

2435 – F72 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020 CHEMISTRY Paper – I

Time : 3 Hours]

[Max. Marks : 80

Instructions : 1) **All** the questions are **compulsory**.
2) Answer **all** questions in the **same** answer book.
3) Draw **neat** diagrams and give equations **wherever** necessary.

I. Answer **any ten** of the following :

(10×2=20)

- 1) $[\text{Fe}(\text{CN})_6]^{-4}$ is diamagnetic ? Explain.
- 2) Mention the liquid properties of SO_2 .
- 3) Write the structure of Haemoglobin.
- 4) What is meant by outer orbital complex ?
- 5) Write the Haworth structure of sucrose.
- 6) What is denaturation of proteins ?
- 7) What are vitamins ? Give examples.
- 8) Give the functions of thyroxin.
- 9) What is salt bridge and give its function ?
- 10) Give the cell reaction of Weston Standard Cell.
- 11) Define liquid junction potential. Explain how it can be avoided.
- 12) What is fuel cell ?

[P.T.O.]



II. Answer **any six** of the following :

(6×5=30)

- 13) Explain the functions of myoglobin and give its structure.
- 14) Explain the factors affecting the stability of metal complex.
- 15) Mention the salient features of crystal field theory.
- 16) Explain the terms :
 - a) Mutarotation
 - b) Osazone formation
- 17) Write the synthesis of Vitamin - A by Van drop method.
- 18) How are proteins classified based on their structures and functions ?
- 19) What is electrochemical series ? And give its applications.
- 20) Explain the application of concentration cell in determining the solubility of sparingly soluble salt like BaSO_4 .
- 21) What is secondary cell ? Explain the construction and working of hydrogen-oxygen fuel cell.

III. Answer the following questions :

- 22) a) Discuss the limitations of Valence Bond Theory. 5
- b) Discuss the applications of metal chelates. 5

OR

- 23) a) Explain the factors influencing the stability of the chelates. 5
- b) Discuss the toxic effects of mercury and arsenic. 5
- 24) a) Mention the sources and functions along with deficiency diseases of Vitamin – A and Vitamin – C. 5
- b) What are dipeptides ? Explain Bergmann peptide synthesis. 5

OR

- 25) a) Explain the classification of carbohydrates with examples. 5
- b) Give the preparation of α – amino acids by Strecker synthesis. 5



26) a) Describe the determination of pH of a unknown solution by using Quinehydrone electrode. 6

b) A cell is constructed by using Quinehydrone electrode with unknown pH solution and Calomel electrode as reference electrode the cell is represented as



the emf of cell was found to be 0.2640 volt at 25°C. Calculate the pH of solution.

Given : $E_{\text{calomel}} = + 0.2422$ and $E_{\text{quinehydrone}} = + 0.6996$. 4

OR

27) a) Describe with neat diagram the working of a Calomel electrode both as Oxidation and Reduction reference electrode. 5

b) Explain the methods of prevention of corrosion. 5

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SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020

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) Draw a neat labelled diagram of flame photometer.
- 2) What is retention time in HPLC ?
- 3) Mention important requirements of adsorbents ?
- 4) Mention the different types of thermogravimetric methods.
- 5) Define chemotherapy.
- 6) What are diuretics ?
- 7) What is nuclear de-shielding effect ?
- 8) Define isoprene rule.
- 9) Explain the synthesis of polyvinyl chloride.
- 10) What is addition polymerisation ? Give example.
- 11) What is black body radiation ?
- 12) Write de Broglie's equation, explain the terms.

[P.T.O.]



II. Answer **any six** of the following.

(6×5=30)

- 13) Write the principle involved in thermogravimetric analysis and explain thermogravimetric curve.
- 14) How do you determine sodium by flame photometry ?
- 15) Discuss the applications of paper chromatography.
- 16) Explain i) chemical shift ii) nuclear shielding affect.
- 17) Explain the classification of drugs.
- 18) Discuss the constitution of citrol.
- 19) Describe the method of determination of molecular weight of polymers by number average and mass average method.
- 20) Calculate the wavelength of electron having as a mass 0.5 kg moving with velocity 40 m/sec. ($h = 6.626 \times 10^{-34}$ J.S.).
- 21) Derive Heisenberg's uncertainty principle.

III. Answer the following questions :

- 22) a) Explain the separation of lanthanides by ion-exchange method. 5
- b) Describe the advantages of AAS over the flame emission spectroscopy. 5

OR

- 23) a) What is column chromatography ? Explain important applications of column chromatography. 5
- b) Write the principle involved in HPLC and give its applications. 5



- 24) a) What is chemical shift ? Discuss factors affecting chemical shift. 5
- b) Write the synthesis and therapeutic use of chlorpheniramine maleate. 5

OR

- 25) a) Discuss the classification of terpenoids with example. 5
- b) Write the synthesis of sulphathiazole. 5
- 26) a) Explain the polymerizations of Polyethylene and Polymethyl Methacrylate (PMMA). 5
- b) Describe Einstein's theory of photoelectric effect. 5

OR

- 27) a) Explain Sommerfeld's theory of an atomic model. 5
- b) What are condensation polymers ? Explain the synthesis of nylon 6.6. 5
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SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020

PHYSICS

Paper – I

Time: 3 Hours]

[Max. Marks: 80

- Instructions :** 1) Answer the questions 1 to 4 in the first page of answer booklet which is **compulsory**.
2) **Only** simple/scientific calculator is **allowed** for calculations.
3) Substitutions and intermediate steps should be **shown** when solving problems.
4) Wherever **necessary**, answers should include diagram with **appropriate** labelling.

PART – I

(10×2=20)

Answer **any ten** questions of the following. **Each** question carries **two** marks.

1. The three axes of a crystal are mutually perpendicular and two of the lattice parameters are unequal. Then the crystal system is
 - a) Hexagonal
 - b) Tetragonal
 - c) Cubic
 - d) Orthorhombic
2. In Meissner's effect
 - a) Light is completely expelled
 - b) Heat is completely expelled
 - c) Electric lines of forces are completely expelled
 - d) Magnetic lines of forces are completely expelled

[P.T.O.]



