



Sl. No. 146502

B.Sc. III Semester Degree Examination, January/February - 2026

ಬೇಸಿಕ್ ಕನ್ನಡ (ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ)

ವಿಜ್ಞಾನ ವಿಜಯ - 3

Paper : 3

(NEP)

Time : 2 Hours

Maximum Marks : 60

ಸೂಚನೆ : ಭಾಷೆ ಮತ್ತು ಬರಹದ ಶುದ್ಧಿಗೆ ಗಮನ ಕೊಡಲಾಗುವುದು.

ವಿಭಾಗ - ಎ

ಈ ಕೆಳಗಿನ ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

(10×1=10)

1. a) 'ಜಮಾ ಖರ್ಚು' ಕವಿತೆಯ ರಚನೆಕಾರ ಯಾರು?
- b) 'ಸುಯೋಧನ ವಿಲಾಪ'ವನ್ನು ಯಾವ ಕಾವ್ಯದಿಂದ ಆಯ್ದುಕೊಳ್ಳಲಾಗಿದೆ.
- c) 'ಕರ್ಣಾಟ ಭಾರತ ಕಥಾಮಂಜರಿ' ಕಾವ್ಯವನ್ನು ಬರೆದವರು ಯಾರು?
- d) ಸಿದ್ಧಲಿಂಗಯ್ಯನವರ ಆತ್ಮಕಥೆಯ ಹೆಸರೇನು?
- e) 'ಬಿಡುಗಡೆಯ ಹಾಡು' ಕವಿತೆಯನ್ನು ರಚಿಸಿದ ಕವಿ ಯಾರು?
- f) ಡಾ. ಸದಾಶಿವ ದೊಡ್ಡಮನಿ ಯಾವ ಜಿಲ್ಲೆಯವರು?
- g) 'ಹೆದರದಿರು ಮನವೆ ಹಿಮ್ಮೆಟ್ಟದಿರು ಮನವೆ' ವಚನದ ಕರ್ತೃವನ್ನು ಹೆಸರಿಸಿ.
- h) ಶಿವಶರಣ ಹರಳಯ್ಯನ ಕಾಯಕ ಯಾವುದು?
- i) ಅಸಮಾನತೆ ಯಾವುದಕ್ಕೆ ಸೋಪಾನವಾಗಿದೆ?
- j) 'ಹಲಗಲಿಯ ಪದ' ಲಾವಣಿ ಸಂಗ್ರಹಕಾರರು ಯಾರು?



[P.T.O.]

ವಿಭಾಗ - ಬಿ

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

(4×5=20)

2. ದುರ್ಯೋಧನನ ದುಃಖದ ತೀವ್ರತೆಯನ್ನು ಕವಿ ಹೇಗೆ ವರ್ಣಿಸಿದ್ದಾನೆ ವಿವರಿಸಿ.
3. 'ಸರಸ ವಿರಸಗಳ ಸಮರಸವೇ ದಾಂಪತ್ಯ' ಎಂಬುದನ್ನು ಗರತಿಯ ಹಾಡುಗಳ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ವಿಶ್ಲೇಷಿಸಿ.
4. ಬ್ರಿಟಿಷರ ವಿರುದ್ಧ ಹಲಗಲಿಯ ಜನ ದಂಗೆ ಎಳಲು ಕಾರಣವೇನು? ವಿವರಿಸಿ.
5. ಡಾ. ಶಿವರಾಮ ಕಾರಂತರು 'ದೇವರ' ಕುರಿತ ವಿಚಾರಗಳನ್ನು ಪ್ರಬಂಧದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಚರ್ಚಿಸಿ.
6. 'ಪ್ರೇಮ ಸೌಧಾಗಾರ' ಕವಿತೆಯ ಆಶಯವನ್ನು ಬರೆಯಿರಿ.
7. ಶಲ್ಯನು ಕರ್ಣನ ಸಾರಥಿಯಾದ ಪ್ರಸಂಗವನ್ನು ವಿವರಿಸಿ.

ವಿಭಾಗ - ಸಿ

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

(3×10=30)

8. ಇಮಾಂಬೀಯು ಬದುಕನ್ನು ಸಾರ್ಥಕಗೊಳಿಸಿಕೊಂಡ ಸಾಹಸಕತೆಯನ್ನು ವಿವರಿಸಿ.
9. 'ಸ್ಥಾವರಕ್ಕಳಿವುಂಟು ಜಂಗಮಕ್ಕಳಿವಿಲ್ಲ' ಎಂಬ ವೈಚಾರಿಕ ಪ್ರಬಂಧದ ಮಹತ್ವವನ್ನು ವಿಶ್ಲೇಷಿಸಿ.
10. 'ಕೆರೆಗೆ ಹಾರ' ಕತನ ಗೀತೆಯಲ್ಲಿ ಅಭಿವ್ಯಕ್ತವಾದ ಹೆಣ್ಣಿನ ದುರಂತತೆಯನ್ನು ಚರ್ಚಿಸಿ.
11. 'ಭೂಮಿ ತೂಕದ ನಡಿಗೆ' ಕವಿತೆಯಲ್ಲಿ ಪಾರಂಪರಿಕ ಬದುಕನ್ನು ಚಿತ್ರಿಸಿರುವ ಬಗೆಯನ್ನು ವಿಶ್ಲೇಷಿಸಿ.
12. 'ರೈಲು ಪ್ರವಾಸ' - ಪ್ರಬಂಧದ ಸ್ವಾರಸ್ಯವನ್ನು ವಿವರಿಸಿ.





24BSLGKA3L/24BCLGKA3L

ಮೂರನೇ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಎಸ್ಸಿ./ಬಿ.ಸಿ.ಎ. (SEP) (Regular) ಪದವಿ ಪರೀಕ್ಷೆ, ಡಿಸೆಂಬರ್ 2025/ಜನವರಿ 2026

ಕನ್ನಡ ಬೇಸಿಕ್ ಪಠ್ಯ

Paper No. – 03 : ವಿಜ್ಞಾನ ಸೌರಭ – 2

ಸಮಯ : 3 ಗಂಟೆಗಳು

ಗರಿಷ್ಠಾಂಕಗಳು : 80

ಸೂಚನೆ : ಭಾಷೆ ಹಾಗೂ ಬರಹದ ಶುದ್ಧಿಗೆ ಗಮನ ಕೊಡಲಾಗುವುದು.

1. ಕೆಳಗೆ ಕೊಟ್ಟಿರುವ ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. (1×10=10)
 - a) ಕೇಂದ್ರ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ ಪ್ರಶಸ್ತಿ ಪಡೆದ ದ.ರಾ. ಬೇಂದ್ರೆ ಅವರ ಕೃತಿ ಯಾವುದು ?
 - b) 'ಕಾಳ-ಗೌರಿಯರ ಪ್ರೇಮಕಥೆ' ಕವನದ ಕೃತೃ ಯಾರು ?
 - c) 'ಸರಿಗೆ' ಪದದ ಸಮನಾರ್ಥ ಪದ ಬರೆಯಿರಿ.
 - d) ಕವಿ ರನ್ನನ ಜನ್ಮಸ್ಥಳ ಯಾವುದು ?
 - e) 'ಅಭಿನವ ಪಂಪ' ಎಂದು ಪ್ರಸಿದ್ಧನಾದ ಕವಿ ಯಾರು ?
 - f) ನಿಷ್ಕಿ ರುದ್ರಪ್ಪನವರ ಜನ್ಮಸ್ಥಳ ಯಾವುದು ?
 - g) ಶಂಕ್ರಜ್ಞನ ಮಗನ ಹೆಸರೇನು ?
 - h) ಮರಾಠಿ ಭಾಷೆಯ 'ರಾಮಾಬಾಯಿ' ಕಾದಂಬರಿ ಕನ್ನಡಕ್ಕೆ ಅನುವಾದಿಸಿದವರು ಯಾರು ?
 - i) ಟಾಲ್‌ಸ್ಟಾಯ್ ಅವರ ಪ್ರಕಾರ 'ಕಲೆ' ಎಂದರೇನು ?
 - j) 'ಒಂದು ಜನಾಂಗದ ಕಣ್ಣು ತೆರೆಸಿದ ಕವಿ' ಎಂದು ಯಾರನ್ನು ಕರೆಯುತ್ತಾರೆ ?
2. ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಭಾವ ಸೌಂದರ್ಯ/ಸಂಕ್ಷಿಪ್ತ ಉತ್ತರಗಳನ್ನು ಬರೆಯಿರಿ. (5×4=20)
 - a) 'ಬಿಸಿಲುಗುದುರೆ' ಕವನದಲ್ಲಿನ ಸಂಸಾರಿಕ ಜೀವನದ ವೈಪರೀತ್ಯಗಳನ್ನು ಬರೆಯಿರಿ.
 - b) "ಏನು ಬಂದಿರಿ ಹದುಳಿದ್ದಿರಿ ಎಂದಡೆ" ಮತ್ತು "ಉತ್ತಮ ಕುಲದಲ್ಲಿ ಹುಟ್ಟಿದೆನೆಂಬ" ಬಸವಣ್ಣನವರ ವಚನಗಳ ತಾತ್ಪರ್ಯ ಬರೆಯಿರಿ.
 - c) ಜಾತಿ ತಾರತಮ್ಯವೇ ಕಾಳ-ಗೌರಿಯರ ದುರಂತಕ್ಕೆ ಕಾರಣ. ನಿಮ್ಮ ಮಾತುಗಳಲ್ಲಿ ವಿವರಿಸಿರಿ.

