This question paper contains **2** printed pages]

CA—01—2025

FACULTY OF HUMANITIES, SCIENCE AND TECHNOLOGY, COMMERCE AND MANAGEMENT

B.A./B.Sc./B.Com. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020)

ENGLISH (Compulsory)

Paper HENGAEC-1101

(Developing Spoken Communication–I)

(Thursday, 13-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—30

N.B. :— (*i*) Question No. **1** is compulsory.

(*ii*) Attempt any *two* questions from Q. No. **2** to Q. No. **5**.

(*iii*) Figures to the right indicate full marks.

1. Write short notes on : 10

(*i*) Body language

(*ii*) Question tags

(*iii*) Compering

(*iv*) Principles of effective conversation.

P.T.O.

2. Explain the types of verbal communication. 10

3. Write *five* common self-introduction questions along with their answer, covering the following points : 10

   name, address, education, food habits and hobbies.

4. What is a welcome speech ? Explain the important tips for an effective welcome speech. 10

5. Your college is planning a trip to Deogiri Fort. Write a conversation in which you convince your friend to join the trip. 10

This question paper contains **2** printed pages]

CA—10—2025

FACULTY OF HUMANITIES

B.A./B.Sc./B.Com. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

HINDI (MIL)

(Sahitya Kalash Aur Vyavaharic Hindi Part–I)

HHINMIL-1101

(साहित्य कलश और व्यावहारिक हिंदी भाग–I)

(Saturday, 15-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—30

N.B. :— (*i*) **पहला** प्रश्न अनिवार्य है।

(*ii*) प्रश्न क्रमांक **2** से **5** में से किन्हीं **दो** प्रश्नों के उत्तर लिखिए।

(*iii*) **सभी** प्रश्नों के समान अंक हैं।

1. टिप्पणियाँ लिखिए : 10

(अ) 'सरहद के इस पार कहानी' का रेहान

(ब) हरिवंशराय बच्चन का सामान्य परिचय

(क) ब्लॉग लेखन का अर्थ

(ड) दूरदर्शन के विज्ञापन की विशेषताएँ।

P.T.O.

2. 'पंच परमेश्वर' कहानी की कथावस्तु लिखिए। 10

3. 'नर हो, न निराश करो मन को', कविता में व्यक्त संदेश पर प्रकाश डालिए। 10

4. ब्लॉग लेखन की उपयोगिता लिखिए। 10

5. आकाशवाणी के विज्ञापन की विशेषताएँ लिखिए। 10

This question paper contains **2** printed pages]

CA—1002—2025

FACULTY OF ALL

B.A./B.Com./B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020 Pattern)

INDIAN KNOWLEDGE SYSTEM

Paper IKS-1101

(Undergraduate level students studying across all faculties)

(Tuesday, 11-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—30

N.B. :— (*i*) *All* questions carry equal marks.

(*ii*) Question No. **1** is compulsory.

(*iii*) Attempt any *two* of the remaining four questions (Q. Nos. **2** to **5**).

(*iv*) Figures to the right indicate full marks.

(*i*) **सर्व** प्रश्नांना समान गुण आहेत.

(*ii*) प्रश्न क्र. **1** अनिवार्य आहे.

(*iii*) उर्वरित चार प्रश्नांपैकी (प्रश्न क्र. **2** ते प्रश्न क्र. **5**) कोणतेही **दोन** प्रश्न सोडवा.

(*iv*) उजवीकडील अंक पूर्ण गुण दर्शवितात.

1. Solve the following questions (2.5 marks each) : 10

(*a*) What is the main objective of the Indian Knowledge System ?

(*b*) What is the difference between Astika and Nastika traditions ?

(*c*) Who were the ancient Indian dramatists ? Describe their plays and contributions.

(*d*) Write any *two* ancient methods of water conservation.

P.T.O.

खालील प्रश्न सोडवा (प्रत्येकी **2.5** गुण) :

(अ) भारतीय ज्ञान प्रणालीचे मुख्य उद्दिष्ट काय आहे ?