3. The efficiency of a nanosubstance is decided by the ratio
 - a) Weight/volume
 - b) Surface area/volume
 - c) Pressure/volume
 - d) Volume/weight
4. The fission of U^{238} nucleus is triggered by
 - a) Fast neutron
 - b) Thermal neutron
 - c) Slow neutron
 - d) Electron
5. Define co-ordination number of a crystal. What is the co-ordination number of FCC lattice ?
6. Draw the hysteresis loop for a ferromagnetic material and indicate the retentivity and coercive field on the curve.
7. Write two applications of superconductors.
8. State Geiger-Nuttall law.
9. Write two characteristics of nuclear forces.
10. Write the semi empirical mass formula and mention the different energy terms in it.
11. Find the Miller indices of a crystal plane having intercepts a , $b/2$, $3c$ on the X, Y and Z axes respectively.
12. Complete the following reactions :
 - i) ${}_4\text{Be}^9 + {}_2\text{He}^4 \longrightarrow {}_6\text{C}^{12} + \underline{\hspace{2cm}}$
 - ii) ${}_7\text{N}^{14} + {}_2\text{He}^4 \longrightarrow {}_8\text{O}^{17} + \underline{\hspace{2cm}}$



PART – II

(6×5=30)

Answer **any six** questions. **Each** question carries **five** marks.

13. Derive the expression for the interplanar spacing of a crystal structure.
14. Derive the Bragg's law of X-ray diffraction by crystal.
15. Obtain the expression for electrical conductivity for metals.
16. What are superconductors ? Define the terms.
 - i) transition temperature
 - ii) critical magnetic field
 - iii) Isotope effect
 - iv) persistent current
17. Explain shell model of nucleus. What are magic numbers ?
18. A beam of X-rays incident on (111) planes of NaCl crystal is diffracted at an angle of 26.8° in the first order. If the lattice constant of the crystal is 5.61 \AA , find the wavelength and the energy of the X-ray beam.
19. Calculate the alpha particle potential barrier in case of ${}_{92}\text{U}^{238}$. Given $\epsilon_0 = 8.85 \times 10^{-12}$ S. I. units $r_0 = 1.2 \times 10^{-15} \text{ m}$
 $e = 1.6 \times 10^{-19} \text{ coulomb}$.
20. A cyclotron with dees of radius 2 m has a magnetic field of 0.75 wb m^{-2} . Calculate the maximum energies to which a) proton b) deuteron can be accelerated.
Given : $m_p = 1.67 \times 10^{-27} \text{ kg}$, $m_d = 3.34 \times 10^{-27} \text{ kg}$.

PART – III

(3×10=30)

Answer the following. **Each** question carries **ten** marks.

21. What is specific heat of solid ? Mentioning the assumptions, give the classical theory of specific heat of solids. Show how its limitations lead to Einstein's theory.

OR

Show that Hall coefficient is inversely proportional to the number of electrons per unit volume. How can it be experimentally measured ?



22. a) Write any three differences between diamagnetic and paramagnetic materials.
- b) Give the Langevin's classical theory of paramagnetism.

OR

- a) Describe the synthesis of nanomaterials by Lithography technique.
- b) Discuss the applications of nanomaterials in various fields.
23. a) Give the theory of alpha decay with relevant mathematical steps.
- b) Describe the Fermi theory of β -ray spectrum.

OR

- a) Describe the construction and working of scintillation counter.
- b) Write a note on elementary particles with reference to their classification.
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SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020

PHYSICS

(Paper – II)

Time : 3 Hours]

[Max. Marks : 80

- Instructions :** 1) Answer the questions **1 to 4** in the **first** page of answer book which is **compulsory**.
2) **Scientific** calculator **allowed** for calculations.
3) While **solving** the problems substitutions and intermediate steps should be **shown**.
4) **Wherever** necessary, answers should include diagram with **appropriate** labelling.

PART – I

Answer **any ten** questions of the following. Each question carries **two** marks. (10×2=20)

1. The smallest radius beyond which the object becomes a black hole is called
 - a) Schwarzschild radius
 - b) Bohr radius
 - c) Hubble radius
 - d) Hawking radius
2. C-programs are translated into machine language with the help of
 - a) an interpreter
 - b) a compiler
 - c) an operating system
 - d) loader
3. Monolithic Integrated circuits are formed on a single thin wafer called
 - a) hybrid
 - b) thin plate
 - c) base
 - d) substrate

[P.T.O.]



4. Super High Frequency (SHF) radio waves falls in the range
 - a) 300 MHz – 3 GHz
 - b) 30 – 300 GHz
 - c) 3 – 30 GHz
 - d) 300 KHz – 300 MHz
5. What is binary star ? Give an example.
6. What are c-tokens ? Mention its types.
7. Mention the characteristics of an ideal operational amplifier.
8. Explain logical OR operation of Boolean algebra.
9. Explain secant law with reference to the sky wave propagation.
10. The apparent magnitude of full moon is -14.5 and the sun has an apparent magnitude of -27 . How much brighter does the sun appear than the moon ?
11. Evaluate the C-expression,
 $4*((p/3) + 6*(q - 2))$, where $p = 8$, $q = 7$.
12. A total power content of an AM wave is 2.64 KW at a modulation factor of 80%. Determine power content of carrier wave.

PART – II

Answer **any six** questions of the following. **Each** question carries **five** marks. (6×5=30)

13. Write the characteristics of main sequence stars.
14. Explain the construction and working of Cassegrain telescope.
15. Differentiate between while and do while statements with example for each.
16. With the help of neat circuit diagram, output waveform and capacitor waveform explain the working of an astable multivibrator using IC-555 timer.



17. Give the theory of constant-K high pass frequency filter.
18. One of the main sequence stars has mass 1.5 times mass of the sun and radius 2 times radius of the sun. Find luminosity and temperature of star. Given temperature of the sun = 6000 K.
19. a) Convert $CB.A_{16}$ to binary.

b) Construct the truth table for the Boolean expression and draw the logic circuit.

$$Y = A\bar{B} + \bar{A}C$$

20. An audio signal given by $e_s = 40 \sin(2\pi 2600t)$ is used for modulating a carrier wave given by $e_c = 65 \sin(2\pi 2 \times 10^5 t)$.

Find (i) Modulation index (ii) frequency of the signal and the carrier
(iii) frequency spectrum of the modulated wave.

PART – III

Answer the following questions. Each question carries 10 marks.