P.T.O.



- d) "ರೊಕ್ಕ ಎರಡಕ್ಕೂ ದುಃಖ ಕಾಣಕ್ಕ" ಕೀರ್ತನೆಯಲ್ಲಿ ವ್ಯಕ್ತವಾದ ಪುರಂದರದಾಸರ ಆಶಯ ಬರೆಯಿರಿ.
- e) 'ದೇವರು ರುಜು ಮಾಡಿದನು' ಕವನದಲ್ಲಿ ಅಮಾರ್ತ ಭಾವನೆಗಳು ಮಾರ್ತಗೊಂಡಿದೆ ಸ್ಪಷ್ಟಪಡಿಸಿರಿ.
- f) ರಾಕ್ಷಸರು ಎಂದರೆ ಯಾರು ? ಅವರ ಗುಣಲಕ್ಷಣಗಳಾವುವು ? ವಿವರಿಸಿರಿ.

3. ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಪ್ರಬಂಧ ರೂಪದ ಉತ್ತರಗಳನ್ನು ಬರೆಯಿರಿ. (10×3=30)

- a) ಮನರಂಜಕರೆಂದು ಯಾರನ್ನು ಕರೆಯುತ್ತಾರೆ ? ಮನರಂಜಕ ಜನಾಂಗ ಮತ್ತು ಅವರ ಜೀವನದ ವೈಶಿಷ್ಟ್ಯಗಳೇನು ? ಬರೆಯಿರಿ.
- b) "ಸಂಪರ್ಕ ಸಾಧನವಾಗಿರುವ ಮೊಬೈಲು ಸರಸಕ್ಕೂ ಸಿದ್ಧ ವಿರಸಕ್ಕೂ ಬದ್ಧ" ಮೊಬೈಲ್ ಮಾಯಾಂಗನೆಯ ಕೈಯೊಳಿಡಿದು ಲಿಲಿತ ಪ್ರಬಂಧ ಆಧರಿಸಿ ಬರೆಯಿರಿ.
- c) ಬಡಪಿಶಾಚಿಯ ಮಾತಿಗೆ ದುರ್ಯೋಧನನು ಕೋಪಗೊಳ್ಳಲು ಕಾರಣವೇನು ವಿವರಿಸಿರಿ.
- d) ಭೀಮಾ-ರಮಾರ ಮದುವೆ ನಡೆದ ಪ್ರಸಂಗ ವಿವರಿಸಿರಿ.
- e) ಪತ್ರ ಲೇಖನದ ಸ್ವರೂಪ ಮತ್ತು ಪತ್ರದ ಸಪ್ತಾಂಗಗಳನ್ನು ಪರಿಚಯಿಸಿರಿ.

4. ಯಾವುದಾದರೂ ನಾಲ್ಕಕ್ಕೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ. (5×4=20)

- a) ಗೋಪಾಲಕೃಷ್ಣ ಅಡಿಗ
- b) 'ಏನು ಓದಲೇನು ಫಲ'
- c) ರನ್ನ
- d) ನಾಗಚಂದ್ರ
- e) ಶಂಕಜ್ಞ
- f) ಸಂಜಯ.

No. of Printed Pages : 2

21BSC3L2LE3



Sl. No. 198523

B.Sc./B.C.A III Semester Degree Examination, January/February - 2026
BASIC ENGLISH

Time : 2 Hours

Maximum Marks : 60

SECTION - A

I. Answer the following questions.

(10×1=10)

1. a) What is the name of the school teacher in the play
"silence! the court is in Session"?
- b) What does SDG Stand for ?
- c) Define narrative writing.
- d) What is an informative presentation?
- e) Who was the INA formed by and when?
- f) Who is the Chairman of the Constitution Drafting Committee?
- g) What is a Sales letter?
- h) What is an enquiry letter?
- i) Who plays the role of the judge in the mock trial in Vijay Tendulkar's play "Silence! the Court is in Session".
- j) When did Dr.B.R.Ambedkar deliver his final speech in the Constituent Assembly?



[P.T.O.]

SECTION - B**II. Answer any Four of the following questions****(4×5=20)**

1. Elaborate on Dr. Shalini Rajneesh's perspectives and arguments concerning gender equality and Women's empowerment.
2. Describe the themes of the Play Vijay Tendulkar's "Silence! the Court is in Session".
3. Discuss the role of the INA in India's freedom struggle
4. Summarise Bandi Guan's message about climate change.
5. Write a note on barriers to effective speaking.
6. Explain various types of letters and their importance in business correspondence.

SECTION - C**III. Answer any Three of the following questions.****(3×10=30)**

1. Explain Dr. B. R. Ambedkar's views on democracy as expressed in the 1946 speech
 2. "Gender equality is the foundation of a progressive society" Discuss this statement with reference to Dr. Shalini Rajneesh's talk.
 3. Analyse Bailey Parnells concept of "Toxic Social media".
 4. Discuss the barriers to effective speaking and suggest strategies to overcome them.
 5. Write a letter to the sales manager, Swapna Book House, Bangalore, placing an order for the books that you need for competitive exams.
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21BSC3L2LE3

**III Semester B.Sc./B.C.A. (NEP) (Repeaters) Degree
Examination, December 2025/January 2026**

**ENGLISH
Basic English**

Time : 2 Hours

Max. Marks : 60

SECTION – A

1. Answer the following questions. **Each** question carries **one** mark. **(10×1=10)**

- 'Silence ! The court is in Session' is originally written in _____ language.
- Who is Mr. Kashikar ?
- What did Subhaschandra Bose formed to fight for freedom ?
- Who gave the speech on Constituent Assembly on Dec. 17, 1946 ?
- What is descriptive writing ?
- Define narrative writing.
- Give example for order letter.
- What is informative presentation ?
- What is the purpose of comparative writing ?
- What is a complaint letter ?

SECTION – B

Answer **any four** of the following questions. **Each** question carries **five** marks. **(4×5=20)**

- Briefly describe the character of Mrs. Kashikar.
- Explain the views of Bailey Parnell on 'Is Social Media Hurting Your Mental Health ?'
- Write a complaint letter to the registrar, KUK for issue of marks cards.

P.T.O.



5. Give your narration on your journey to Kannada Sahitya Sammelana.
6. Write the descriptive writing on your experience on visit to university.
7. Give your note on the reflective writing on a rural life and an urban life.

