTION A — ($5 \times 5 = 25$ marks)

Answer any FIVE of the following.

Draw neat labeled diagrams wherever necessary.

1. Sucrose
2. Hyaluronic acid
3. Peptide bond
4. Iodine value
5. Cytochrome
6. Co-enzyme

7. Allosteric Site
8. Enthalpy.

SECTION B — (5 × 10 = 50 marks)

Answer FIVE of the following:

Draw neat labeled diagrams wherever necessary.

9. (a) Write importance, classification and properties of carbohydrates.

Or

- (b) Give an account on homopolysaccharides.

10. (a) Give an account on classification of amino acids.

Or

- (b) Describe the structure of proteins.

11. (a) Discuss in detail about phospholipids.

Or

- (b) Discuss in detail the structure of DNA.

12. (a) Describe the IUB classification of enzymes.

Or

- (b) Explain the different types of enzyme inhibition.

13. (a) Explain various steps involved in citric acid cycle and add a note on ATP synthesis.

Or

- (b) Explain about the mitochondrial electron transport system.

(2003BIT15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Biotechnology

MACROMOLECULES, ENZYMOLOGY AND
BIOENERGETICS

(Regulation 2015–2016)

Time : Three hours

Maximum : 75 marks

SECTION A — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

1. Chargaff's rule.
2. z-DNA.
3. Zwitter ion.
4. Structure of sucrose.
5. Saponification value.
6. Allosteric enzyme.

7. Phosphoenol pyruvats.

8. Substrate level phosphorylation.

SECTION B — (5 × 10 = 50 marks)

Answer the following questions.

9. (a) Describe the structure of DNA.

Or

(b) Name different types of RNA and discuss the structure of t-RNA.

10. (a) Describe the classification of amino acids.

Or

(b) Discuss the organization of protein structure.

11. (a) Describe the structure and functions of two important homopolysaccharides.

Or

(b) Write an account on structure and functions of phospholipids.

12. (a) Describe the mechanism of enzyme action.

Or

(b) Write an account on enzyme inhibition.

13. (a) Write short notes on

- (i) Free energy
- (ii) Enthalpy.

Or

(b) Explain various steps involved in citric acid cycle.

(2*03CSC15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Computer Science / Multimedia

PROGRAMMING IN C

(Regulation 2015–2016)

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Explain about the flow chart.
2. What is a variable? How the variables are declared, explain with an example.
3. Explain continue statement with an example.
4. What is an array? How two dimensional arrays are declared and initialized.
5. List any FIVE Character functions.
6. Differentiate structure and union.

7. Explain remove() and rename() functions.
8. How could you detect end-of-file, explain.

PART B — (5 × 10 = 50 marks)

Answer ALL questions.

UNIT I

9. Explain various data types available in C.

Or

10. Explain console I/O functions in C.

UNIT II

11. Explain decision control statements with suitable examples.

Or

12. What is a function? How the functions are declared and called, explain with an example.

UNIT III

13. Explain the sparse matrix with an example.

Or

14. Write a program to read any of names and to sort them in alphabetical order.

UNIT IV

15. How could you pass array to function explain with an example.

Or

16. Explain Dynamic Memory Allocation in C.

UNIT V

17. Explain about the files in C and their types.

Or

18. Explain the functions used to write data into file and read data from file.

(2003BIC15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Bio chemistry

**NUCLEIC ACIDS AND BIOCHEMICAL
TECHNIQUES**

(Regulation 2015–2016)

Time : Three hours

Maximum : 75 marks

PART A — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

1. tRNA.
2. Types of DNA.
3. Structure of porphyrin.
4. Homogenization.
5. Gel filtration.
6. Absorption spectra.
7. Fluorimetry.
8. Use of Inhibitors and antimetabolites.

PART B — (5 × 10 = 50 marks)

Answer the following questions.