(ब) आस्तिक व नास्तिक संप्रदाय यांमध्ये काय फरक आहे ?

(क) प्राचीन भारतीय नाटककार कोण होते ? त्यांच्या नाटकांचे आणि योगदानाचे वर्णन करा.

(ड) जलसंधारणासाठी प्राचीन काळातील **दोन** पद्धती लिहा.

2. Discuss the structure and outcomes of the Gurukul tradition in the ancient education system. 10

प्राचीन शिक्षण पद्धतीतील गुरुकुल परंपरेची रचना आणि परिणामांची चर्चा करा.

3. Place and compare the positions of Buddhism, Jainism and Charvaka in the Nastika (non-orthodox) traditions of Indian philosophy. 10

भारतीय तत्त्वज्ञानातील नास्तिक परंपरेत बौद्ध, जैन आणि चार्वाक यांचे स्थान मांडून त्यांची तुलना करा.

4. According to Indian philosophy, what is Purushartha and what are its four main aspects ? Explain the significance of these four Purusharthas and how they impact life. 10

भारतीय तत्वज्ञानानुसार पुरुषार्थ म्हणजे काय आणि त्याचे चार प्रमुख अंग कोणती आहेत ? या चार पुरुषार्थांचे महत्त्व आणि त्यांचा जीवनावर कसा प्रभाव पडतो, हे स्पष्ट करा.

5. Elaborate on the development of astronomy during the Vedic and post-Vedic periods. 10

वैदिक व उत्तरवैदिक काळातील खगोलशास्त्राचा विकास विशद करा.

This question paper contains **2** printed pages]

CA—11—2025

FACULTY OF HUMANITIES

B.A./B.Com./B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

MARATHI (MIL)

Paper AEC MAR-1101

(गद्य, पद्य व उपयोजित मराठी-I)

(Saturday, 15-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—30

N.B. :— (*i*) **पहिला** प्रश्न सोडविणे अनिवार्य आहे.

(*ii*) **सर्व** प्रश्नांना समान गुण आहेत.

1. थोडक्यात टिपा लिहा : 10

(अ) इतिवृत्ताचे स्वरूप

(ब) 'काळ्या तोंडाची' कथेतील चंपी

(क) 'महाराजा सयाजीराव गायकवाड' यांचे कार्ये

(ड) 'अंदाज आरशाचा' मधील प्रेमाविष्कार.

P.T.O.

पुढील प्रश्न क्रमांक **2** ते **5** यामधील कोणतेही **दोन** प्रश्न सोडवा : 20

2. ताराबाई शिंदे यांनी निबंधातून स्त्रीवर होणाऱ्या अन्यायाचे वर्णन कसे केले आहे ? ते लिहा.

3. लेखकाच्या जीवन संघर्षाचे चित्रण 'प्रयत्नवादी-जीवनप्रवास' या पाठाधारे विशद करा.

4. दिनकर साळवे यांच्या कवितेतून स्त्री जीवनाचे दु:ख कसे प्रकट झाले आहे ते स्पष्ट करा.

5. कार्यालयीन पत्रलेखनाचे स्वरूप विशद करा.

This question paper contains **2** printed pages]

NEPGA—2010—101—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP Pattern)

BOTANY

SBOTCT-1101

(Viruses, Bacteria and Algae)

(Thursday, 20-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) Question No. **1** is compulsory.

(*ii*) Of the remaining, attempt any *two* questions.

(*iii*) Draw neat and labelled diagram wherever required.

1. Write brief notes on the following : 10

(*a*) Classification of viruses on the basis of host. 2½

(*b*) General characters of Bacteria. 2½

(*c*) Akinete. 2½

(*d*) Structure of Globule in Chara. 2½

P.T.O.

2. Give an account of general characters of viruses and add a note on transmission of viruses. 10

3. Describe the process of conjugation in Bacteria. 10

4. Give an account of general characters of Algae and add a note on thallus organization in Algae. 10

5. Write systematic position, occurrence and describe thallus structure of Ectocarpus. 10

This question paper contains **3** printed pages]

NEPGA—1010—101—2025

FACULTY OF SCIENCE

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP Pattern)

CHEMISTRY

(SCHECT-1101)

(Organic and Inorganic Chemistry)

(Tuesday, 18-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) *All* questions carry equal marks.