SECTION – C

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

(3×10=30)

8. Discuss the ending of the play, 'Silence ! The court is in Session'.
 9. Elaborate the views of Dr. Shalini Rajaneesh on Gender equality and empower women and girls.
 10. Discuss the meaning, definition and purpose of decision making.
 11. What are the various kinds of presentation and describe the kinds ?
 12. Write a letter to V. S. Furniture for placing 20 tables for the departments in the college.
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24BSLGEN3L

**III Semester B.Sc./B.C.A. (SEP) (Regular) Degree
Examination, December 2025/January 2026
BASIC ENGLISH**

Time : 3 Hours

Max. Marks : 80

I. A) Write short notes on **any two** of the following. **(2×5=10)**

- i) Ma.
- ii) Jaya.
- iii) Changing climate as a compulsory subject in school.
- iv) Life skills for a better life.

B) Answer **any two** of the following questions, **each** carries **five** marks. **(2×5=10)**

- i) Write a character sketch of Jeetu.
- ii) Discuss the role of technology in monitoring human activity with reference to the play "Harvest".
- iii) What is LucyPriya's demand as the representative of the future generation ?
- iv) Describe the major barriers to communication.

II. Answer **any two** of the following questions, **each** carries **ten** marks. **(2×10=20)**

- i) Critically examine the financial struggles of Om Prakash and his family.
- ii) Explain Manjula Padmanabhan's views on organ harvesting trade with reference to her play 'Harvest'.
- iii) What are life skills ? Why are they important ?
- iv) What is the impact of climate change on biodiversity hotspots ? How does LucyPriya views them ?

P.T.O.



III. Write short notes on **any four** of the following.

(4×4=16)

- i) Essential components of good communication.
- ii) Non-verbal communication.
- iii) Cultural barrier to communication.
- iv) Facial expressions.
- v) Communication : Its types.
- vi) Writing minutes of meeting.

IV. Answer the following questions.

(3×8=24)

- A) Write a job application with a CV to Sunshine School, T. R. Road, Dharwad for the post of a Science teacher.
- B) Write a letter to the Commissioner, City Municipal Corporation, Mangalore complaining about irregular water supply to your area.
- C) Write a paragraph on **any one** of the following topics.
 - i) Your first train journey
 - ii) Your village
 - iii) Android Smart Phones.



21BSC3L2LH3

III Semester B.Sc./B.C.A. (NEP) (Repeaters) Degree Examination,
December 2025/January 2026

HINDI BASIC

Paper – III : The Study of Indian Language

पद्य : 1) आधुनिक हिन्दी एकांकी

2) जनसंचार माध्यम हिन्दी

Time : 2 Hours

Max. Marks : 60

सूचना : लिखावट शुद्ध और देवनागरी लिपि में हो ।

I. किन्ही दस प्रश्नों को चुनकर उत्तर दीजिए ।

(1×10=10)

- 1) शहाबुद्दीन किस एकांकी का पात्र है ?
- 2) चंदवरदाई किस के मित्र थे ?
- 3) बीना किस को अंडे लाने को कहती है ?
- 4) अंडे के छिलके मोजे में किसने छिपाकर रखा था ?
- 5) 'नए मेहमान' एकांकी के लेखक कौन है ?
- 6) गोपाल प्रसाद किस एकांकी का पात्र है ?
- 7) हिन्दी का पहला समाचार पत्र का नाम क्या है ?
- 8) शहाजहाँ को किसने बंदी बनाकर रखा था ?
- 9) भारत में प्रेस की स्थापना कब हो गई थी ?
- 10) शहाबुद्दीन किस के आँखे निकालता है ?
- 11) रेडियो का आविष्कार किसने किया है ?

P.T.O.



II. किन्ही दो के संदर्भ सहित व्याख्या कीजिए ।

(2×5=10)

- 1) खाना तो खिलाना ही होगा - तुम भी खूब हो ! भला इस तरह कैसा काम चलेगा ? दर्द के मारे सिर फटा जा रहा है, फिर खाना बनाना इनके लिए और इस समय ? आखिर ये आए कहाँ से है ?
- 2) “अब रहने दो । मुझ से यह नहीं कहना की हलुवा अच्छा नहीं बना । बगैर किशमिश के अंडे का हलवा ।”
- 3) महाराज पृथ्वीराज अवश्य ही छीपे स्थान पर भी लक्ष्य-बेध करेंगे । सुलतान । आप उस स्थान पर जाकर छिप जाएँ और ताली से आवाज करें ।

III. किन्ही दो प्रश्नों के उत्तर लिखिए ।

(2×5=10)

- 1) ‘नए मेहमान’ एकांकी का आशय अपने वाक्य में लिखिए ।
- 2) शहाजहाँ के आँसू, एकांकी का उद्देश्य स्पष्ट कीजिए ।
- 3) रेडियो का उद्भव और विकास पर एक लेख लिखिए ।

IV. किन्हीं दो प्रश्नों के उत्तर विस्तार से लिखिए ।

(2×10=20)

- 1) ‘अंडे के छिलके’ एकांकी की समीक्षा कीजिए ।
- 2) ‘एक घूंट’ एकांकी पर एक सारगर्भित लेख लिखिए ।
- 3) ‘पृथ्वीराज के आँखे’ एकांकी में निहित साहस और शौर्य की चर्चा कीजिए ।

V. किसी एक विषय पर निबंध लिखिए ।

(1×10=10)

- 1) विविधता में एकता
- 2) वायु प्रदूषण
- 3) हमारे राष्ट्रीय त्योहार
- 4) राष्ट्र भाषा हिन्दी का महत्व ।



21BSCOEPH

**III Semester B.A./B.Com./B.Sc./B.C.A./B.B.A. (NEP) (Repeaters) Degree
Examination, December 2025/January 2026
PHYSICS (Open Elective)
OEC – 3 : Space Missions**

Time : 2 Hours

Max. Marks : 60

SECTION – A

Answer the following sub-questions, **each** carries **one** mark.

(10×1=10)

ಕೆಳಗಿನ ಉಪ-ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ, ಪ್ರತಿಯೊಂದಕ್ಕೆ ಒಂದು ಅಂಕ.

1. a) Define orbit.

ಕಕ್ಷೆಯನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.

b) Name one natural satellite of earth.

ಭೂಮಿಯ ಒಂದು ನೈಸರ್ಗಿಕ ಉಪಗ್ರಹವನ್ನು ಹೆಸರಿಸಿ.

c) Write one use of a rocket.

ರಾಕೆಟ್‌ನ ಒಂದು ಉಪಯೋಗವನ್ನು ಬರೆಯಿರಿ.

d) When did ISRO was established ?

ISRO ಅನ್ನು ಯಾವಾಗ ಸ್ಥಾಪಿಸಲಾಯಿತು ?

e) Who is the founder of Space-x company ?

Space-x ಕಂಪನಿಯ ಸ್ಥಾಪಕರು ಯಾರು ?

f) Expand ISRO.

ISRO ಅನ್ನು ವಿಸ್ತರಿಸಿ.

g) When did Sputnik rocket was launched ?

ಸ್ಪುಟ್ನಿಕ್ ರಾಕೆಟ್ ಯಾವಾಗ ಉಡಾವಣೆಯಾಯಿತು ?

h) Name one space scientist of India.

ಭಾರತೀಯ ಬಾಹ್ಯಾಕಾಶದ ಒಬ್ಬ ವಿಜ್ಞಾನಿಯನ್ನು ಹೆಸರಿಸಿ.

P.T.O.



i) Define space science.

ಬಾಹ್ಯಾಕಾಶ ವಿಜ್ಞಾನವನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.

j) Expand PSLV.

PSLV ಯನ್ನು ವಿಸ್ತರಿಸಿ.

SECTION – B

Answer **any four** of the following. **Each** question carries **five** marks. **(4×5=20)**

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಪ್ರಶ್ನೆಯು ಐದು ಅಂಕಗಳನ್ನು ಹೊಂದಿರುತ್ತದೆ.

2. Write a note on space missions.

ಬಾಹ್ಯಾಕಾಶ ಕಾರ್ಯಾಚರಣೆಗಳ ಕುರಿತು ಬರೆಯಿರಿ.