(3×10=30)

21. Using linear density model of a star in hydrostatic equilibrium, derive an expression for internal pressure $P_{(r)}$ in terms of core pressure P_c and radius R . (10)

OR

- a) What are input and output operations of C language ?
- b) Explain formatted input `scanf()` with its general format and write the rules governing syntax of the `scanf()` function.
- c) Give the different character groups and their meaning associated with `scanf`. (2+5+3)



22. a) Construct a suitable matrix that will represent the effect of translation matrix in a homogenous medium for paraxial rays.
- b) Determine matrix which will represent the effect of refraction through a spherical surface of radius of curvature R . (5+5)

OR

- a) Explain with neat circuit diagram the working of DTL NOT gate.
- b) Realize AND, OR and XOR gate using NOR gate, giving their Boolean expression and truth table. (3+7)
23. a) Describe briefly ground wave and space wave propagation of radio waves.
- b) Explain in short D, E and F layers of ionosphere mentioning degree of ionisation, thickness of the layer and their availability during day and night time. (4+6)

OR

- a) With block diagram explain FM Transmitter.
- b) Give comparison between AM and FM. (5+5)
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SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020
BIOTECHNOLOGY

Paper – I : Industrial and Environmental Biotechnology

Time : 3 Hours]

[Max. Marks : 80

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

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

- 1) What are Methanogens ?
- 2) Define Acid-rain.
- 3) Mention the types of fermentation.
- 4) Expand EPA and SCO.
- 5) What is Capsaicin ?
- 6) Give two examples of renewable resources.
- 7) What is PHA ?
- 8) What is compost ?
- 9) Define Biofilms.
- 10) What is aeration in fermentation ?
- 11) Mention any two uses of yeast.
- 12) What is Tempeh ?

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

- 13) Explain the production of Lactic acid in brief.
- 14) Write a note on physical characteristics of municipal waste.
- 15) Explain the mass production of Spirulina.

[P.T.O.]



- 16) Write short notes on Airlift fermentor.
- 17) Describe the process and impact of ozone depletion.
- 18) Explain the methods of sterilization by filtration.
- 19) Give an account of Bio remediation.
- 20) Write a note on water pollutants.

III. Answer the following :

- 21) Give a detailed account of Biomining.

OR

Describe the production of food additives.

(1×10=10)

- 22) Discuss the methods of screening industrially important micro organisms.

OR

Explain the impact of Non conventional fuels on the environment.

(1×10=10)

- 23) Describe the process of biodegradation of xenobiotic compounds.

OR

Give a detailed account of production of fermented foods. (1×10=10)

ಕನ್ನಡ ಆವೃತ್ತಿ

ಸೂಚನೆಗಳು : 1) ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳು ಕಡ್ಡಾಯ.

2) ಅವಶ್ಯವಿದ್ದಲ್ಲಿ ನಮೂದಿತ ಚಿತ್ರ ಬಿಡಿಸಿರಿ..

I. ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಬೇಕಾದ ಹತ್ತಕ್ಕೆ ಉತ್ತರಿಸಿರಿ :

(10×2=20)

1) ಮೆಥಾನೊಜೆನ್ಸ್ ಎಂದರೇನು ?

2) ಆಸಿಡ್ ಮಳೆ ವ್ಯಾಖ್ಯಾನಿಸಿ.



- 3) ಫರ್ಮೆಂಟೇಶನ್‌ನ ವಿಧಗಳನ್ನು ಹೆಸರಿಸಿ.
- 4) EPA ಹಾಗೂ SCO ಗಳನ್ನು ವಿಸ್ತರಿಸಿರಿ.
- 5) ಕ್ಯಾಪ್ಸಿನ್ ಎಂದರೇನು ?
- 6) ನವೀಕರಿಸಬಹುದಾದ ಸಂಪನ್ಮೂಲಗಳ ಎರಡು ಉದಾಹರಣೆ ಕೊಡಿರಿ.
- 7) PHA ಎಂದರೇನು ?
- 8) ಕಾಂಪೋಸ್ಟ್ ಎಂದರೇನು ?
- 9) ಬಯೋಫಿಲ್ಮ್ ವ್ಯಾಖ್ಯಾನಿಸಿ.
- 10) ಫರ್ಮೆಂಟೇಶನ್‌ನಲ್ಲಿ ಎರೇಷನ್ ಎಂದರೇನು ?
- 11) ಈಸ್ಟ್‌ನ ಎರಡು ಉಪಯೋಗಗಳನ್ನು ಹೆಸರಿಸಿ.
- 12) ಟೆಂಫ್ ಎಂದರೇನು ?

II. ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಬೇಕಾದ ಆರಕ್ಕೆ ಉತ್ತರಿಸಿರಿ :

(6×5=30)

- 13) ಲ್ಯಾಕ್ಟಿಕ್ ಆಸಿಡ್ ಉತ್ಪಾದನೆಯನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.
- 14) ಮುನ್ಸಿಪಲ್ ತ್ಯಾಜ್ಯದ ಭೌತಿಕ ಗುಣಧರ್ಮಗಳ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
- 15) ಸ್ಪಿರುಲಿನಾದ ಸಾಮೂಹಿಕ ಉತ್ಪಾದನೆಯನ್ನು ವಿವರಿಸಿ.
- 16) ಏರ್‌ಲಿಫ್ಟ್ ಫರ್ಮೆಂಟರ್ ಬಗ್ಗೆ ಸಂಕ್ಷಿಪ್ತ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
- 17) ಓರೋನ್ ಸವಕಳಿಯ ಪ್ರಕ್ರಿಯೆ ಮತ್ತು ಪ್ರಭಾವದ ಬಗ್ಗೆ ವರ್ಣಿಸಿರಿ.
- 18) ಫಿಲ್ಟರೇಷನ್‌ನಿಂದ ಆಗುವ ಸ್ಟೆರಿಲೈಸೇಷನ್ ವಿಧಾನಗಳನ್ನು ವಿವರಿಸಿ.
- 19) ಬಯೋರೆಮಿಡಿಯೇಷನ್ ಬಗ್ಗೆ ವಿವರಣೆಯನ್ನು ಕೊಡಿರಿ.
- 20) ನೀರಿನ ಮಾಲಿನ್ಯದ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.



III. ಕೆಳಗಿನವುಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ :

21) ಬಯೋಮೈನಿಂಗ್ ಬಗ್ಗೆ ಸವಿಸ್ತಾರವಾದ ವಿವರಣೆ ಕೊಡಿರಿ.

ಅಥವಾ

ಫುಡ್ ಅಡಿಟಿವ್‌ಗಳ ಉತ್ಪಾದನೆಯನ್ನು ವರ್ಣಿಸಿರಿ.