(*ii*) Question No. **1** is compulsory.

(*iii*) Solve any *two* of the remaining four questions (Q. No. **2** to **5**).

(*iv*) Figures to the right indicate full marks.

1. Solve the following questions (2.5 marks each) : 10

(*a*) Define the term Electrophile and Nucleophile with suitable example.

(*b*) What is Huckel's rule ? Explain the aromaticity of Naphthalene.

P.T.O.

(*c*) Explain acidic nature of Phenol.

(*d*) Explain the terms :

(*i*) Electron Affinity

(*ii*) Atomic radius.

2. Solve the following : 10

(*a*) Write a brief note on Inductive effect and Hyperconjugation effect.

(*b*) Explain the homolytic and heterolytic bond fission with suitable example.

3. Solve the following : 10

(*a*) Explain Friedel-Craft acylation of Benzene with mechanism.

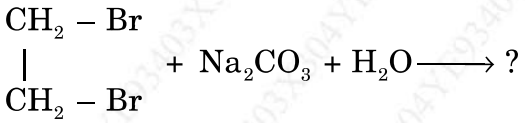
(*b*) (*i*) Write a note on Kekule structure of benzene.

(*ii*) Explain variation of Ionization energy along a period and in a group.

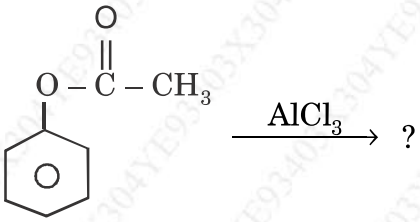
4. Solve the following : 10

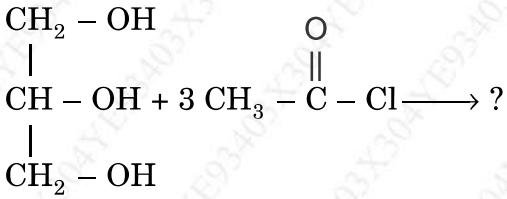
(*a*) Predict the product :

(*i*) $CH_2 = CH_2 + \frac{1}{2}O_2 \xrightarrow{Ag} ?$

(*ii*) 

(*iii*) 

(*iv*) 

(*v*) 

(*b*) Explain Kolbe's carboxylation reaction with mechanism.

5. Solve the following : 10

(*a*) Write general characteristics of *s*-block elements.

(*b*) Define electron affinity. Explain the factor affecting on it.

This question paper contains **2** printed pages]

NEPGA—5140—101—2025

FACULTY OF SCIENCE

B.Sc. (NEP) (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

ELECTRONICS

SELECT-1101

(Fundamentals of Analog and Digital Electronics)

(Friday, 28-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. *:—* (*i*) Question No. **1** is compulsory.

(*ii*) Solve any *two* questions from Q. Nos. **2** to **5**.

1. Solve the following questions : 10

(*a*) What is meant by ideal voltage source.

(*b*) Define Kirchhoff's current and voltage law.

(*c*) Convert :

$$(ABCD)_{16} = (?)_{2.}$$

(*d*) Draw the symbol and truth table of NAND gate.

P.T.O.

2. Solve the following : 10

(*a*) Explain Ohm's law and show linear resistance.

(*b*) Explain the proportional voltage formula with example.

3. Solve the following : 10

(*a*) State and explain Thevenin's theorem.

(*b*) State and explain the Superposition theorem.

4. Perform the following conversions : 10

(*i*) $(100111)_2 = (?)_{16}$

(*ii*) $(64)_{10} = (?)_2$

(*iii*) $(1011)_2 \times (110)_2$

(*iv*) $(1010)_2 \div (10)_2$.