3. Write a note on space scientist U.R. Rao and his achievements.

ಬಾಹ್ಯಾಕಾಶ ವಿಜ್ಞಾನಿ ಯು. ಆರ್. ರಾವ್ ಕುರಿತು ಮತ್ತು ಅವರ ಸಾಧನೆಗಳ ಕುರಿತು ಬರೆಯಿರಿ.

4. Write a brief note on project Gemini.

ಪ್ರಾಜೆಕ್ಟ್ ಜೆಮಿನಿ ಬಗ್ಗೆ ಸಂಕ್ಷಿಪ್ತವಾಗಿ ಬರೆಯಿರಿ.

5. Write a note on PSLV satellites.

PSLV ಉಪಗ್ರಹಗಳ ಕುರಿತು ಬರೆಯಿರಿ.

6. Explain how GPS works.

ಜಿ. ಪಿ. ಎಸ್. ಹೇಗೆ ಕೆಲಸ ಮಾಡುತ್ತದೆ ? ವಿವರಿಸಿ.

7. How satellites are used for exploration of natural resources ?

ನೈಸರ್ಗಿಕ ಸಂಪನ್ಮೂಲಗಳ ಅನ್ವೇಷಣೆಗಾಗಿ ಉಪಗ್ರಹಗಳನ್ನು ಹೇಗೆ ಬಳಸಲಾಗುತ್ತದೆ ?



SECTION – C

Answer **any three** of the following. **Each** question carries **10** marks. **(10×3=30)**

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಪ್ರಶ್ನೆಯು ಹತ್ತು ಅಂಕಗಳನ್ನು ಹೊಂದಿರುತ್ತದೆ.

8. Write a detailed note on different types of orbits.

ವಿವಿಧ ಕಕ್ಷೆಗಳ ಕುರಿತು ವಿವರವಾಗಿ ಬರೆಯಿರಿ.

9. Write the contributions of Dr. A.P.J. Abdul Kalam for the developments of ISRO.

ಇಸ್ರೋದ ಅಭಿವೃದ್ಧಿಗೆ ಡಾ. ಎ. ಪಿ. ಜೆ. ಅಬ್ದುಲ್ ಕಲಾಮ್ ಅವರ ಕೊಡುಗೆಗಳ ಕುರಿತು ಬರೆಯಿರಿ.

10. Write a note on successful space program of NASA.

ನಾಸಾದ ಯಶಸ್ವಿ ಬಾಹ್ಯಾಕಾಶ ಕಾರ್ಯಕ್ರಮಗಳ ಕುರಿತು ಬರೆಯಿರಿ.

11. Write the achievements of ISRO.

ಇಸ್ರೋದ ಸಾಧನೆಗಳ ಕುರಿತು ಬರೆಯಿರಿ.

12. Write note on NAVIC and GAGAN.

NAVIC ಮತ್ತು GAGAN ಕುರಿತು ಬರೆಯಿರಿ.

No of Printed Pages : 3

21BSCOEBT



Sl. No. 402747

B.A./B.Com./B.C.A./B.B.M./B.Sc. III Semester Degree Examination,

January/February - 2026

BIOTECHNOLOGY

Nutrition and Health (Open Elective)

Paper : BT-3

(NEP)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates:

Answer All the Sections.

ಎಲ್ಲಾ ಭಾಗಗಳಿಗೆ ಉತ್ತರಿಸಿ.

SECTION - A

ವಿಭಾಗ - ಅ

I. Answer All the the following sub-questions.

(10×1=10)

ಕೆಳಗಿನ ಎಲ್ಲಾ ಉಪ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1. a) What are micronutrients ?
ಮ್ಯಾಕ್ರೋನ್ಯೂಟ್ರಿಯಂಟ್ಸ್ ಎಂದರೇನು ?
- b) Define Nutrition.
ಪೋಷಣೆ ಎಂದರೇನು ?
- c) What is health ?
ಆರೋಗ್ಯ ಎಂದರೇನು ?
- d) What are Antioxidants ?
ಆಂಟಿಆಕ್ಸಿಡೆಂಟ್ಸ್ ಎಂದರೇನು ?
- e) Name the vitamin synthesized in the skin by sunlight.
ಸೂರ್ಯರಶ್ಮಿಯಿಂದ ಚರ್ಮದಲ್ಲಿ ಉತ್ಪಾದನೆಯಾಗುವ ವಿಟಮಿನ್ ಹೆಸರಿಸಿ.



[P.T.O.]

- f) Name one deficiency disease caused by the lack of Vitamin-C.
ವಿಟಮಿನ್-ಸಿ ಕೊರತೆಯಿಂದ ಉಂಟಾಗುವ ಒಂದು ರೋಗವನ್ನು ಹೆಸರಿಸಿ.
- g) What is Boiling ?
ಬಾಯ್ಲಿಂಗ್ ಎಂದರೇನು ?
- h) Define deep frying.
ಗೋಳವಾಗಿ ಹುರಿದುಕೊಳ್ಳುವಿಕೆಯನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.
- i) Give one example of energy-giving food.
ಶಕ್ತಿ ನೀಡುವ ಆಹಾರದ ಒಂದು ಉದಾಹರಣೆಯನ್ನು ನೀಡಿ.
- j) What is food technology ?
ಆಹಾರ ತಂತ್ರಜ್ಞಾನ ಎಂದರೇನು ?

SECTION - B

ವಿಭಾಗ - ಬ

II. Answer any Four of the following questions.

(4×5=20)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

- Discuss the three major functions of food with suitable examples.
ಆಹಾರದ ಮೂರು ಪ್ರಮುಖ ಕಾರ್ಯಗಳನ್ನು ಉಪಯುಕ್ತ ಉದಾಹರಣೆಗಳೊಂದಿಗೆ ಚರ್ಚಿಸಿ.
- Write the sources, functions and deficiency diseases of fat soluble vitamins.
ಎಣ್ಣೆಯಲ್ಲಿ ಕರಗುವ ವಿಟಮಿನ್‌ಗಳ ಮೂಲಗಳು, ಕಾರ್ಯಗಳು ಮತ್ತು ಕೊರತೆಯಿಂದಾಗುವ ರೋಗಗಳನ್ನು ಬರೆಯಿರಿ.
- Compare the energy values of carbohydrates, proteins and fats.
ಕಾರ್ಬೋಹೈಡ್ರೇಟ್, ಪ್ರೋಟೀನ್ ಮತ್ತು ಕೊಬ್ಬಿನ ಶಕ್ತಿ ಮೌಲ್ಯಗಳನ್ನು ಹೋಲಿಕೆ ಮಾಡಿ ಬರೆಯಿರಿ.
- Write a short note on pressure cooking and its impact on the nutritional quality of food.
ಪ್ರೇಷರ್ ಕುಕಿಂಗ್ ಮತ್ತು ಆಹಾರದ ಪೋಷಕ ಗುಣಮಟ್ಟದ ಮೇಲೆ ಅದರ ಪರಿಣಾಮದ ಕುರಿತು ಸಂಕ್ಷಿಪ್ತ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.



6. Explain the role of food in growth and maintenance of health.
ಶಾರೀರಿಕ ಬೆಳವಣಿಗೆ ಮತ್ತು ಆರೋಗ್ಯದ ನಿರ್ವಹಣೆಯಲ್ಲಿ ಆಹಾರದ ಪಾತ್ರವನ್ನು ವಿವರಿಸಿ.
7. Describe the importance of iron, calcium and folic acid during pregnancy.
ಗರ್ಭಾವಸ್ಥೆಯ ವೇಳೆ ಕಬ್ಬಿಣ, ಕ್ಯಾಲ್ಸಿಯಂ ಮತ್ತು ಫೋಲಿಕ್ ಆಸಿಡ್ ಮಹತ್ವವನ್ನು ವಿವರಿಸಿ.