UNIT I

9. Describe the structure of DNA with a neat labelled diagrams.

Or

10. Describe the following:
(a) Structure of Nitrogen bases
(b) Denaturation of Nucleic Acids and T_m .

UNIT II

11. Explain the structure of Heme in Hemoglobin.

Or

12. Describe the structure of chlorophylls.

UNIT III

13. Give an account of principles and applications of centrifugation techniques.

Or

14. Describe the principle and applications of paper chromatography.

UNIT IV

15. Explain principle method and applications of colorimetry.

Or

16. Give an account on applications of radioisotopes in biology.

UNIT V

17. Explain any two methods used to investigate intermediary metabolism.

Or

18. Give an account of Homogenates and purified enzyme systems.

(2003MIC15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Microbiology

MICROBIAL BIOCHEMISTRY AND METABOLISM

(Regulation 2015–2016)

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. General characters of proteins
2. tRNA
3. Applications of colorimeter
4. Coenzymes and cofactors
5. Chemostat
6. Biphasic growth
7. Light reactions in Green sulfur bacteria
8. ED pathway.

PART B — (5 × 10 = 50 marks)

Answer ALL questions.

UNIT I

9. Write about classification of carbohydrates.

Or

10. Write an essay on fatty acids and their significance.

UNIT II

11. Describe thin layer chromatography.

Or

12. Write about UV spectrophotometer.

UNIT III

13. Write about the properties and classification of enzymes.

Or

14. Explain about inhibition of enzyme activity.

UNIT IV

15. Give a detailed account of growth media.

Or

16. Explain about different phases of growth of microbial growth in batch culture.

UNIT V

17. Write about electron transport in bacteria.

Or

18. Define fermentation. Add a note on Alcohol fermentation.
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(2003ELE15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Electronics

ELECTRONIC DEVICES AND CIRCUITS

(Regulation 2015–2016)

Time : Three hours

Maximum : 75 marks

PART A — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

1. Explain forward bias and reverse bias of zener diode.
2. Explain the V-I characteristics of tunnel diode.
3. Explain the concept of amplification.
4. Define α and β parameters of a transistor.
Derive the relation.
5. Explain the parameters of FET.
6. Describe the working of LCD.

7. What are three terminal fixed voltage IC regulators? Explain.
8. Draw the circuit of bridge rectifier? Explain working.

PART B — (5 × 10 = 50 marks)

Answer the following questions.

UNIT I

9. Describe the construction and working of P-N junction diode. Draw the V-I characteristics and explain.

Or

10. Explain zener and avalanche break down. Explain the regulated power supply zener diode.

UNIT II

11. Draw the input and output characteristics of a BJT in CE configuration.

Or

12. Explain transistor as a switch? Explain PNP and NPN transistor.

UNIT III

13. Describe the construction and working of UJT and explain its characteristics.

Or

14. Explain the construction, working of enhancement MOSFET. Explain drain and transfer characteristics.

UNIT IV

15. Describe the construction and working of photo voltaic cell.

Or

16. Explain the construction and operation with spectral response of LDR.

UNIT V

17. Explain the block diagram of SMPS. Explain the construction and principle.

Or

18. Draw the circuit of Half wave rectifier and derive expression for efficiency and ripple factor.

(2003CMT15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Computer Maintenance

ELECTRONIC DEVICES AND LINEAR INTEGRATED
CIRCUITS

(Regulation 2015–2016)

Time : Three hours

Maximum : 75 marks

SECTION A — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

1. Draw the V-I characteristics of zener diode.
Explain briefly.
2. Explain PNP and NPN transistors.
3. What are ideal characteristics of op-amp?
4. What is feed back? Explain positive and negative
feed backs?
5. Define phase modulator and pulse modulator.

6. Draw the circuit diagram of crystal oscillator.
Explain briefly.
7. Explain briefly about SMPS.
8. Draw the block diagram of transformer.

SECTION B – (5 × 10 = 50 marks)

Answer the following questions.

UNIT I

9. Draw the V-I characteristics of tunnel diode.
Explain the construction and working of tunnel diode.

Or

10. Explain the constriction and working of PN junction diode. Draw the V-I characteristics.

UNIT II

11. Explain with circuit diagram the input and output characteristics of common emitter configuration of transistor.

Or

12. Explain the construction and working of JFET.
Draw the drain and transfer characteristics of FET.

UNIT III

13. Draw the circuit diagram of RC coupled amplifier and explain its working and construction.

Or

14. Explain the working of op-amp as.
(a) Comparator (b) Linear generator

UNIT IV

15. What is frequency modulation? Explain the working of FM modulation with circuit diagram

Or

16. Draw and explain the working of crystal oscillator.

UNIT V

17. Draw the block diagram of regulated power supply. Explain each block in detail.

Or

18. Draw the circuit diagram of full-wave rectifier and explain its working. Obtain expression for its efficiency and ripple factor.
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UNIT V

17. Discuss the lactic acid isomerism.

లాక్టిక్ యాసిడ్ ఐసోమెరిజంను విశదీకరించండి.