(1×10=10)

22) ಔದ್ಯೋಗಿಕವಾಗಿ ಮಹತ್ವವಿರುವ ಸೂಕ್ಷ್ಮಜೀವಿಗಳ ಸ್ತ್ರೀನಿಂಗ್ ವಿಧಾನಗಳನ್ನು ಚರ್ಚಿಸಿ.

ಅಥವಾ

ಸಾಂಪ್ರದಾಯಿಕವಲ್ಲದ ಉರುವಲುಗಳ ವಾತಾವರಣದ ಮೇಲೆ ಮಾಡುವ ಪರಿಣಾಮವನ್ನು ವಿವರಿಸಿ.

(1×10=10)

23) ಜೆನೋಬಯೋಟಿಕ್ಸ್ ಕಂಪೌಂಡ್‌ಗಳ ಜೈವಿಕ ವಿಘಟನೆಯ ಪ್ರಕ್ರಿಯೆಯನ್ನು ವರ್ಣಿಸಿರಿ.

ಅಥವಾ

ಹುದುಗುವಿಕೆಯ ಆಹಾರ ಉತ್ಪಾದನೆಯ ಬಗ್ಗೆ ಸವಿಸ್ತಾರವಾದ ವಿವರಣೆ ಕೊಡಿ. **(1×10=10)**

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SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020

BIOTECHNOLOGY

Paper – II : Agricultural and Medical Biotechnology

Time : 3 Hours]

[Max. Marks : 80

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

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

- 1) Define Velogenesis.
- 2) Mention the applications of Human factor VIII.
- 3) What is Horticulture ?
- 4) Expand FMDV and mAb.
- 5) Mention the characteristics of Azospirillum.
- 6) What is Somatic gene therapy ?
- 7) What are growth regulators ?
- 8) Define Biopharmaceuticals.
- 9) What are nano particles ?
- 10) What is Integrated pest management.
- 11) What is plant breeding ?
- 12) Mention any two antifungal agents.

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

- 13) Write a note on recombinant vaccines.
- 14) Explain the role of plant growth regulators in agriculture.
- 15) Describe the mode of action of Penicillin.
- 16) Write a note on parentage determination.
- 17) Discuss the types and applications of Interferons.
- 18) Give an account of applications of Bioinformatics.
- 19) Describe the various crop improvement programmes.
- 20) Distinguish between Invivo and Invitro gene therapy.

[P.T.O.]



III. Answer the following :

- 21) Give a detailed account of principles and applications of antisense technology.

OR

Discuss the role of genetics in animal breeding.

(10×1=10)

- 22) Explain the role of biotechnology in sericulture.

OR

Discuss the scope and significance of Nanotechnology.

(10×1=10)

- 23) Write a detailed note on Stem Cell therapy.

OR

Give a detailed account on types and applications of biofertilizers.

(10×1=10)

ಕನ್ನಡ ಅವತರಣಿಕೆ

ಸೂಚನೆಗಳು: 1) ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳು ಕಡ್ಡಾಯ.

2) ಬೇಕಾದಲ್ಲಿ ನಮೂದಿತ ಚಿತ್ರ ಬಿಡಿಸಿರಿ.

- I. ಈ ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಬೇಕಾದ ಹತ್ತಕ್ಕೆ ಉತ್ತರಿಸಿರಿ.

(10×2=20)

- 1) ವೆಲೋಜೆನಿಸಿಸ್ ವ್ಯಾಖ್ಯಾನಿಸಿರಿ.
- 2) ಮನುಷ್ಯ ಅಂಶ VIII ರ ಉಪಯೋಗಗಳನ್ನು ಹೆಸರಿಸಿರಿ.
- 3) ತೋಟಗಾರಿಕೆ ಎಂದರೇನು ?
- 4) FMDV ಮತ್ತು mAb ಗಳನ್ನು ವಿಸ್ತರಿಸಿರಿ.
- 5) ಅಜೋಸ್ಟ್ರಿಲಿಮನ್ ಲಕ್ಷಣಗಳನ್ನು ಬರೆಯಿರಿ.
- 6) ಸೋಮ್ಯಾಟಿಕ್ ಜೀನ್ ಥೆರಪಿ ಎಂದರೇನು ?
- 7) ಬೆಳವಣಿಗೆ ನಿಯಂತ್ರಕಗಳು ಎಂದರೇನು ?
- 8) ಬಯೋಫಾರ್ಮಾಸ್ಯೂಟಿಕಲ್ಸ್ ವ್ಯಾಖ್ಯಾನಿಸಿರಿ.
- 9) ನ್ಯಾನೋ ಕಣಗಳು ಎಂದರೇನು ?
- 10) ಇಂಟಿಗ್ರೇಟೆಡ್ ಕೀಟ ವ್ಯವಸ್ಥಾಪನೆ ಎಂದರೇನು ?
- 11) ಸಸ್ಯತಳಿ ಅಭಿವೃದ್ಧಿ ಎಂದರೇನು ?
- 12) ಯಾವುದಾದರೂ ಎರಡು ಆಂಟಿಫಂಗಲ್ ಏಜೆಂಟ್‌ಗಳನ್ನು ಹೆಸರಿಸಿರಿ.



II. ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಬೇಕಾದ ಆರಕ್ಕೆ ಉತ್ತರಿಸಿರಿ :

(6×5=30)

- 13) ರಿಕೋಂಬಿನೆಂಟ್ ಲಸಿಕೆಗಳ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
- 14) ಕೃಷಿಯಲ್ಲಿ ಸಸ್ಯ ಬೆಳವಣಿಗೆ ನಿಯಂತ್ರಕಗಳ ಮಹತ್ವವನ್ನು ವಿವರಿಸಿರಿ.
- 15) ಪೆನಿಸಿಲಿನ್‌ನ ಕಾರ್ಯವಿಧಾನವನ್ನು ವಿವರಿಸಿರಿ.
- 16) ಪಾಲಕರ ಪತ್ತೆಹಚ್ಚುವಿಕೆಯ ಕುರಿತು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
- 17) ಇಂಟರ್‌ಫೆರೊನ್‌ನ ವಿಧಗಳು ಮತ್ತು ಉಪಯೋಗಗಳನ್ನು ಚರ್ಚಿಸಿರಿ.
- 18) ಬಯೋಇನ್ಸಾರ್ಟ್ರೆಟಿಕ್‌ನ ಉಪಯುಕ್ತತೆಯ ಕುರಿತು ವಿವರಿಸಿರಿ.
- 19) ವಿವಿಧ ರೀತಿಯ ತಳಿ ಅಭಿವೃದ್ಧಿ ಕಾರ್ಯಕ್ರಮಗಳನ್ನು ವಿವರಿಸಿರಿ.
- 20) ಇನ್ ವಿವೋ ಮತ್ತು ಇನ್ ವಿಟ್ರೋ ಜೀನ್ ಚಿಕಿತ್ಸೆಗಳನ್ನು ಬೇರ್ಪಡಿಸಿರಿ.