SECTION - C

ವಿಭಾಗ - ಕ

III. Answer any Three of the following questions.

(3×10=30)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

8. Explain the concept of "Eat Right and its importance for good health."
"ಸರಿಯಾಗಿ ತಿನ್ನುವುದು" ಎಂಬ ತತ್ವ ಮತ್ತು ಉತ್ತಮ ಆರೋಗ್ಯಕ್ಕಾಗಿ ಅದರ ಮಹತ್ವವನ್ನು ವಿವರಿಸಿ.
9. Write the sources, functions and deficiency diseases of water soluble vitamins.
ನೀರಿನಲ್ಲಿ ಕರಗುವ ವಿಟಮಿನ್‌ಗಳ ಮೂಲಗಳು, ಕಾರ್ಯಗಳು ಮತ್ತು ಅವುಗಳ ಕೊರತೆಯಿಂದಂಟಾಗುವ ರೋಗಗಳ ಕುರಿತು ಬರೆಯಿರಿ.
10. Define macronutrients. Explain their types and functions in the human body.
ಮ್ಯಾಕ್ರೋನ್ಯೂಟ್ರಿಯೆಂಟ್ಸ್ ವ್ಯಾಖ್ಯಾನಿಸಿ. ಅವುಗಳ ಪ್ರಕಾರಗಳು ಮತ್ತು ಮಾನವ ದೇಹದಲ್ಲಿನ ಕಾರ್ಯಗಳನ್ನು ವಿವರಿಸಿ.
11. Describe the etiology, symptoms, complications and dietary modifications for diabetes and heart disease.
ಡಯಾಬಿಟಿಸ್ ಮತ್ತು ಹೃದಯ ರೋಗಕ್ಕೆ ಕಾರಣಗಳು, ಲಕ್ಷಣಗಳು, ಸಂಕೀರ್ಣತೆಗಳು ಮತ್ತು ಆಹಾರ ಸಂಶೋಧನೆಗಳ ಬಗ್ಗೆ ವಿವರಿಸಿರಿ.
12. Explain the regulatory and quality control issues faced by the indian nutraceutical sector.
ಭಾರತೀಯ ನ್ಯೂಟ್ರಾಸ್ಯೂಟಿಕಲ್ ಕ್ಷೇತ್ರದಲ್ಲಿ ಎದುರಾಗುವ ನಿಯಂತ್ರಣ ಮತ್ತು ಗುಣಮಟ್ಟ ನಿರ್ವಹಣಾ ಸಮಸ್ಯೆಗಳನ್ನು ವಿವರಿಸಿ.





B.Sc. III Semester Degree Examination, January/February - 2026

BOTANY

Mushroom Cultivation (OE)

(NEP)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates:

- 1) Answer All Sections.
- 2) Draw the diagram wherever necessary.

SECTION - A

ವಿಭಾಗ - ಎ

I. Answer All the following questions.

(10×1=10)

ಈ ಕೆಳಗಿನ ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

1. a) What is the term of the filamentous growth structure of many fungi?
ಅನೇಕ ಶಿಲೀಂಧ್ರಗಳ ತಂತು ರೂಪದ ಬೆಳವಣಿಗೆಯ ರಚನೆಗಳಿಗೆ ಯಾವ ಪದವನ್ನು ಬಳಸಲಾಗುತ್ತದೆ?
- b) What is nutrient media ?
ಪೋಷಕಾಂಶ ಮಾಧ್ಯಮ ಎಂದರೇನು ?
- c) What is spawn ?
ಅಣಬೆ ಬೀಜ ಎಂದರೇನು ?
- d) Name the kingdom of mushroom.
ಅಣಬೆಯ ಸಾಮ್ರಾಜ್ಯವನ್ನು ಹೆಸರಿಸಿ.
- e) Write principle of composting.
ಗೊಬ್ಬರ ತಯಾರಿಕೆಯ ತತ್ವವನ್ನು ಬರೆಯಿರಿ.
- f) Expand P.D.A.
P.D.A. ಯನ್ನು ವಿಸ್ತರಿಸಿ ಬರೆಯಿರಿ.
- g) What is paddy straw mushroom ?
ಭತ್ತದ ಹುಲ್ಲಿನ ಅಣಬೆ ಎಂದರೇನು ?
- h) Name any one economic importance of mushroom.
ಅಣಬೆಯ ಯಾವುದಾದರೂ ಒಂದು ಆರ್ಥಿಕ ಮಹತ್ವವನ್ನು ಬರೆಯಿರಿ.
- i) Name one dish prepared from mushroom.
ಅಣಬೆಯಿಂದ ತಯಾರಿಸುವ ಯಾವುದಾದರೂ ಒಂದು ಆಹಾರ ಪದಾರ್ಥವನ್ನು ಹೆಸರಿಸಿ.
- j) Name the vitamin found in mushroom.
ಅಣಬೆಗಳಲ್ಲಿ ಕಂಡುಬರುವ ಜೀವಸತ್ವವನ್ನು ಹೆಸರಿಸಿ.



[P.T.O.]

SECTION - B

ವಿಭಾಗ - ಬಿ

II. Answer any four of the following questions:

(4×5=20)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

2. Give an account on long and short storage methods of mushroom.
ಅಣಬೆಯ ದೀರ್ಘ ಮತ್ತು ಅಲ್ಪಾವಧಿಯ ಶೇಖರಣಾ ವಿಧಾನಗಳನ್ನು ವಿವರಿಸಿ.
3. Difference between edible and non edible mushroom.
ಖಾದ್ಯ ಮತ್ತು ಖಾದ್ಯವಲ್ಲದ ಅಣಬೆಗಳ ನಡುವಿನ ವ್ಯತ್ಯಾಸವನ್ನು ವಿವರಿಸಿ.
4. Explain the nutritional values of mushroom.
ಅಣಬೆಯ ಪೌಷ್ಟಿಕಾಂಶದ ಮೌಲ್ಯಗಳನ್ನು ವಿವರಿಸಿ.
5. Explain the preparation of mother spawn.
ತಾಯಿ ಮೊಟ್ಟೆಯ ತಯಾರಿಕೆಯ ಬಗ್ಗೆ ವಿವರಿಸಿ.
6. Write a note on preservation of Mushroom.
ಅಣಬೆ ಸಂರಕ್ಷಣೆಯ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
7. Write a note on history of mushroom cultivation.
ಅಣಬೆ ಬೇಸಾಯದ ಇತಿಹಾಸವನ್ನು ಕುರಿತು ಬರೆಯಿರಿ.

SECTION - C

ವಿಭಾಗ - ಸಿ

III. Answer any Three of the following questions.

(3×10=30)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

8. Explain the life cycle of mushroom.
ಅಣಬೆಯ ಜೀವನ ಚಕ್ರವನ್ನು ವಿವರಿಸಿ.
9. Explain the health benefits of mushroom.
ಅಣಬೆಯ ಆರೋಗ್ಯ ಪ್ರಯೋಜನಗಳನ್ನು ವಿವರಿಸಿ.
10. Write a note on milky mushroom cultivation.
ಹಾಲಿಣಬೆಯ ಕೃಷಿಯ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
11. Explain in detail about spawn storage.
ಮೊಟ್ಟೆಯ ಸಂಗ್ರಹದ ಬಗ್ಗೆ ವಿವರವಾಗಿ ವಿವರಿಸಿ.
12. Explain the pharmacological and economical values of mushroom.
ಅಣಬೆಯ ಔಷಧೀಯ ಮತ್ತು ಆರ್ಥಿಕ ಮೌಲ್ಯಗಳನ್ನು ವಿವರಿಸಿ.





Sl. No. 328192

All U.G. Courses I Semester Degree Examination,

January/February - 2026

ENVIRONMENTAL STUDIES

ಪರಿಸರ ಅಧ್ಯಯನ
(NEP)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates:

- 1) Answer All sections.
ಎಲ್ಲಾ ವಿಭಾಗಗಳು ಕಡ್ಡಾಯವಾಗಿವೆ.
- 2) Draw diagrams wherever necessary.
ಅವಶ್ಯವಿದ್ದಲ್ಲಿ ಚಿತ್ರ ಬಿಡಿಸಿ.