Or

18. Discuss the d-tartaric acid, l-tartaric acid and dl-tartaric acid isomerism.

d-, l-, dl-టార్టారిక్ యాసిడ్ సాదృశ్యంలను విశదీకరించండి.

(2003CHE15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Chemistry

PHYSICAL AND GENERAL CHEMISTRY

(Regulation 2015-16)

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Discuss the law of constancy of Interfacial angles.

ఇంటర్ఫెసియల్ కన్స్టాన్షిస్ట్రీషన్ సూత్రంను విశదీకరించండి.

2. Explain about Henry's law.

హెన్రీ నియమాన్ని వివరించండి.

3. Write about string model at liquid.

ఫ్రైంగ్ మొడల్ ద్రావణం గురించి రాయండి.

4. Explain limitations of Raoult's law.

రౌట్ లా యొక్క అవధులను వివరించండి.

5. Describe the physical adsorption.

ఫిజికల్ అడిషన్ ప్రణాంను విశదికరించండి.

6. Write about order of filling up of molecular orbitals.

అఱు ఆర్బిటల్స్ నిండు క్రమమును రాయండి.

7. Write a short note on Fisher projection formulae with examples.

ఫిషర్ ప్రోజెక్షన్ ను ఉదాహరణలతో రాయండి.

8. Define enantiomers with examples.

ఎనాస్టియోమర్సిని ఉదాహరణలతో వివరించండి.

SECTION B — (5 × 10 = 50 marks)

Answer the following questions.

UNIT I

9. Discuss stoichiometric defects in solids with examples.

స్టోకియోమెట్రిక్ లోపాలను ఘనపద్ధాలలో ఉదాహరణలతో వివరించండి.

Or

10. Explain plane of symmetry in crystals and rotational axis at symmetry in crystals.

స్మిలికములలో దర్శన సాప్తవంను ఘరియు రోటేషన్ అక్షిస్ సాప్తవంను వివరించండి.

UNIT II

11. How do you determine the critical volume (V_c)?

సందగ్ధ ఫైతి (V_c)ని ఎలా నిర్ధారిస్తారు? తెల్పండి.

Or

12. What are the limitations of Van-der-Wall's equation?

వాండర్ వాల్స్ సమికరణం యొక్క అవధులను తెల్పండి.

UNIT III

13. Explain Fractional distillation of Zeotropic Mixtures.

జియోటోపిక్ మిక్సమంలను ప్రాక్షన్ ల డిఫ్యూలెషన్ ను వివరించండి.

Or

14. Discuss the applications of Nernst Distribution law.

నెర్స్ట్ డిఫ్యూబ్యూషన్ లా ఉపయోగములను విశదికరించండి.

UNIT IV

15. Write about differences between Elastic Gels and Non-Elastic Gels.

సాగే జెల్ ఘరియు సాగని జెల్ల ఘర్య తేడాలను తెల్పండి.

Or

16. Give a detail explanation on conditions for Hybridisation.

ప్రోబ్రిడ్జెషన్ జరుగుటకు ముందు ఫీతులను రాయండి.

UNIT V

17. Write an essay on dentation in mammals.

క్షీరదాలలో దంత విన్యాసము గురించి వివరించండి.

Or

18. Describe the general characters of prototheria and metatheria.

ప్రోటోఫీరియా మరియు మెటాఫీరియా సాధారణ లక్షణాలను వ్రాయండి.

(2003ZOO15)

B.Sc. DEGREE (CBCS) EXAMINATION,
MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Zoology

ANIMAL DIVERSITY – CHORDATES

(Regulation 2015-16)

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Urochordata.

యూరోచార్డోటా.

2. Petromyzon structure.

పెట్రోమిజాన్ నిర్మాణము.

3. Ascidian tadpole.

ఆసిడియా టాడ్పోల్ డింభకం.

4. Chondrichthyes.

చండ్రిక్థైస్.

5. Urodela general characters.

యూరోడిలా సాధారణ లక్షణాలు.

6. Internal structure of calotes Heart diagram.

కెలోటీస్ గుండె అంతర్ల్యుణము - బొమ్మె (పటము గియుము)

7. Quill feathers.

క్విల్ ఫేకలు.

