



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, MAY 2019
CHEMISTRY (New) (Paper – II)

Time : 3 Hours]

[Max. Marks : 80

Instructions : 1) *All questions are compulsory.*
2) *Draw neat labelled diagrams and give equations wherever necessary.*

I. Answer **any ten** of the following : (10×2=20)

- 1) Give the factors that affect R_f value.
- 2) Give the basic requirements of ion exchanger.
- 3) Mention the special properties of carrier gas in gas chromatography.
- 4) Define differential thermal analysis.
- 5) What is PMR ?
- 6) Give structure of TMS and its use in PMR.
- 7) What are requirements of an ideal drug ?
- 8) What are terpenes ? Give examples.
- 9) Define number average molar mass of macromolecules.
- 10) What are homopolymers and co-polymers ?
- 11) Write Einstein photoelectric equation and explain the terms involved.
- 12) Mention any two demerits of Bohr's theory.

II. Answer **any six** of the following : (6×5=30)

- 13) Explain the mechanism of ion exchange process.
- 14) Discuss the advantages of gas chromatography.
- 15) Sketch the diagram of HPLC and brief the parts of the HPLC.

[P.T.O.]



- 16) Explain chemical shift by taking ethanol as example.
- 17) What are antihistamines ? Give synthesis of CPM.
- 18) Give synthesis of α -terpeneol.
- 19) Explain the determination of molecular weight of macromolecules by osmotic pressure method.
- 20) Sketch and explain hydrogen spectrum.
- 21) Write a note on Compton effect.

III. Answer the following questions :

- 22) a) Discuss the important instrumental features of modern Atomic Absorption Spectroscopy (AAS). 6
- b) Explain applications of thermogravimetry. 4

OR

- 23) a) Write a note on detectors used in gas chromatography. 5
- b) Discuss the advantages and disadvantages of flame photometry. 5
- 24) a) Interpret the NMR spectrum of ethyl bromide and acetaldehyde. 5
- b) Explain synthesis and therapeutic use of chloroquine. 5

OR

- 25) a) Explain spin-spin splitting in ethanol. 5
- b) Give the synthesis of chloroamphenicol. 5
- 26) a) Explain Heisenberg's uncertainty principle. 3
- b) Derive the expression for Schrodinger wave equation. 7

OR

- 27) a) What are condensation polymers ? Explain the synthesis of nylon 6.6. 5
- b) Explain thermosetting and thermoplastic polymers and give examples. 5

8326 – F72 – VISS – M – 19



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SIXTH SEMESTER B.SC. DEGREE EXAMINATION, MAY 2019

BOTANY

Paper – II : Evolution, Plant Breeding and Plant Biotechnology

Time : 3 Hours]

[Max. Marks : 80

Instruction : *Draw neat labelled diagrams wherever necessary.*

I. Answer any ten of the following.

(10×2=20)

- 1) Variation.
- 2) Hybrid vigour.
- 3) Whip grafting.
- 4) Cutting.
- 5) Artificial pollination.
- 6) Anther culture.
- 7) M.S. Media.
- 8) Somatic hybridization.
- 9) Golden rice.
- 10) Agrobacterium tumefaciens.
- 11) Taq polymerase.
- 12) ELISA.

II. Answer any six of the following.

(6×5=30)

- 13) Explain Lamarkism.
- 14) Write a note on polyploidy breeding.
- 15) Explain briefly the objectives of plant breeding.
- 16) What is totipotency ? Explain its role in plant tissue culture.
- 17) Write a note on the subculture of callus.
- 18) Explain the threats of transgenic plants with examples.
- 19) What is genetic engineering ? Write a note on its application.
- 20) Explain the applications of immnoflorescence.

[P.T.O.]



III. Answer all the following.

21) a) What is Layering ? Explain any 4 types.

OR

b) What is germplasm ? Explain different types of germplasm conservation. (1×10=10)

22) a) Describe the application of tissue culture in industry plant conservation.

OR

b) What is tissue culture ? Explain basic aspects involved in it. (1×10=10)

23) a) What is direct method of gene transfer ? Explain any four types of gene transfer methods.

OR

b) What is rDNA ? Describe steps involved in rDNA technique. (1×10=10)



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SIXTH SEMESTER B.SC. DEGREE EXAMINATION, MAY 2019

Paper – II : PHYSICS

Time : 3 Hours]

[Max. Marks : 80

Instructions : 1) Simple scientific calculators are allowed.

