

2325 – E73 – VSS – N – 16



FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016
BOTANY

Paper – I : Morphology of Angiosperms and Taxonomy

Time: 3 Hours]

[Max. Marks : 80

Instruction : Draw neat labelled diagram wherever necessary.

I. Answer any ten of the following in 2-3 sentences each.

- 1) Fasciculated root
- 2) Adnate stipule
- 3) Pollinia
- 4) Tetradynamous stamen
- 5) Monoadelphous stamens
- 6) Etaerio of follicles
- 7) Ray florets
- 8) Cremocarp
- 9) Bracteole
- 10) Actinomorphic flower
- 11) Genera of plantarum
- 12) Species.

(10×2 =20)

II. Answer any six of the following.

- 13) What is phyllotaxy ? Explain types.
- 14) Explain different types of palmate compound leaves with examples.
- 15) Write the distinguishing characters of
 - a) Rutaceae
 - b) Lamiaceae
- 16) Write short notes on fruits of Annonaceae and Apocynaceae. ✓

[P.T.O.]

2326 – E73 – VSS – N – 16



FIFTH SEMESTER B.SC. DEGREE EXAMINATION,
NOVEMBER 2016

BOTANY

Paper – II : Ecology and Environment

Time : 3 Hours]

[Max. Marks : 80

Instruction : Draw neat labelled diagrams wherever necessary.

I. Answer **any ten** of the following in 2-3 sentences **each** : (10x2=20)

- 1) Salt glands.
- 2) Heliophytes.
- 3) Sunken stomata.
- 4) Ecotype.
- 5) Biological spectrum.
- 6) Food chain.
- 7) Abiotic components.
- 8) Shola vegetation.
- 9) In-situ conservation.
- 10) Acid rain.
- 11) Phytochemical smog.
- 12) Spices.

[P.T.O.]

2323 – E72 – VSS – N – 16



FIFTH SEMESTER B.SC. DEGREE EXAMINATION,
NOVEMBER 2016

CHEMISTRY (New Syllabus) (Paper – I)

Time : 3 Hours]

[Max. Marks : 80

Instructions : All questions are compulsory. Answer all the questions in the **same** answer book. Draw neat diagrams and give equations wherever necessary.

I. Answer any ten of the following :

- 1) Why only cis isomer exhibits optical isomerism ?
- 2) What are organometallic compounds ?
- 3) Mention the types of metal Carbonyl Clusters.
- 4) Why carbon monoxide is known as π acceptor ?
- 5) What are heterocyclic compounds ? Give two examples.
- 6) What are alkaloids ? Give an example.
- 7) What are cycloaddition reactions ? Give an example.
- 8) Construct molecular diagram for 1, 3 – butadiene.
- 9) What is relaxation effect ?
- 10) Write Debye-Huckel-Onsagar equation and explain the terms.
- 11) Define conductometric titrations.
- 12) Write two postulates of collision theory. (10×2=20)

✓
[P.T.O.

2334 – E90 – VSS – N – 16



FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016
COMPUTER SCIENCE (Optional)
Paper – II : Visual Programming (New Syllabus)

Time : 3 Hours]

[Max. Marks : 80

Instruction : Answer any five full questions.

1. a) Explain in brief Toolbox Controls of VB with neat diagram.
b) Write the various applications of VB. (12+4=16)
2. a) What is an event ? Explain any four events of form and Command Button.
b) Explain common and unique properties of Textbox, Label, Command Button and Combobox. (8+8=16)
3. a) What is Dialog Box ? Explain predefined dialog boxes available in VB with syntax and example.
b) Explain various datatypes in VB with example. (8+8=16)
4. a) What is variable ? What are different ways of defining variable in VB with example.
b) Explain any four Mathematical and String functions in VB. (8+8=16)
5. a) What is branching ? Explain different forms of IF Statements with syntax and example.
b) What is an array ? Explain static and dynamic arrays in VB with syntax and example. (8+8=16)

[P.T.O.]