5. State the prove DeMorgan's Ist and IInd theorems. 10

This question paper contains **2** printed pages]

NEPGA—4030—101—2025

FACULTY OF SCIENCE

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP Pattern)

INDUSTRIAL CHEMISTRY

Paper-SICHCP-1101

(Fluid Mechanics and Lubricant)

(Tuesday, 25-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) Scientific calculator and log table is allowed.

(*ii*) Question No. **1** is compulsory.

(*iii*) Solve any *two* questions from Q. No. **2** to Q. No. **5**.

1. Solve the following questions :

(*i*) Explain carbocation intermediate with suitable example. 2.5

(*ii*) What is fluid ? Give the classification of fluid. 2.5

(*iii*) Write a note on pipe and tubing. 2.5

(*iv*) Explain fire point of lubricant. 2.5

P.T.O.

2. Solve the following :

(*i*) Explain Aldol condensation and Cannizzaro reaction with suitable reaction mechanism. 5

(*ii*) Explain distillation unit operation with neat labelled diagram. 5

3. Solve the given example :

(*i*) P-water of density 1000 Kg/m^3 and viscosity 0.0008 kg/m.s is pumped at 10 m^3/hr. through a 25 m.m. i.d pipe. Calculate the value of Reynolds number. 5

(*ii*) Explain equation of continuity with suitable diagram. 5

4. Solve the following :

(*i*) Explain venturimeter with neat labelled diagram. 5

(*ii*) Explain reciprocating pump with neat labelled diagram. 5

5. Solve the following :

(*i*) Explain Redwood viscometer with neat labelled diagram. 5

(*ii*) Explain classification and properties of fluids. 5

This question paper contains **3** printed pages]

NEPGA—3010—101—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.A./B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020 Pattern)

MATHEMATICS

Paper–SMATCT-1101

(Topics in Algebra-I)

(Saturday, 22-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) Question No. **1** is compulsory.

(*ii*) *All* questions carry equal marks.

(*iii*) Solve any *two* of the remaining four questions (Q. No. **2** to Q. No. **5**)

(*iv*) Figures to the right indicate full marks.

1. Attempt the following : 10

(*a*) Define intersection of sets with suitable example.

P.T.O.

(*b*) Define composition of functions.

(*c*) State elementary row operations.

(*d*) State Cayley-Hamilton theorem.

2. Attempt the following : 10

(*a*) If A = {1, 2, 3] and B = {*a*, *b*}, then whether A × B = B × A ?

(*b*) If X is a non-empty set, N is an equivalence relation on X and $y \in [x]$, then prove that $[x] = [y]$.

3. Attempt the following : 10

(*a*) For the functions $f : X \to Y$, $g : Y \to Z$ and $h : Z \to W$,

prove that :

$$ho(gof) = (hog)of.$$

(*b*) If the function $F : (0, 1] \to \mathbf{R}$ is defined by

$$f(x) = \frac{1}{x}, \forall\, x \in (0, 1],$$

then show that f is one-one.

4. Attempt the following : 10

(*a*) Reduce to a row reduced echelon form the matrix :

$$A = \begin{bmatrix} 0 & 0 & -2 & 3 & 1 \\ 2 & 4 & 1 & 4 & 3 \\ 1 & 2 & -3 & 1 & 2 \\ 4 & 8 & 2 & 3 & 5 \end{bmatrix}$$

Also find its row rank.

(*b*) Reduce to a row echelon form the matrix :

$$A = \begin{bmatrix} 3 & 4 & 1 & 2 \\ 3 & 2 & 1 & 4 \\ 7 & 6 & 2 & 5 \end{bmatrix}$$

Also find its row rank.

5. Attempt the following : 10

(*a*) If AX = 0 is a homogenous system of equations in n unknowns and $X_1 = (x_1, x_2, x_3, \ldots\ldots\ldots, x_n)$ and $X_2 = (y_1, y_2, y_3, \ldots\ldots\ldots, y_n)$ are two solutions of this system, then prove that

$$X_1 + X_2 = (x_1 + y_1, x_2 + y_2, x_3 + y_3, \ldots\ldots\ldots, x_n + y_n)$$

is also a solution. Also if λ is a scalar, then prove that $\lambda X_1 = (\lambda x_1, \lambda x_2, \lambda x_3, \ldots\ldots\ldots\ldots, \lambda x_n)$ is also a solution.