III. ಕೆಳಗಿನವುಗಳನ್ನು ಉತ್ತರಿಸಿರಿ :

- 21) ಆಂಟಿಸೆನ್ಸ್ ತಂತ್ರಜ್ಞಾನದ ತತ್ವಗಳು ಮತ್ತು ಉಪಯುಕ್ತತೆಗಳನ್ನು ಸವಿಸ್ತಾರವಾಗಿ ಹೇಳಿರಿ.

ಅಥವಾ

ಪ್ರಾಣಿ ತಳಿ ಅಭಿವೃದ್ಧಿಯಲ್ಲಿ ಅನುವಂಶೀಯತೆಯ ಪಾತ್ರವನ್ನು ವಿವರಿಸಿರಿ. (10×1=10)

- 22) ರೇಷ್ಮೆ ಕೃಷಿಯಲ್ಲಿ ಜೈವಿಕತಂತ್ರಜ್ಞಾನದ ಮಹತ್ವವನ್ನು ಚರ್ಚಿಸಿರಿ.

ಅಥವಾ

ನ್ಯೂನೋತಂತ್ರಜ್ಞಾನದ ವ್ಯಾಪ್ತಿ ಮತ್ತು ಮಹತ್ವವನ್ನು ಚರ್ಚಿಸಿರಿ. (10×1=10)

- 23) ಸ್ಪೆಮ್ ಸೆಲ್ ಚಿಕಿತ್ಸೆಯ ಕುರಿತು ವಿವರವಾದ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

ಅಥವಾ

ಜೈವಿಕ ಗೊಬ್ಬರಗಳ ವಿಧಗಳು ಮತ್ತು ಉಪಯೋಗಗಳ ಕುರಿತು ದೀರ್ಘವಾದ ವಿವರಣೆ ಬರೆಯಿರಿ. (10×1=10)

2441 – F81 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020

ELECTRONICS

Paper – I : Communication – II

Time : 3 Hours]

[Max. Marks : 80

Instruction : All answers should be written in the **same** answer booklet.

PART – I

Answer **any ten** of the following :

(10×2=20)

1. What is RF transmission line ?
2. Define acceptance angle in optical fiber.
3. A transmission line has characteristics impedance of 75Ω and capacitance of 60 PF/m. Find its inductance.
4. What is flickering ?
5. If horizontal trace and retrace periods are $52\mu s$ and $12\mu s$ respectively. What is the horizontal sweep frequency ?
6. Define Luminance and saturation.
7. State Kepler's first law of satellite orbit.
8. What is the uplink and downlink frequency in C-band ?
9. Define LAN and WAP.
10. What is Nyquist frequency ?
11. Mention the advantages of digital communication system.
12. Draw the wave shapes of ASK for data.
10110001

[P.T.O.]



PART – II

Answer **any six** of the following :

(6×5=30)

13. Explain the types of transmission line.
14. Calculate the numerical aperture and critical angle of the fiber having n_1 (core refractive index) = 1.50 and refractive index of cladding $n_2 = 1.45$.
15. What is scanning ? Explain horizontal scanning with diagram.
16. State and explain Grassman's law.
17. Explain the working principles of transponders.
18. Write a note on cellular mobile communication system.
19. With neat diagram, explain Pulse Position Modulation (PPM).
20. Explain frequency shift keying.

PART – III

Answer **any three** of the following :

(3×10=30)

21. Explain light propagation through optical fiber. Derive an expression for numerical aperture.
 22. Draw and explain block diagram of monochrome television receiver.
 23. Describe multiple access methods.
 24. With a neat block diagram, explain digital communication system.
-

2437 – F73 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020
BOTANY

Paper – I : Cell Biology, Genetics and Molecular Biology

Time : 3 Hours]

[Max. Marks : 80

Instructions : Draw *neat* labelled diagrams *wherever* necessary.

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

- 1) Nucleoid
- 2) Leucoplast
- 3) Lysosomes
- 4) Heterochromatin
- 5) Telocentric Chromosomes
- 6) mRNA
- 7) Translocation
- 8) Raphides
- 9) Sat-Chromosome
- 10) Genotype
- 11) Multiple Alleles
- 12) Mutagens

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

- 13) Describe the structure and functions of endoplasmic reticulum.
- 14) Explain the fluid-mosaic model of cell membrane.
- 15) Describe the nucleosome model of chromosome.
- 16) What is aneuploidy ? Explain its types.
- 17) What is genetic code ? Explain its significances.
- 18) Explain the pattern of inheritance of complementary genes.
- 19) Explain dihybrid cross with suitable example.
- 20) Describe transposable genetic elements.

[P.T.O.]



III. Answer the following :

21) Describe the ultrastructure and functions of Nucleus.

OR

What are chromosomal aberrations ? Describe the types.

22) What is mutation ? Describe the different types.

OR

Describe the structure and replication of DNA.

23) What is linkage ? Explain with reference to maize.

OR

What is Epistasis ? Explain dominant Epistasis with suitable example.

ಕನ್ನಡ ಅವತರಣಿಕೆ

ಸೂಚನೆ: ಅವಶ್ಯವಿದ್ದಲ್ಲಿ ಅಂದವಾದ ಚಿತ್ರ ಬಿಡಿಸಿರಿ.