2316 – E64 – VSS – N – 16

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FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016

MATHEMATICS

Paper – I : Real Analysis

Time : 3 Hours]

[Max. Marks : 80

Instruction : Answer all questions.

I. Answer any five of the following :

1) Define R-integrable of $f(x)$ in $[a, b]$.

2) With usual notations, prove that $m(b-a) \leq L(P, f) \leq U(P, f) \leq M(b-a)$.

3) State First Mean Value theorem of integral calculus.

4) Examine the convergence of $\int_1^2 \frac{dx}{(2-x)}$.

5) Test the convergence of $\int_0^a \frac{xdx}{(1+x)^3}$.

6) Prove that $|\bar{n}| = (n-1)!$.

7) Evaluate $\int_0^a \int_0^b xy (x^2 + y^2) dy dx$.

8) Evaluate $\int_{-a}^a \int_{-a}^a \int_{-a}^a (x^2 + y^2) dzdydx$. (5×2 = 10)

[P.T.O.

2317 – E64 – VSS – N – 16

VSSUT UNIVERSITY OF TECHNOLOGY
VISAKHAPATNAM

FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016

MATHEMATICS

Paper – II : Numerical Methods

Time : 3 Hours]

[Max. Marks : 80

Instructions : Answer all questions.

Students are **allowed** to use their **scientific calculators**.

I. Answer any five of the following :

1) Explain briefly bisection method to find the real roots of $f(x) = 0$.

2) Obtain the reciprocal of 3 by iteration method by using $x_0 = 0.3$.

3) Solve by Gauss-Elimination method

$$3x + 4y = 7$$

$$8x + y = 9$$

4) Solve by Gauss-Jordan method

$$x - 3y = -5$$

$$5x - 2y = 1$$

5) Define operators Δ and ∇ .

6) With usual notations prove that $\Delta - \nabla = \Delta\nabla$.

7) State Trapezoidal rule to evaluate $\int_a^b f(x) dx$.

8) Write normal equations of straight line $y = ab^x$.

(5x2=10)

[P.T.O.]

2318 – E64 – VSS – N – 16

FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016
MATHEMATICS

Paper – III : Statics and Laplace Transforms

Time : 3 Hours]

[Max. Marks : 80

Instruction : Answer all questions.

I. Answer any five of the following : (5×2=10)

- 1) Define couple and moment of a couple.
- 2) If two forces form a couple then show that the algebraic sum of their resolved parts in any direction vanishes.
- 3) Give the geometrical interpretation of the moment of force about a point.
- 4) Define span and sag of the catenary.
- 5) Evaluate $L[e^{-at}]$ by the definition of Laplace transform.
- 6) Evaluate $L[\sin 3t \cos 4t]$.
- 7) Find $L^{-1}\left[\frac{s+1}{s^2+2s-17}\right]$.
- 8) Define unit step and unit impulse function.

II. Answer any eight of the following : (8×5=40)

- 9) The forces $P, 2P, -P, 2P$ act along the sides AB, BC, CD, DA of a square $ABCD$ and a force $P\sqrt{2}$ acts along each of diagonals BD and CA . Show that the forces reduce to a couple of moment $2aP$, where 'a' is the side of the square.
- 10) Show that a system of coplanar forces acting at different points of a rigid body can always reduce to a single force acting at an arbitrary points in their plane together with a couple.

[P.T.O.]

2321 – E71 – VSS – N – 16



V SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016
PHYSICS (Paper – I) (New)

Time : 3 Hours]

[Max. Marks : 80

- Instructions :** 1) Answer the questions 1 to 4 in the first page of the answer book. Which is **compulsory**.
2) Calculator **allowed** for calculations.

PART – I

Answer **any ten** questions. Each question carries **two** marks.