(*b*) Find the characteristic roots and the spectrum of the matrix :

$$A = \begin{bmatrix} 1 & 1 & -2 \\ -1 & 2 & 1 \\ 0 & 1 & -1 \end{bmatrix}.$$

This question paper contains **2** printed pages]

NEPGA—5230—201—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP 2020 Pattern)

MICROBIOLOGY

SMICCT-1151

(Microbial Physiology)

(Saturday, 29-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. *:—* (*i*) Question No. **1** is compulsory.

(*ii*) Attempt any *two* questions of the remaining questions (from Q. No. **2** to Q. No. **5**).

(*iii*) Illustrate your answer with suitable diagram.

1. Write in brief : 10

(*a*) Tyndallization

(*b*) Growth factors

(*c*) Binary fission

(*d*) Significance of calcium dipicolinate

P.T.O.

2. Describe in detail sterilization by moist heat with reference to autoclave. 10

3. Explain in detail nutritional categories of microorganisms on the basis of carbon and energy source. 10

4. What is growth ? Explain different phases of bacterial growth curve. 10

5. What is sporulation ? Explain different stages of endospore formation in *Bacillus*. 10

This question paper contains **2** printed pages]

NEPGA—3020—101—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (NEP) (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

ZOOLOGY

(SZOOCT-1101)

(Biodiversity of Non-chordates)

(Saturday, 22-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) Question No. **1** is compulsory.

(*ii*) Solve any *two* questions out of Q. No. **2** to Q. No. **5**.

(*iii*) **10** marks for each question.

(*iv*) Draw well labelled diagram wherever necessary.

1. Write short notes on the following : 10

(*a*) Components of canal system in *Sycon*.

(*b*) Control measures of *Ascaris lumbricoides*.

(*c*) Vermiculture

(*d*) Economic importance of Mollusca.

P.T.O.

2. Describe control measures of Malaria. 10

3. Describe life cycle of *Taenia solium*. 10

4. Describe metamorphosis in Insects. 10

5. Describe general characters of phylum Echinodermata. 10

This question paper contains **2** printed pages]

CA—1003—2025

FACULTY OF ALL

B.A./B.Com./B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020 Pattern)

VALUE EDUCATION

Paper VECCOI-1151

(Constitution of India)

(Wednesday, 12-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—30

N.B. :— (*i*) Question No. **1** is compulsory.

(*ii*) Students are required to solve a total of *three* questions.

(*iii*) Students need to solve any *two* of the remaining four questions (Q. No. **2** to Q. No. **5**).

(*i*) प्रश्न क्र. **1** अनिवार्य आहे.

(*ii*) विद्यार्थ्यांनी एकूण **तीन** प्रश्न सोडवणे आवश्यक आहे.

(*iii*) विद्यार्थ्यांनी चार प्रश्नांपैकी कोणतेही **दोन** प्रश्न सोडविणे आवश्यक आहे. (प्रश्न क्र. **2** ते प्रश्न क्र. **5**)

1. Write short notes (All) (2.5 marks each) : 10

(*a*) Drafting Committee

(*b*) Preamble

P.T.O.

(*c*) Judicial Activism

(*d*) State List.

थोडक्यात टिपा लिहा (सर्व) (प्रत्येकी **2.5** गुण) :

(*a*) मसूदा समिती

(*b*) उद्देशपत्रिका

(*c*) न्यायालयीन सक्रियता

(*d*) राज्य सूची.

2. State the salient features of the Indian Constitution. 10

भारतीय संविधानाची प्रमुख वैशिष्ट्ये स्पष्ट करा.

3. Explain in detail the Fundamental Rights. 10

मुळभूत अधिकारांचे सविस्तर विवेचन करा.

4. Explain the powers and functions of the Indian Prime Minister. 10

भारताच्या पंतप्रधानाचे अधिकार व कार्ये स्पष्ट करा.