I. ಈ ಕೆಳಗಿನ ಬೇಕಾದ ಹತ್ತು ಪ್ರಶ್ನೆಗಳಿಗೆ 2-3 ವಾಕ್ಯಗಳಲ್ಲಿ ಉತ್ತರಿಸಿರಿ.

(10×2=20)

- 1) ನ್ಯೂಕ್ಲಿಯೋಯ್ಡ್
- 2) ಲ್ಯೂಕೋಪ್ಲಾಸ್ಟ್
- 3) ಲೈಸೋಜೋಮ್ಸ್
- 4) ಹೆಟೀರೋಕ್ರೋಮ್ಯಾಟಿನ್
- 5) ಟೆಲೋಸೆಂಟರಿಕ್ ವರ್ಣತಂತುಗಳು
- 6) ಎಮ್.ಆರ್.ಎನ್.ಎ.
- 7) ಟಾನ್ಸ್ಲೋಕೇಶನ್
- 8) ರ್ಯಾಫಾಯಿಡ್ಸ್
- 9) ಸ್ಯಾಟ್-ವರ್ಣತಂತುಗಳು
- 10) ಜೀನೋಟೈಪ್
- 11) ಮಲ್ಟಿಪಲ್ ಅಲೀಲ್ಸ್
- 12) ಮ್ಯುಟಾಜೆನ್ಸ್



II. ಈ ಕೆಳಗಿನ ಬೇಕಾದ ಆರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ :

- 13) ಎಂಡೋಪ್ಲಾಸ್ಮಿಕ್ ರೆಟಿಕ್ಯೂಲಮ್‌ದ ರಚನೆ ಮತ್ತು ಕಾರ್ಯಗಳನ್ನು ವರ್ಣಿಸಿ.
- 14) ಕೋಶ ಪದರದ ಪ್ಲಾಸ್ಮಿಡ್ ಮೋಜೈಕ್ ಮಾದರಿಯನ್ನು ವಿವರಿಸಿ.
- 15) ವರ್ಣತಂತುವಿನ ನ್ಯೂಕ್ಲಿಯೋಜೋಮ್ ಮಾದರಿಯನ್ನು ವರ್ಣಿಸಿ.
- 16) ಎನ್ಯೂಪ್ಲಾಸ್ಮಿಡ್ ಅಂದರೇನು ? ಇದರ ವಿಧಗಳನ್ನು ವಿವರಿಸಿ.
- 17) ಜೆನೆಟಿಕ್ ಕೋಡ್ ಅಂದರೇನು ? ಇದರ ಮಹತ್ವಗಳನ್ನು ವಿವರಿಸಿ.
- 18) ಕಾಂಪ್ಲಿಮೆಂಟರಿ ಗುಣಗಳ ಅನುವಂಶೀಯತೆಯನ್ನು ಉದಾಹರಣೆಯೊಂದಿಗೆ ವಿವರಿಸಿ.
- 19) ಸರಿಯಾದ ಉದಾಹರಣೆಯೊಂದಿಗೆ ಡೈಹೈಬ್ರಿಡ್ ಕ್ರಾಸಿನ ವಿವರಗಳನ್ನು ವಿವರಿಸಿ.
- 20) ಟ್ರಾನ್ಸ್‌ಫೋಸೇಬಲ್ ಜೆನೆಟಿಕ್ ಎಲಿಮೆಂಟ್ಸ್‌ನ್ನು ವರ್ಣಿಸಿ.

III. ಈ ಕೆಳಗಿನ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ :

(10×3=30)

- 21) ನ್ಯೂಕ್ಲಿಯಸ್‌ನ ಸೂಕ್ಷ್ಮ ರಚನೆ ಮತ್ತು ಕಾರ್ಯಗಳನ್ನು ವರ್ಣಿಸಿ.

ಅಥವಾ

ವರ್ಣತಂತುಗಳ ರಚನೆ ಬದಲಾವಣೆಗಳೆಂದರೇನು ? ವಿವಿಧ ಬಗೆಗಳನ್ನು ವರ್ಣಿಸಿ.

- 22) ವಿಕೃತಿಗಳು ಅಂದರೇನು ? ವಿಕೃತಿಯ ವಿವಿಧ ಬಗೆಗಳನ್ನು ವರ್ಣಿಸಿ.

ಅಥವಾ

ಡಿ.ಎನ್.ಎ. ರಚನೆ ಮತ್ತು ದ್ವಿಗುಣಗೊಳ್ಳುವಿಕೆಯನ್ನು ವಿವರಿಸಿ.

- 23) ಸಂಯೋಜನೆ ಅಂದರೇನು ? ಮೆಕ್ಕೆಜೋಳವನ್ನು ಪರಾಮರ್ಶಿಸಿ ಇದನ್ನು ವಿವರಿಸಿ.

ಅಥವಾ

ಎಪಿಸ್ಟಾಟಿಸ್ ಅಂದರೇನು ? ಪ್ರಬಲವಾದ ಎಪಿಸ್ಟಾಟಿಸ್‌ನ್ನು ಸರಿಯಾದ ಉದಾಹರಣೆಯೊಂದಿಗೆ ವಿವರಿಸಿ.

2438 – F73 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020
BOTANY (Paper – II)

Time : 3 Hours]

[Max. Marks : 80

Instructon : Draw neat labelled diagrams wherever necessary.

I. Answer any ten of the following :

(10×2=20)

- 1) Protobionts
- 2) Trench layering
- 3) Mass selection
- 4) Triticale
- 5) Scion
- 6) Rhizogenesis
- 7) Laminar Air Flow
- 8) Asepsis
- 9) Hybrid DNA
- 10) Lysozyme
- 11) Genomic DNA library
- 12) Immunofluorescence.

II. Answer any six of the following :

(6×5=30)

- 13) Explain the mutation theory of evolution with examples.
- 14) What is plant introduction ? Describe the procedure.
- 15) What is Pollen bank ? Explain the methods of Pollen storage.
- 16) Briefly explain the anther culture technique and its significance.
- 17) What is Callus ? Briefly explain the steps of Callus culture.

[P.T.O.]



- 18) What are restriction endonucleases ? Explain their role in creating hybrid DNA molecule.
- 19) What are transgenic plants ? Explain steps involved in the production of transgenic plants.
- 20) Describe ELISA technique to detect plant diseases.

III. Answer **all** the following :

- 21) What is male sterility ? Explain different types and mention its significance.

OR

Describe the procedure for mutation breeding. Explain the merits and demerits of mutation breeding. (1×10=10)

- 22) What is somatic embryogenesis ? Explain the process of inducing somatic embryogenesis with its applications.

OR

What is sterilization ? Explain different methods of sterilization in tissue culture. (1×10=10)

- 23) Describe r-DNA technology and mention its applications.

OR

Explain the structure of Ti plasmid. Add a note on its use in production of transgenic plants. (1×10=10)

ಕನ್ನಡ ಆವೃತ್ತಿ

ಸೂಚನೆ: ಅವಶ್ಯವಿದ್ದಲ್ಲಿ ಅಂದವಾದ ಹೆಸರಿಸಿದ ಚಿತ್ರ ಬಿಡಿಸಿರಿ.