- The constrain of a particle restricted to move along a curve of a surface is called
 - holonomic
 - non-holonomic
 - scleronomic
 - none of these
- Uncertainty principle is stated as
 - $\Delta x \Delta p \geq \hbar$
 - $\Delta x \Delta p < \hbar$
 - $\Delta x \Delta p \geq h$
 - $\Delta x \Delta p < 0$
- The spin quantum number of an electron can have
 - Only half integral values
 - Only one integral value
 - Only one constant value
 - Integral and half integral values
- Anomalous Zeeman effect is observed in the case of atoms having _____ number of electrons.
 - Odd
 - Even
 - Odd or Even
 - None of the above

[P.T.O.]

2322 – E71 – VSS – N – 16

FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016 PHYSICS (Paper – II)

Time : 3 Hours]

[Max. Marks : 80

Instructions : 1) Answer the questions 1 to 4 in the first page of a
answer book.

2) Simple Scientific calculator is allowed.

PART – I

Answer any ten questions. Each question carries 2 marks.

1. The spectrum obtained near ultraviolet region is called _____ spectrum.
 - a) Pure rotational
 - b) Vibration-rotation
 - c) Electron
 - d) None of these
2. Of the twin brothers, one goes on a relativistic tour and comes back. The brother on the tour will
 - a) Becomes younger
 - b) Becomes older
 - c) Be of the same age
 - d) None of these
3. A device whose characteristics are very close to that of an ideal voltage source is a
 - a) Vacuum diode
 - b) Transistor in CB Mode
 - c) Field Effect Transistor
 - d) Zener diode
4. The gain of an amplifier with feedback is known as _____ gain.
 - a) Resonant
 - b) Open loop
 - c) Closed loop
 - d) None of the above

[P.T.O.]

2327 – E74 – VSS – N – 16



FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016
ZOOLOGY

Paper – I : Animal Physiology and Biochemistry

Time : 3 Hours]

[Max. Marks : 80

Instructions : 1) Answer all questions.

2) Draw neat labelled diagrams wherever necessary.

I. Answer any ten of the following :

(10x2=20)

- 1) What is Myogenic heart ? Give an example.
- 2) What is an antigen ?
- 3) What is Bohr's effect ?
- 4) Define Urotelism. Give an example.
- 5) Mention the deficiency symptoms of Vitamin 'A'.
- 6) Write any two biological functions of Proteins.
- 7) What is ADH ? Mention its function.
- 8) What are essential aminoacids ? Give examples.
- 9) Expand ATP and FAD.
- 10) What are oxidoreductases ? Give one example.
- 11) Name the hormones produced by adrenal medulla.
- 12) What are neurotransmitter's ? Give an example.

II. Answer any six of the following :

(6x5=30)

- 13) Write an account on electron transport system.
- 14) Write a note on occurrence, functions and deficiency diseases of Vitamin 'C'.

✓
(P.T.O.)

2328 – E74 – VSS – N – 16



FIFTH SEMESTER B.SC. DEGREE EXAMINATION, NOVEMBER 2016
ZOOLOGY (New syllabus)
Paper – II

Time: 3 Hours]

[Max. Marks: 80

Instructions : 1) Answer *all* questions.
2) Draw *neat* labelled diagrams *wherever* necessary.

I. Answer **any ten** of the following in **1-2** sentences **each**. **(2×10=20)**

- 1) Define phototaxis. Give an example.
- 2) Define habituation. Give an example.
- 3) Mention the different castes of Termite.
- 4) What is reflex ? Give an example.
- 5) What is aggressive mimicry ? Give an example.
- 6) What is aquaculture ?
- 7) What are fingerlings ?
- 8) What are broilers ? Give an example.
- 9) Name any two diseases of silk worm.
- 10) Mention nutritive value of Egg.
- 11) Name any two drought breeds of cattles.
- 12) Give the scientific name of mulberry silkworm.

II. Answer **any six** of the following in **10-15** sentences **each**. **(6×5=30)**

- 13) Explain conditioned reflexes with example.
- 14) Explain the contributions of Niko-Timbergen's Experiment.
- 15) Write a note on nesting behaviour in Wasps.
- 16) Write a note on byproducts of apiculture.

✓
[P.T.O.]