5. Describe Centre-State administrative relation. 10

केंद्र-राज्य प्रशासकीय संबंधाचे वर्णन करा.

This question paper contains **2** printed pages]

CA—24—2025

FACULTY OF HUMANITIES, SCIENCE & TECHNOLOGY AND COMMERCE & MANAGEMENT

B.A./B.Com./B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

ENGLISH (Compulsory)

Paper HENGAEC-1151

(Developing Written Communication—II)

(Monday, 17-11-2025) **Time : 10.00 a.m. to 12.00 Noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (1) Question No. **1** is compulsory.

(2) Attempt any *two* questions from Question Nos. **2** to **5**.

(3) Figures to the right indicate full marks.

1. Write short notes on : 10

(*i*) Run-on sentence

(*ii*) Outlining of an essay

(*iii*) Structure of a job application letter

(*iv*) Types of memos.

P.T.O.

2. "Punctuation marks are essential in writing." Explain. 10

3. Describe the structure and essential features of report writing. 10

4. Prepare a resume for the post of Bank Manager, highlighting the key components such as contact information, career objective, education, skills, work experience, and other relevant sections. 10

5. Write a notice informing students about the Diwali vacation, including all the essential components of a notice. 10

This question paper contains **2** printed pages]

CA—03—2025

FACULTY OF HUMANITIES

B.A./B.Sc./B.Com. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

HINDI (MIL)

HHINMIL-1151

(साहित्य कलश और व्यावहारिक हिंदी, भाग-2)

(Friday, 14-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—30

N.B. :— (*i*) **पहला** प्रश्न अनिवार्य है।

(*ii*) प्रश्न क्रमांक **2** से **5** में से किन्हीं **दो** प्रश्नों के उत्तर लिखिए।

(*iii*) **सभी** प्रश्नों के समान अंक हैं।

1. टिप्पणियाँ लिखिए : 10

(अ) कृषि क्षेत्र में कृत्रिम मेधा

(ब) 'वसीयतनामा' कहानी के वल्लभदास

(क) निर्मला पुतुल का सामान्य परिचय

(ड) पाठ से अनुवाद प्रणाली के उपयोग।

P.T.O.

2. 'नेताजी का चश्मा' कहानी की मूल संवेदना लिखिए। 10

3. 'फर्क नहीं पड़ता' कविता का आशय लिखिए। 10

4. पाठ से वाक् प्रणाली की विशेषताएँ लिखिए। 10

5. कृत्रिम मेधा का महत्त्व समझाइए। 10

This question paper contains **2** printed pages]

CA—04—2025

FACULTY OF HUMANITIES

B.A. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

MARATHI (MIL)

Paper AECMAR-1151

(मराठी साहित्य आणि व्यावहारिक मराठी–II)

(Friday, 14-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—Two Hours *Maximum Marks*—30

N.B. :— (*i*) **पहिला** प्रश्न सोडविणे अनिवार्य आहे.

(*ii*) प्रश्न क्रमांक **2** ते **5** यापैकी कोणतेही **दोन** प्रश्न सोडवा.

(*iii*) **सर्व** प्रश्नांना समान गुण आहेत.

1. थोडक्यात टिपा लिहा : 10

(अ) गद्य म्हणजे काय ?

(ब) प्रवासवर्णन

(क) हायकू

(ड) जाहिरात.

P.T.O.

प्रश्न क्रमांक **2** ते **5** यापैकी कोणतेही **दोन** प्रश्न सोडवा.

2. 'रोमराज्य' या प्रवासवर्णनातून रोम शहराचे आलेले चित्रण लिहा. 10

3. 'हायकू' या कवितेतून आलेले शेतकरी जीवनातील संघर्षाचे स्वरूप सांगा. 10

4. बातमीलेखनाचे नियम सांगा. 10

5. 'वाटा-पळवाटा' या नाट्यांशातील घटना प्रसंगाचे वर्णन करा. 10

This question paper contains **2** printed pages]

NEPGA—2010—201—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020 Pattern)

BOTANY

Paper–SBOTCT-1151

(Fungi, Lichens and Mycorrhiza)

(Friday, 21-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) Question No. **1** is compulsory.