SECTION - A

ವಿಭಾಗ - ಎ

Answer the following sub questions.

(10×1=10)

ಎಲ್ಲಾ ಉಪ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1. a) Give an example of a Fresh Water Ecosystem.
ಒಂದು ತಾಜಾ ನೀರಿನ ಪರಿಸರ ವ್ಯವಸ್ಥೆಯ ಉದಾಹರಣೆಯನ್ನು ನೀಡಿ.
- b) Define Producer.
ಉತ್ಪಾದಕ ಅನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.
- c) What are floods?
ಪ್ರವಾಹಗಳು ಎಂದರೇನು?
- d) What do you mean by Afforestation?
ವನೀಕರಣ ಎಂದರೇನು?
- e) What is endangered species?
ಅಪಾಯದಲ್ಲಿರುವ ಜಾತಿ ಎಂದರೇನು?
- f) Name one ex-situ conservation method.
ಒಂದು ಬಹಿರಂಗ ಸಂರಕ್ಷಣಾ ವಿಧಾನವನ್ನು ಹೆಸರಿಸಿ.



[P.T.O.]

- g) Expand CBD.
ಸಿ.ಬಿ.ಡಿ. ವಿಸ್ತರಿಸಿ.
- h) Name any two types of pollution.
ಯಾವುದಾದರೂ ಎರಡು ವಿಧದ ಮಾಲಿನ್ಯಗಳನ್ನು ಹೆಸರಿಸಿ.
- i) What is Chipko Movement?
ಚಿಪ್ಕೋ ಚಳುವಳಿ ಎಂದರೇನು?
- j) What is population growth?
ಜನಸಂಖ್ಯೆ ವೃದ್ಧಿ ಎಂದರೇನು?

SECTION - B

ವಿಭಾಗ - ಬಿ

Answer any Four of the following questions.

(4×5=20)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

- Discuss the role of producers, consumers and decomposers in an ecosystem.
ಪರಿಸರ ವ್ಯವಸ್ಥೆಯಲ್ಲಿ ಉತ್ಪಾದಕರು, ಗ್ರಾಹಕರು ಮತ್ತು ವಿಲೀನಕಾರರ ಪಾತ್ರವನ್ನು ಚರ್ಚಿಸಿ (ಪರಿಸರ ವ್ಯವಸ್ಥೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ).
- Write a short note on solar energy and its applications.
ಸೌರಶಕ್ತಿಯ ಕುರಿತು ಮತ್ತು ಅದರ ಅನ್ವಯಿಕೆಗಳ ಬಗ್ಗೆ ಸಂಕ್ಷಿಪ್ತವಾಗಿ ಬರೆಯಿರಿ.
- Explain the benefits of biodiversity to humans.
ಮಾನವನಿಗೆ ಜೈವ ವೈವಿಧ್ಯತೆಯಿಂದ ಲಭ್ಯವಾಗುವ ಪ್ರಯೋಜನಗಳನ್ನು ವಿವರಿಸಿ.
- Describe the causes and harmful effects of air pollution on human health.
ವಾಯು ಮಾಲಿನ್ಯದ ಕಾರಣಗಳು ಮತ್ತು ಮಾನವನ ಆರೋಗ್ಯದ ಮೇಲೆ ಅದರ ಹಾನಿಕಾರಕ ಪರಿಣಾಮಗಳನ್ನು ವಿವರಿಸಿ.
- Explain the role of women in environmental conservation.
ಪರಿಸರ ಸಂರಕ್ಷಣೆಯಲ್ಲಿ ಮಹಿಳೆಯರ ಪಾತ್ರವನ್ನು ವಿವರಿಸಿ.
- What are the major environmental problems faced by rural communities?
ಗ್ರಾಮೀಣ ಸಮುದಾಯಗಳು ಎದುರಿಸುವ ಪ್ರಮುಖ ಪರಿಸರ ಸಮಸ್ಯೆಗಳು ಯಾವುವು?



SECTION - C

ವಿಭಾಗ - ಸಿ

Answer any Three of the following questions.

(3×10=30)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

8. Explain in detail the structure, functions and biodiversity of a forest ecosystem.
ಅರಣ್ಯ ಪರಿಸರ ವ್ಯವಸ್ಥೆಯ ರಚನೆ, ಕಾರ್ಯಗಳು ಮತ್ತು ಜೀವ ವೈವಿಧ್ಯತೆಯನ್ನು ವಿವರವಾಗಿ ವಿವರಿಸಿ.
9. Discuss in detail the advantages, disadvantages and future challenges of non-renewable resource use.
ಪುನರ್ ನವೀಕರಿಸಲಾಗದ ಸಂಪನ್ಮೂಲ ಬಳಕೆಯ ಪ್ರಯೋಜನಗಳು, ದೋಷಗಳು ಮತ್ತು ಭವಿಷ್ಯದಲ್ಲಿರುವ ಸವಾಲುಗಳನ್ನು ವಿವರವಾಗಿ ಚರ್ಚಿಸಿ.
10. Explain the impact of climate change on biodiversity with examples.
ಹವಾಮಾನ ಬದಲಾವಣೆಯು ಜೀವ ವೈವಿಧ್ಯತೆಯ ಮೇಲೆ ಉಂಟು ಮಾಡುವ ಪರಿಣಾಮಗಳನ್ನು ಉದಾಹರಣೆಗಳೊಂದಿಗೆ ಬರೆಯಿರಿ.
11. Discuss community-based pollution control practices with examples.
ಸಮುದಾಯ ಆಧಾರಿತ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಕ್ರಮಗಳನ್ನು ಉದಾಹರಣೆಗಳೊಂದಿಗೆ ಚರ್ಚಿಸಿ.
12. Explain in detail about the movements (Chipko, Narmada Bachao Andolan, Appiko movement) and their impact on communities.
ಚಿಪ್ಕೋ, ನರ್ಮದಾ ಬಚಾವೋ ಆಂದೋಲನ, ಅಪ್ಪಿಕೋ ಚಳುವಳಿಗಳ ಕುರಿತು ಮತ್ತು ಅವುಗಳು ಸಮುದಾಯದ ಮೇಲೆ ಬೀರುವ ಪರಿಣಾಮಗಳನ್ನು ವಿವರವಾಗಿ ಬರೆಯಿರಿ.





21AECC2IC

**III Semester B.Com./B.Sc./B.C.A. (NEP) (Repeaters) Degree
Examination, December 2025/January 2026
AECC : INDIA AND INDIAN CONSTITUTION**

Time : 2 Hours

Max. Marks : 60

Instruction : Answer all Sections.

SECTION – A

ವಿಭಾಗ - ಎ

Answer the following sub-questions. **Each** question carries **one** mark.

ಕೆಳಗಿನ ಉಪ-ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಉಪ-ಪ್ರಶ್ನೆಯು ಒಂದು ಅಂಕವನ್ನು ಹೊಂದಿರುತ್ತದೆ. **(10×1=10)**

1. a) Mention the two political parties which follow Marxist Ideology in India.
ಭಾರತದಲ್ಲಿ ಮಾರ್ಕ್ಸ್ವಾದದ ಸಿದ್ಧಾಂತವನ್ನು ಅನುಸರಿಸುವ ಎರಡು ರಾಜಕೀಯ ಪಕ್ಷಗಳನ್ನು ಹೆಸರಿಸಿ.
- b) What is Revivalism ?
ಪುನರುಜ್ಜೀವನ ಎಂದರೇನು ?
- c) Name any two moderate leaders.
ಇಬ್ಬರು ಮಂದಗಾಮಿ ಚಳುವಳಿಯ ನಾಯಕರನ್ನು ಹೆಸರಿಸಿ.
- d) Write the meaning of Swarajya.
ಸ್ವರಾಜ್ಯದ ಅರ್ಥ ಬರೆಯಿರಿ.
- e) Who initiate the Bhoodan Movement ?
ಭೂದಾನ ಚಳುವಳಿಯನ್ನು ಯಾರು ಪ್ರಾರಂಭಿಸಿದರು ?
- f) What is the meaning of Non-Cooperation ?
ಅಸಹಕಾರ ಎಂದರೇನು ?
- g) Write the meaning of flexible constitution.
ನಮ್ಯ ಸಂವಿಧಾನದ ಅರ್ಥ ಬರೆಯಿರಿ.
- h) What is the meaning of Republic ?
ಗಣರಾಜ್ಯದ ಅರ್ಥ ಬರೆಯಿರಿ.
- i) Write any two qualifications to contest Vidhan Sabha election.
ವಿಧಾನಸಭಾ ಚುನಾವಣೆಗೆ ಸ್ಪರ್ಧಿಸಲು ಯಾವುದಾದರೂ ಎರಡು ಅರ್ಹತೆಗಳನ್ನು ಬರೆಯಿರಿ.
- j) Mention three types of emergency.
ಮೂರು ಪ್ರಕಾರದ ತುರ್ತು ಪರಿಸ್ಥಿತಿಗಳನ್ನು ಹೆಸರಿಸಿ.