2) Answer the questions 1–4 in the first page of the answer book.

PART – I**(10×2 = 20)**

Answer any ten questions. Each question carries 2 marks.

- When neutron degeneracy fails in high mass star it becomes a
 - white dwarf
 - black hole
 - pulsar
 - neutron-star
- Among the following which one is not keyword available in C-Language ?
 - auto
 - company
 - registrar
 - union
- The positional weight of the binary one in the binary number 001000 is
 - 2^0
 - 2^1
 - 2^2
 - 2^3
- In a superheterodyne receivers, intermediate frequency is obtained
 - after demodulation
 - before demodulation
 - after reproduction
 - none of the above
- What is Hertzprung gap ?
- Give the syntax of If_Else statement.
- Write the difference between ++a and a++.

[P.T.O.]



8. Mention advantages of IC.
9. What is demodulation ?
10. If the parallax of the star Groom bridge 34A is 0.28 arcsec. Calculate its distance from the earth.
11. Convert $(BCDE)_{16} = (?)_2$.
12. A radio wave of frequency 3 MHz incident on ionosphere at a maximum density of $9 \times 10^{10}/m^3$. Calculate the refractive index of the medium.

PART – II

(6×5 = 30)

Answer **any six** of the following questions. **Each** question carries **5** marks.

13. Obtain an expression for internal temperature of a main sequence star.
14. Briefly explain the structure of C-program.
15. Derive an expression for refractive index by matrix method.
16. Mention the characteristics of an ideal op-amp.
17. With neat diagram explain working of constant K-type high pass filter.
18. Luminosity of a star is 9000 that of sun and its surface temperature is 2500 K. If sun has a temperature of 6200 K, compare the radius of star with sun.
19. Show that the Boolean identity
 - a) $(A + B)(A + C) = A + BC$.
 - b) Convert $(0.6940)_{10}$ to a binary number.
20. Calculate the carrier swing, carrier frequency, frequency deviation modulation index for an FM signal which reaches a maximum frequency of 99.047 MHz and a minimum frequency of 99.023 MHz. The frequency of the modulation signal is 7 KHz.



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5. What is Hertzprung gap ?
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PART – III

(3×10 = 30)

Answer the following questions. **Each** question carries **10** marks.

21. a) Explain apparent magnitude with necessary equations.
b) What is Stellar spectra ? Mention spectral classification.

OR

Give the construction and working of Newtonian telescope.

22. Write a note on operators and expressions of C-programing.

OR

State and prove De Morgan's first and second theorem with their truth tables.

23. Show that when a radio-waves enters the ionosphere phase velocity is greater than the velocity of light.

OR

Derive the expression for amplitude modulated signal and hence derive its frequency spectrum.

PART – III

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8335 – F90 – VISS – M – 19

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2019

COMPUTER SCIENCE (Optional)

Paper I – (Java & Internet Programming)

(New Syllabus)

Time: 3 Hours]

[Max. Marks: 80

Answer any five questions.

Draw flow chart wherever necessary.

1. a) Explain the features of JAVA programming language. (6 + 10 = 16)
b) Differentiate between 'C' & "JAVA" and "C++" & "JAVA".
2. a) Explain different forms of "if statement" with syntax & examples. (8 + 8 = 16)
b) Explain with syntax & example the pretested and post-tested "Loop" statements in JAVA.
3. a) Write a program in JAVA to find factorial of 'N' number using command line arguments. (8 + 8 = 16)
b) What is exception? What are its types? Explain each with suitable examples.
4. a) Define constructor. What are its types? Explain each with suitable examples. (8 + 8 = 16)
b) What is thread? Describe the complete life cycle of thread.
5. a) Explain various string functions available in JAVA with syntax and examples. (8 + 8 = 16)
b) What do you mean by package? What are its types? Explain how to create our own package by illustrating with simple example.
6. a) What is an applet? What are its types? Explain the life-cycle of an applet. (8+8=16)
b) Explain the following classes with example.
i) graphics ii) Button iii) Text field iv) checkbox
7. a) Define JavaScript. How do you embedding Javascript in HTML? Explain with syntax & example. (8 + 8 = 16)
b) Explain the steps involved in interactive webpage development.
8. Write short notes on the following: (4 × 4 = 16)
a) Operators in Java (any 4)
b) Servlet
c) Characteristics of website
d) JVM.

8335 - F90 - VISS - M - 19

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