(*ii*) Of the remaining, attempt any *two* questions.

(*iii*) Draw neat and labelled diagram wherever required.

1. Write brief notes on the following : 10

(*a*) Systematic position and occurrence of Albugo.

(*b*) Application of fungi in Agriculture.

(*c*) Nature of association of algal and fungal partners.

(*d*) Economic importance of Mycorrhiza.

P.T.O.

2. Describe structure of mycelium and asexual reproduction in Eurotium. 10

3. Explain with details structure of Basidiocarp of Agaricus. 10

4. What are Lichens ? Describe types of Lichens. 10

5. Describe types of mycorrhiza in detail. 10

This question paper contains **2** printed pages]

NEPGA—1010—201—2025

FACULTY OF SCIENCE

B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP Pattern)

CHEMISTRY

Paper–SCHECT–1151

(Physical and Inorganic Chemistry)

(Wednesday, 19-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) *All* questions carry equal marks.

(*ii*) Question No. **1** is compulsory.

(*iii*) Solve any *two* of the remaining four questions.

(*iv*) Figures to the right indicate full marks.

(*v*) Use of calculator and logarithmic table is allowed.

1. Solve the following questions (2.5 marks each) : 10

(*a*) Explain Aufbau Principle

(*b*) Calculate root mean square velocity of Nitrogen (N_2) molecule at 100°C

($R = 8.314\ JK^{-1}mol^{-1}$)

P.T.O.

(*c*) Explain Brownian movement in colloids.

(*d*) Define oxidation and reduction on the basis of oxidation number concept.

2. Solve the following questions : 10

(*a*) Derive an expression for radius of *n*th Bohr orbit of H-atom. Calculate the radius of second Bohr orbit of H-atom.

(*b*) What are quantum numbers ? Explain quantum numbers in brief.

3. Solve the following questions : 10

(*a*) Derive van der Waals equation.

(*b*) (*i*) State postulates of kinetic theory of gases.

(*ii*) Give the uses of Helium and Neon.

4. Solve the following questions : 10

(*a*) What are emulsions ? How are they classified ? Give their preparations.

(*b*) Discuss the factors affecting adsorption.

5. Solve the following questions : 10

(*a*) Give the preparation, properties and structure of Xenon difluoride (XeF_2)

(*b*) Define oxidation, reduction, oxidizing agent and reducing agent according to classical concept.

This question paper contains **2** printed pages]

NEPGA—5140—201—2025

FACULTY OF SCIENCE

B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020 Pattern)

ELECTRONICS

SELECT-1151

(Electronic Devices and Digital Logic Circuits)

(Saturday, 29-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) Q. No. **1** is compulsory.

(*ii*) Solve any *two* questions from Q. Nos. **2** to **5**.

(*iii*) Draw neat and labelled diagrams wherever necessary.

(*iv*) Number to the right indicate full marks.

1. Solve the following questions : 10

(*i*) Explain the formation of depletion layer semiconductor.

(*ii*) Explain the working of R-R biasing of transistor.

(*iii*) Define encoder and decoder

(*iv*) Explain the operation of S-R flip-flop.

P.T.O.

2. Solve the following questions : 10

(*a*) Explain the forward biasing and reverse biasing.

(*b*) Explain the V-I characteristics of zener diode.

3. Solve the following : 10

(*a*) Derive an expression of α_{dc} and β_{dc} of a transistor.

(*b*) Explain the construction and operation of NPN and PNP of a transistor.

4. Solve the following : 10

(*a*) Explain the operation of 4 : 1 multiplexor and explain it.

(*b*) Explain working of the half adder.

5. Solve the following : 10

(*a*) Explain the race around condition in flip-flop.

(*b*) Explain the T-type flip-flop.

This question paper contains **2** printed pages]

NEPGA—4030—201—2025

FACULTY OF SCIENCE

B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP Pattern)

INDUSTRIAL CHEMISTRY

Paper-SICHCP-1151

(Heat Transfer, Fuels and Water Analysis)

(Thursday, 27-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) Scientific calculator and log table is allowed.