- I. ಈ ಕೆಳಗಿನ ಯಾವುದೇ ಹತ್ತಕ್ಕೆ ಉತ್ತರಿಸಿರಿ :

(10×2=20)

- 1) ಪ್ರೊಟೋಬಯೋಟ್
- 2) ಟ್ರೇಂಜ್ ಲೇಯರಿಂಗ್
- 3) ಮೂಸ್ ಸೆಲೆಕ್ಷನ್



- 4) ಟ್ರಿಟಿಕಾಲೆ
- 5) ಸಿಯಾನ್
- 6) ರೈರೋಜಿನೆಸಿಸ್
- 7) ಲೆಮೈನಾರ್ ಏರ್ ಪ್ಲೊ
- 8) ಅಸೆಪ್ಸಿಸ್
- 9) ಹೈಬ್ರಿಡ್ ಡಿ.ಎನ್.ಎ.
- 10) ಲೈಸೊಜೈಮ್
- 11) ಜಿನೊಮಿಕ್ ಡಿ.ಎನ್.ಎ. ಲೈಬ್ರರಿ
- 12) ಇಮ್ಯುನೊಪ್ರೋರೆಸೆನ್ಸ್.

II. ಈ ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಯಾವುದೇ ಆರಕ್ಕೆ ಉತ್ತರಿಸಿರಿ :

(6×5=30)

- 13) ವಿಕಸನದ ಮ್ಯುಟೇಷನ್ ಸಿದ್ಧಾಂತವನ್ನು ಉದಾಹರಣೆಯೊಂದಿಗೆ ವಿವರಿಸಿರಿ.
- 14) ಸಸ್ಯ ಪರಿಚಯ ಎಂದರೇನು ? ಅದರ ಪದ್ಧತಿಯನ್ನು ವಿವರಿಸಿರಿ.
- 15) ಪರಾಗರೇಣು ಬ್ಯಾಂಕ್ ಎಂದರೇನು ? ಪರಾಗರೇಣು ಸಂಗ್ರಹದ ವಿಧಾನಗಳನ್ನು ವರ್ಣಿಸಿರಿ.
- 16) ಕೇಸರ ಕೃಷಿ ಪದ್ಧತಿಯನ್ನು ಮತ್ತು ಅದರ ಉಪಯುಕ್ತತೆಯನ್ನು ವಿವರಿಸಿರಿ.
- 17) ಕ್ಯಾಲಸ್ ಎಂದರೇನು ? ಕ್ಯಾಲಸ್ ಕೃಷಿಯ ಹಂತಗಳನ್ನು ವರ್ಣಿಸಿರಿ.
- 18) ರೆಸ್ಟ್ರಿಕ್ಟ್ ಎಂಡೋನ್ಯುಕ್ಲಿಯೇಸ್ ಎಂದರೇನು ? ಹೈಬ್ರಿಡ್ ಡಿ.ಎನ್.ಎ. ತಯಾರಿಕೆಯಲ್ಲಿ ಇದರ ಪಾತ್ರವನ್ನು ವಿವರಿಸಿರಿ.
- 19) ಟ್ರಾನ್ಸ್‌ಜೆನಿಕ್ ಸಸ್ಯಗಳು ಎಂದರೇನು ? ಟ್ರಾನ್ಸ್‌ಜೆನಿಕ್ ಸಸ್ಯಗಳನ್ನು ತಯಾರಿಸುವ ವಿವಿಧ ಹಂತಗಳನ್ನು ವಿವರಿಸಿರಿ.
- 20) ಸಸ್ಯಗಳ ರೋಗಗಳನ್ನು ಗುರುತಿಸಲು ಎಲಿಸಾ ತಂತ್ರಜ್ಞಾನವನ್ನು ವಿವರಿಸಿರಿ.



III. ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ :

- 21) ಗಂಡು ನಪುಂಸಕತೆ ಎಂದರೇನು ? ಅದರ ವಿವಿಧ ಪ್ರಕಾರಗಳು ಮತ್ತು ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ವಿವರಿಸಿರಿ.

ಅಥವಾ

ರೂಪಾಂತರ ಸಂತಾನೋತ್ಪತ್ತಿ ಪದ್ಧತಿಯನ್ನು ವಿವರಿಸಿರಿ. ರೂಪಾಂತರ ಸಂತಾನೋತ್ಪತ್ತಿಯ ಗುಣಗಳು ಮತ್ತು ಅವಗುಣಗಳನ್ನು ವಿವರಿಸಿರಿ. (1×10=10)

- 22) ಸೊಮೆಟಿಕ್ ಎಂಬ್ರಿಯೋಜಿನಿಸಿಸ್ ಎಂದರೇನು ? ಸೊಮೆಟಿಕ್ ಎಂಬ್ರಿಯೋಜಿನಿಸಿಸ್ ಅಳವಡಿಕೆಯ ವಿಧಾನವನ್ನು ವಿವರಿಸಿರಿ.

ಅಥವಾ

ಸ್ಪರ್ಮಿಲೈಜೇಷನ್ ಎಂದರೇನು ? ಅಂಗಾಂಶ ಕೃಷಿಯಲ್ಲಿನ ವಿವಿಧ ಸ್ಪರ್ಮಿಲೈಜೇಷನ್ ವಿಧಾನಗಳನ್ನು ವಿವರಿಸಿರಿ. (1×10=10)

- 23) ರಿಕೊಂಬಿನೆಂಟ್ ಡಿ.ಎನ್.ಎ. ತಂತ್ರಜ್ಞಾನವನ್ನು ವಿವರಿಸಿರಿ ಮತ್ತು ಅದರ ಉಪಯೋಗಗಳನ್ನು ನಮೂದಿಸಿರಿ.