8. Archaeopteryx.

అర్కియోఫ్టరిక్స్.

PART B — (5 × 10 = 50 marks)

Answer the following questions.

Draw diagrams wherever necessary.

UNIT I

9. Write an essay on affinities of cephalochordata.

సఫరోకార్డీటా సంబంధ బాంధవ్యాలు.

Or

10. Write an essay on retrogressive metamorphosis.

తిరోగావి రూపవిక్రియ గురించి ఒక వ్యాసం వ్రాయండి.

UNIT II

11. Write an essay on migration of fishes.

చేపలలో పలస పోవుట గురించి ఒక వ్యాసం వ్రాయండి.

Or

12. Write an essay on internal structure of scoliodon heart.

స్కూలియోడాన్ గుండె అంతర్ల్యుణము గురించి వ్రాయండి.

UNIT III

13. Write an essay on general characters of Amphibians.

ఉథయవరాల సాధారణ లక్షణాలను వివరించండి.

Or

14. Write an essay on digestive system of Calotes.

కెలోటీస్ జీర్ణవ్యవస్థను గురించి వివరించుము.

UNIT IV

15. Explain in detail about the migration of birds.

వడ్డలలో పలస గురించి వివరించండి.

Or

16. Explain the general characters of Aves.

వడ్డల సాధారణ లక్షణాలు గురించి వివరించండి.

(2003PHY15)

B.Sc. DEGREE (CBCS) EXAMINATION, MARCH/APRIL 2019.

(Examination at the end of Second Semester)

Part II — Physics

WAVES AND OSCILLATIONS

(Regulation 2015-16)

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Explain briefly about Lissajous figures.

లిస్జూజా చిత్రములను గురించి లఘుటీక వ్రాయుము.

2. Explain amplitude resonance.

కంపన పరిమితి అను నాదమును వివరించుము.

3. State and explain Fourier theorem.

ఫూరియే సిద్ధాంతమును తెలిపి వివరింపుము.

4. Write a short note on Tuning fork.

శృతి దండముపై లఘుటీక వ్రాయుము.

5. Write the properties of ultrasonics.

అతిధ్వనుల ధర్మాలను వ్రాయుము.

6. In a rod of material density 8 gm/cm^3 and Young's modulus $7.2 \times 10^{11} \text{ dyne/cm}^2$, longitudinal

SECTION B.— ($5 \times 10 = 50$ marks)

Answer the following questions.

UNIT I

9. Obtain the differential equation for the motion of a simple oscillator. Find the solution for it.

సరళ డోలకం చలనానికి అవకలన సమీకరణాన్ని ఉత్పాదించుము. దానికి పరిష్కారము కనుగొనుము.

Or

10. How do you determine acceleration due to gravity using compound pendulum with necessary theory?

తగు సిద్ధాంతముతో మిశ్రమ లోలకంను ఉపయోగించి గురుత్వ త్వరణంను ఎట్లు కనుగొందువో వివరింపుము.

UNIT II

11. Derive an equation of motion of a damped harmonic oscillator and find its solution. Write the conditions for over damping, under damping and critical damping.

అవరుద్ధ హరాత్మక డోలకం యొక్క చలన సమీకరణమును రాబట్టుము. దానికి పరిష్కారం కనుగొనుము. అధిక అవరోధితము, అల్ప అవరోధితము మరియు సందిగ్గ అవరోధితములకు నిబంధనలను వ్రాయుము.

Or

12. Set up the equation of motion for a forced vibration. Deduce the solution for the above equation.

UNIT IV

15. Derive an expression for the energy transport in strings.

శీగలలో శక్తి ప్రసారమునకు సమీకరణం రాబట్టుము.

Or

16. Deduce the solution of a longitudinal wave equation in the case of a bar fixed rigidly at both ends.

రెండు చివరల వద్ద బిగించిన కడ్డిలో ఏర్పడే అనుధైర్య తరంగ సమీకరణమునకు పరిష్కారము రాబట్టుము.

UNIT V

17. Describe the magnetostriction method to produce ultrasonics.

అతిధ్వనుల ఉత్పత్తికి అయస్కాంత విరూపణ వద్దతిని వివరింపుము.

Or

18. Describe the piezo electric method to produce ultrasonics.

అతిధ్వనుల ఉత్పత్తిని పీడన విద్యుత్ ఫలితము వద్దతిని వివరింపుము.