(*ii*) Question No. **1** is compulsory.

(*iii*) Solve any *two* questions from Q. No. **2** to Q. No. **5**.

1. Solve the following : 10

(*i*) Explain convection and types of convection. 2.5

(*ii*) Explain Fourier's law of conduction. 2.5

(*iii*) Explain flash point and fire point. 2.5

(*iv*) Explain Biochemical oxygen demand. 2.5

P.T.O.

2. Solve the following : 10

(*i*) Explain compound resistances in series with mathematical expression and neat labelled diagram. 5

(*ii*) Solve the example on estimate the heat loss per m^3 of the surface through a brick wall 0.5 m thick when the inner surface is at 400 K (127°C) and the outer surface is at 310 K (37°C). The thermal conductivity of the brick may be taken as 0.7 W(m.k.). Explain thermal conductivity with suitable example. 5

3. Solve the following : 10

(*i*) Explain individual and overall heat transfer coefficients. 5

(*ii*) Explain application of dimensional analysis of heat trnasfer by convection. 5

4. Solve the following : 10

(*i*) Explain altimate analysis of coal. 5

(*ii*) Explain fractional distillation of crude oil. 5

5. Solve the following : 10

(*i*) Write a note on causes of Hardness of water. 5

(*ii*) Explain chemical examination of water. 5

This question paper contains **3** printed pages]

NEPGA—3010—201—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.A./B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020)

MATHEMATICS

Paper–SMATCT-1151

(Analytical Geometry)

(Monday, 24-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. *:—* (*i*) *All* questions carry equal marks.

(*ii*) Question No. **1** is compulsory.

(*iii*) Solve any *two* of the remaining four questions (Q. No. **2** to Q. No. **5**).

(*iv*) Figures to the right indicate full marks.

1. Solve the following (2.5 marks each) : 10

(*a*) If 6, 2, 3 are proportional to the direction cosines of a line. What are their actual values ?

P.T.O.

This question paper contains **2** printed pages]

NEPGA—2020—201—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020)

PHYSICS

Paper–SPHYCT-1151

(Fundamental of Physics-II)

(Friday, 21-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) *All* questions carry equal marks.

(*ii*) Question No. **1** is compulsory.

(*iii*) Solve any *two* from remaining four questions (Q. No. **2** to Q. No. **5**)

(*iv*) Figures to the right indicate full marks.

1. Attempt *all* questions : 4×2.5=10

(*a*) What is reflecting telescope ? Give its one example.

(*b*) State Faraday's law of electromagnetic induction.

(*c*) State Ohm's law and write its expression.

(*d*) Write any *one* postulate of kinetic model.

P.T.O.

2. Explain the working principle of Ramsden eyepiece with neat labelled ray diagram. Discuss its merits and demerits. 10

3. What is mutual inductance ? Explain mutual inductance of a pair of co-axial solenoid. 10

4. State Norton's theorem. Explain maximum power transfer theorem. 10

5. Derive an expression for the pressure exerted by a gas in detail. 10

This question paper contains **2** printed pages]

NEPGA—3020—201—2025

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2025

(NEP-2020)

ZOOLOGY

Paper–SZOOCT-1151

(Biodiversity of Chordates)

(Monday, 24-11-2025) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—30

N.B. :— (*i*) *All* questions carry equal marks.

(*ii*) Question No. **1** is compulsory.

(*iii*) Solve any *two* of the remaining questions (Q. No. **2** to Q. No. **5**)

(*iv*) Figures to the right indicate full marks.

(*v*) Draw well labelled sketch wherever necessary.

1. Solve the following questions : 10

(*a*) General characters of cyclostomata.

(*b*) General character of pisces.

P.T.O.

(*c*) Identification of poisonous snake.

(*d*) Eye of rat.

2. Explain the general characters of Agnatha with suitable example. 10

3. Describe the Nervous system of scoliodon. 10

4. Explain the general characters of aves with suitable example. 10

5. Explain general characters of mammals with suitable example. 10