P.T.O.



SECTION – B

ವಿಭಾಗ - ಬಿ

Answer **any four** of the following questions. **Each** question carries **five** marks.

ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಪ್ರಶ್ನೆಗೆ ಐದು ಅಂಕಗಳು.

(4×5=20)

2. Discuss the communalism ideas of Sir Syed Ahmed Khan.
ಸರ್ ಸೈಯದ್ ಅಹ್ಮದ್ ಖಾನ್‌ರವರ ಕೋಮುವಾದದ ವಿಚಾರಗಳನ್ನು ಚರ್ಚಿಸಿರಿ.
3. Examine the contribution of Buddhism.
ಬೌದ್ಧ ಧರ್ಮದ ಕೊಡುಗೆಗಳನ್ನು ವಿವರಿಸಿರಿ.
4. Explain the civil-disobedience movement of Gandhi.
ಗಾಂಧಿಯವರ ನಾಗರಿಕ ನಿಯಮ ಉಲ್ಲಂಘನಾ ಚಳುವಳಿಯನ್ನು ವಿವರಿಸಿರಿ.
5. Explain the Fundamental Duties of Indian citizens.
ಭಾರತದ ನಾಗರಿಕರ ಮೂಲಭೂತ ಕರ್ತವ್ಯಗಳನ್ನು ವಿವರಿಸಿರಿ.
6. Discuss the powers of State Legislative Assembly.
ರಾಜ್ಯ ಶಾಸಕಾಂಗದ ಅಧಿಕಾರಗಳನ್ನು ಚರ್ಚಿಸಿರಿ.
7. Explain the Secular views of Mahatma Gandhi.
ಮಹಾತ್ಮಾ ಗಾಂಧಿಯವರ ಜಾತ್ಯತೀತ ವಿಚಾರಗಳನ್ನು ವಿವರಿಸಿರಿ.

SECTION – C

ವಿಭಾಗ - ಸಿ

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

ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಪ್ರಶ್ನೆಗೆ ಹತ್ತು ಅಂಕಗಳು.

(3×10=30)

8. Discuss the role of moderate nationalism.
ಮಂದಗಾಮಿ ರಾಷ್ಟ್ರೀಯ ಚಳುವಳಿಯ ಪಾತ್ರವನ್ನು ಚರ್ಚಿಸಿರಿ.
9. Explain the features of Indian Constitution.
ಭಾರತೀಯ ಸಂವಿಧಾನದ ಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿರಿ.
10. Examine the Directive Principles of State Policy.
ರಾಜ್ಯ ನೀತಿ ನಿರ್ದೇಶಕ ತತ್ವಗಳನ್ನು ಪರಿಶೀಲಿಸಿರಿ.
11. Explain the powers of High Court.
ಉಚ್ಚ ನ್ಯಾಯಾಲಯದ ಅಧಿಕಾರಗಳನ್ನು ವಿವರಿಸಿರಿ.
12. Discuss the role of Teacher's in Nation Building.
ರಾಷ್ಟ್ರ ನಿರ್ಮಾಣದಲ್ಲಿ ಶಿಕ್ಷಕರ ಪಾತ್ರವನ್ನು ಚರ್ಚಿಸಿರಿ.

No of Printed Pages : 3

21BCOMOECO



Sl. No. 1391384

**B.A./B.Sc./B.C.A./B.B.A. III Semester Degree Examination,
January/February - 2026
COMMERCE
Entrepreneurship Skills (OE)
(NEP)**

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates:

Attempt All questions according to internal choice.

SECTION - A

Answer the following. Each question carries One marks.

(10×1=10)

1. a) Who is Entrepreneur ?
ಉದ್ಯಮಶೀಲ ಎಂದರೆ ಯಾರು?
- b) What is idea evaluation ?
ಕಲ್ಪನೆಯ ಮೌಲ್ಯಮಾಪನ ಎಂದರೇನು ?
- c) Write the meaning of ESDP.
ESDP ಯ ಅರ್ಥವನ್ನು ನೀಡಿ.
- d) NSTIW Expand.
NSTIW ನ್ನು ವಿಸ್ತರಿಸಿ.
- e) What is women entrepreneurship ?
ಮಹಿಳಾ ಉದ್ಯಮಶೀಲತೆ ಎಂದರೇನು ?
- f) What is MOV ?
ಜ್ಞಾಪಕ ಪತ್ರ ಎಂದರೇನು ?



[P.T.O.]

- g) What do you mean by Rural Banks ?
ಗ್ರಾಮೀಣ ಬ್ಯಾಂಕು ಎಂದರೇನು ?
- h) Expand SISI.
SISI ನ್ನು ವಿಸ್ತರಿಸಿ.
- i) What is monitoring ?
ಉಸ್ತುವಾರಿ ಎಂದರೇನು ?
- j) What is budget ?
ಆಯವ್ಯಯ ಎಂದರೇನು ?

SECTION - B

Answer any Four of the following. Each question carries Five marks. (4×5=20)

2. Explain types of business models.
ವ್ಯವಹಾರದ ಮಾದರಿಗಳನ್ನು ವಿವರಿಸಿ.
3. Write the examples of successful entrepreneurship.
ಯಶಸ್ವಿ ಉದ್ಯಮಶೀಲತೆಯ ಉದಾಹರಣೆಗಳನ್ನು ಬರೆಯಿರಿ.
4. Explain the incentives for start-ups business.
ನವೋದ್ಯಮಗಳ ವ್ಯವಹಾರಕ್ಕಾಗಿ ಪ್ರೋತ್ಸಾಹಕಗಳನ್ನು ವಿವರಿಸಿ.
5. Write the purpose of MUDRA loans.
ಮುದ್ರಾ ಸಾಲ ಯೋಜನೆಗಳ ಉದ್ದೇಶಗಳನ್ನು ಬರೆಯಿರಿ.
6. Explain the importance of MSME.
MSME ಗಳ ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ಬರೆಯಿರಿ.
7. Write the contents of feasibility study report.
ಕಾರ್ಯಸಾಧ್ಯತೆ ಅಧ್ಯಯನ ವರದಿಯಲ್ಲಿನ ಅಂಶಗಳನ್ನು ಬರೆಯಿರಿ.