ಅಥವಾ

Ti ಪ್ಲಾಸ್ಮಿಡ್ ರಚನೆಯನ್ನು ವಿವರಿಸಿರಿ. ಟ್ರಾನ್ಸ್‌ಜೆನಿಕ್ ಪ್ಲಾಂಟ್‌ನ ತಯಾರಿಕೆಯಲ್ಲಿ ಅದರ ಉಪಯೋಗದ ಬಗ್ಗೆ ತಿಳಿಸಿರಿ. (1×10=10)

2439 – F74 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020

ZOOLOGY

Paper – I

Time : 3 Hours]

[Max. Marks : 80

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

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

- 1) Define biomagnification.
- 2) What is estuary ?
- 3) Define biosphere.
- 4) Name denitrifying bacteria.
- 5) What is cyclomorphosis ?
- 6) Define population density.
- 7) What is zoogeography ?
- 8) Expand RDB and CBD.
- 9) What is discontinuous distribution of animals ? Give examples.
- 10) Define ecotone.
- 11) Differentiate between Plankton and Nekton.
- 12) What is ex-situ conservation ? Give examples.

[P.T.O.]



II. Answer **any six** of the following.

(6×5=30)

- 13) Write a note on climax community.
- 14) Give an account of salient features of wild life protection Act, 1972.
- 15) Give brief account on ecological adaptations to terrestrial habitat.
- 16) Describe solid hazardous waste management.
- 17) Briefly explain age distribution and population growth rate.
- 18) Write a note on mangroves.
- 19) Explain sulphur cycle with schematic representation.
- 20) Write a note on effect of temperature on growth and development of animals.

III. Answer the following :

- 21) a) Explain animal relationships with relevant examples.

(1×10=10)

OR

- b) Write a brief note on ecological adaptations to freshwater habitat.

- 22) a) Explain need of wild life conservation and add a note on agencies engaged in wild life conservation.

(1×10=10)

OR

- b) Explain the climatic conditions and fauna of oriental and nearctic region.

- 23) a) Define air pollution. Explain causes, effects and preventive measures of air pollution.

(1×10=10)

OR

- b) Describe the distribution of wild life in tropical rain forests.
-

2440 – F74 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020
ZOOLOGY

**Paper – II : GENETICS, BIOTECHNOLOGY AND
NANO-TECHNOLOGY**

Time: 3 Hours]

[Max. Marks: 80

Instruction : Draw diagrams *wherever* necessary.

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

- 1) What is position effect ?
- 2) Define "Law of purity of gametes".
- 3) Mention the Antigens and Antibodies present in Blood groups A and B.
- 4) What is genotype ?
- 5) Give the chromosome compliment in Turner's Syndrome.
- 6) What are Free martins ?
- 7) Define Nanotechnology.
- 8) What is Rh factor ?
- 9) Define Genomics.
- 10) Mention the types of RNA.
- 11) What is Cloning ?
- 12) What is Cris-Cross inheritance ? Give an example.

[P.T.O.]



II. Answer **any six** of the following.

(6×5=30)

- 13) What are complementary factors ? Explain with example.
- 14) Explain Genic balance theory.
- 15) Write a brief note on Kappa particles.
- 16) Write a note on Y-linked inheritance.
- 17) Mention the application of Nanotechnology in healthcare.
- 18) Write a note on Sickle-cell anemia.
- 19) What is chromosomal aberration ? Add a note on deletion and duplication.
- 20) Describe operon concept.

III. What is epistasis ? Explain recessive epistasis with an example of coat colour in mice.

OR

Explain the pattern of ABO Blood group inheritance in man. (1×10=10)

IV. Explain in detail the Environment and hormonal effect in Sex-determination.

OR

Explain the mechanism the protein synthesis. (1×10=10)

V. Write an account on inheritance of Haemophilia in man.

OR

Write short notes on :

- a) Down's Syndrome.
- b) Albinism.

(1×10=10)

2445 – F90 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020

COMPUTER SCIENCE (Optional)

Paper – I : Java and Internet Programming

Time : 3 Hours]

[Max. Marks : 80

Instruction : Answer *any five* questions.

1. a) Describe the features of Java programming.
b) Write about JDK.
c) Explain why Java is called platform independent language.
(8+4+4=16)
2. a) What is pretested and post test loop statements in Java ? Explain with syntax and example.
b) Explain the use of command line argument in Java with example.
(10+6=16)
3. a) How do you use readLine () method ? Explain.
b) What is exception handling ? Write the advantage of exception handling.
c) Write a Java program to demonstrate exception Handling.
(4+6+6=16)
4. a) Explain method overloading and method overriding with example.
b) What are constructors ? Write its types.
c) Explain any four string methods available in Java with syntax and example.
(8+4+4=16)

[P.T.O.]



5. a) Define multi-threading. Explain the life cycle of thread with a neat diagram.
b) Explain any four built in packages in Java.
c) Write steps to create user defined package. **(8+4+4=16)**
6. a) Define Applet. Explain the life cycle of an Applet.
b) Explain any four components of AWT.
7. a) What are Java servelets ? What are the advantages of servelet.
b) Define Java Script. Explain the steps involved in interactive web page development. **(6+10=16)**
8. Write short notes.
a) String Buffer
b) Finally
c) HTML tags
d) Event Handlers. **(4x4=16)**
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2446 – F90 – VISS – S – 20



SIXTH SEMESTER B.SC. DEGREE EXAMINATION, SEPTEMBER 2020
COMPUTER SCIENCE (as one of the optionals)
Paper – II : Database Management System

Time : 3 Hours]

[Max. Marks : 80

Instruction : Answer *any five full questions*.

- I. a) Explain the Goals and Advantages of DBMS.
b) Discuss the people who are directly associated with DBMS. (10+6=16)
- II. a) Discuss various types of Database Interfaces.
b) Describe classification of DBMS.
c) What do you mean by data independence ? Explain. (6+6+4=16)
- III. a) What is Data Model ? Give examples. Explain Entity - Relationship Model.
b) Explain Attributes, their Domains and types of attributes with example. (8+8=16)
- IV. a) Explain Relational Model concepts and characteristics of relations.
b) Describe integrity constraints. (8+8=16)
- V. a) With suitable examples explain set theory operations : UNION, INTERSECTION, MINUS and CROSS PRODUCT.
b) What is the purpose of using 'Join' operation ? Discuss different join operators Theta-join, Equi-join and Natural-join. (8+8=16)

[P.T.O.]



- VI. a) Explain insertion, deletion and modification anomalies.
b) How to bring a table into first, second and third normal form ? Explain with examples. (8+8=16)
- VII. a) Define a Transaction. Explain ACID properties of a transaction.
b) Discuss the concurrency control techniques, Locks and Time Stamp ordering. (8+8=16)
- VIII. Write short notes on :
- a) Referential constraints
 - b) Database Languages
 - c) DIVISION operator
 - d) Read and write operations on transactions. (4×4=16)
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