SECTION - C

Answer any Three of the following. Each question carries Ten marks. (3×10=30)

8. What are the different aspects for Enterprise setup ?
ಸಂಸ್ಥೆಯನ್ನು ರಚಿಸಲು ವಿವಿಧ ಅಂಶಗಳು ಯಾವುವು ?
 9. Explain the special qualities to become a good entrepreneur.
ಉತ್ತಮ ಉದ್ಯಮಿಯಾಗಲು ವಿಶೇಷ ಗುಣಗಳನ್ನು ವಿವರಿಸಿ.
 10. Explain the functions of SIDO.
SIDO ನ ಕಾರ್ಯಗಳನ್ನು ವಿವರಿಸಿ.
 11. Explain the role of Rural Banks in Entrepreneurship Development.
ಗ್ರಾಮೀಣ ಬ್ಯಾಂಕುಗಳ ಪಾತ್ರ ಮತ್ತು ಉದ್ಯಮಶೀಲತೆ ಬೆಳವಣಿಗೆಯನ್ನು ಬರೆಯಿರಿ.
 12. Explain the government schemes for Women Entrepreneur.
ಮಹಿಳಾ ಉದ್ಯಮಿಗಳಿಗಾಗಿ ಇರುವ ಸರ್ಕಾರಿ ಸೌಲಭ್ಯಗಳನ್ನು ವಿವರಿಸಿ.
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**III Semester B.Sc. (NEP) (Repeaters) Degree
Examination, December 2025/January 2026**

MATHEMATICS

DSC – III : Ordinary Differential Equations and Real Analysis – I

Time : 2 Hours

Max. Marks : 60

Instruction : Answer *all* Sections.

SECTION – A

Answer the following sub-questions, **each** sub-question carries **one** mark. (10×1=10)

1. a) Define order of differential equation.
- b) Solve $x \frac{dy}{dx} = 1$.
- c) Find complementary function of $(D^2 - D - 2)y = 0$.
- d) Find the particular integral of $(D^2 + 4)y = \sin 2x$.
- e) Show that the equation $x^2 \frac{d^2y}{dx^2} + \frac{dy}{dx} - 2y = 0$ is exact.
- f) Write Sturm-Liouville boundary value problem.
- g) Write the condition for integrability of total differential equation.
- h) Define total differential equation.
- i) Define Upper Riemann Integral.
- j) Define oscillatory sum.

SECTION – B

Answer **any four** of the following.

(4×5=20)

2. Solve $\frac{dy}{dx} = \sin(x + y) + \cos(x + y)$.
3. Solve $(D^2 - 2D + 5)y = \sin 2x + e^x$.
4. Solve $\frac{d^2y}{dx^2} - 2 \tan x \cdot \frac{dy}{dx} - (a^2 + 1)y = e^x \sec x$ by removing first derivative or by changing the dependent variable.

P.T.O.



5. Solve $zdx + zdy + [2(x + y) + \sin z]dz = 0$ by verifying the condition of integrability.
6. Let f be a bounded function defined on $[a, b]$ and let m, M be the infimum and supremum of f on $[a, b]$. Then for any partition p of $[a, b]$, show that $m(b - a) \leq L(p, f) \leq U(p, f) \leq M(b - a)$.
7. Solve $(D^3 - 3D - 2)y = x^2$.

SECTION - C

Answer **any three** of the following questions.

(3×10=30)

8. a) Solve $xydx - (x^2 + 2y^2)dy = 0$ by choosing suitable integrating factor.
b) Solve $y - 2px + yp^2 = 0$ for x .
9. a) Solve $4x^2 \frac{d^2y}{dx^2} + 4x \frac{dy}{dx} - y = 4x^2$.
b) Solve the simultaneous equations $D^2x - 3x - y = e^t$ and $Dy - 2x = 0$.
10. a) Solve $x^2 \frac{d^2y}{dx^2} - (2x - 1) \frac{dy}{dx} + (x - 1)y = 0$ given $u = e^x$ is part of C.F.
b) Solve $\frac{d^2y}{dx^2} + \tan x \cdot \frac{dy}{dx} + \cos^2 x \cdot y = 0$ using $z = \sin x$.
11. a) Solve the total differential equation $(2y - z)dx + 4dy - 2dz = 0$ by general method.
b) Solve $(yz + 2x)dx + (zx - 2z)dy + (xy - 2y)dz = 0$ by verifying the condition of integrability.
12. a) State and prove fundamental theorem of integral calculus.
b) Show that every continuous function is integrable.
-



Sl. No. 349044

**B.Sc./B.C.A/B.Com. III Semester Degree Examination,
January/February - 2026
COMPUTER SCIENCE
Artificial Intelligence
(NEP)**

Time : 1 Hour

Maximum Marks : 30

Answer All the following questions.

(30×1=30)

1. AI Stands for _____
A) Aircraft Intelligent B) Artificial Intelligence
C) Aerial Intelligence D) Advanced Internet
2. Responsible Artificial Intelligence (Responsible AI) is an approach to developing, assessing, and deploying AI systems in a _____
A) Fairness and inclusiveness B) Reliability and Safety
C) Privacy and Security D) All of the above
3. A Predictive app provides audio output for visually impaired users. Which principle of Responsible AI is reflected here?
A) Transparency B) Inclusiveness
C) Fairness D) Privacy and Security
4. What is the full form of "ML"?
A) Machine Learning B) Machine Looking
C) Mechanic Link D) Many Learning
5. What is Machine Learning?
A) A Type of computer
B) Use data from past observations to predict unknown outcomes
C) A Programming Language
D) A hardware device



[P.T.O.]

6. In _____, machines are trained using labelled data, also known as training data, to predict results.
- A) Supervised learning B) Unsupervised learning
C) Semi supervised learning D) Reinforcement learning
7. _____ is a type of Machine learning technique in which an algorithm discovers patterns and relationships using unlabelled data.
- A) Supervised learning B) Unsupervised learning
C) Reinforcement learning D) Semi-Supervised learning
8. _____ is a machine learning algorithm that works between the supervised and unsupervised learning so it uses both labelled and unlabelled data.
- A) Supervised Learning B) Unsupervised learning
C) Reinforcement learning D) Semi - Supervised learning
9. What is the full form of "DL"?
- A) Deep Learning B) Depth Learning
C) Drone Launching D) Drive Loading
10. Which of the following layers are used for Deep Learning?
- A) Input Layer B) Hidden Layer
C) Output layer D) All of the above
11. Computer vision uses _____ technology
- A) Deep learning B) Convolutional neural networks
C) Recurrent neural networks D) All of the above
12. Which of the following is not a fundamental task in computer vision?
- A) Object detection B) Image classification
C) Speech recognition D) Instant Segmentation.
13. You want to use the Azure AI vision service to identify the location of individual items in an image. Which of the following features should you retrieve?
- A) Objects B) Visual Tags
C) Dense Captions D) None of the above
14. Which of the following steps are used in Face recognition?
- A) Face detection B) Face analyze
C) Finding match D) All of the above



15. Expand OCR

- | | |
|----------------------------------|-----------------------------|
| A) Optical character recognition | B) Optical character read |
| C) Optical check recognition | D) Optical case recognition |

16. You want to use Azure AI speech service to build an application that reads incoming email message subjects aloud. Which API should you use?

- | | |
|-------------------|-------------------|
| A) Speech to text | B) Text to speech |
| C) Translator | D) None |

17. Applications of Generative AI?

- | | |
|-------------------------|----------------------|
| A) Healthcare Diagnosis | B) Music Composition |
| C) Art and Design | D) All of the above |

18. RNNs Stands for_____

- | | |
|------------------------------|------------------------------|
| A) Receives neural networks | B) Report neural networks |
| C) Recording neural networks | D) Recurrent neural networks |

19. _____help answer questions about what has happened based on historical data.

- | | |
|-------------------------|---------------------------|
| A) Diagnostic analytics | B) Descriptive analytics |
| C) Predictive analytics | D) Prescriptive analytics |

20. _____help answer questions about what will happen in the future.

- | | |
|-------------------------|---------------------------|
| A) Diagnostic analytics | B) Descriptive analytics |
| C) Predictive analytics | D) Prescriptive analytics |

21. Which data role enables advanced analytics capabilities specifically through reports and visualizations?

- | | |
|---------------------|------------------|
| A) Data Scientist | B) Data engineer |
| C) Business Analyst | D) Data Analyst |

22. _____is a complete reporting solution that offers data preparation, data visualization, distribution, and management through development tools and an online platform.

- | | |
|--------------------|-----------------------|
| A) Amazon Azure BI | B) Microsoft Power BI |
| C) Google Power BI | D) Yahoo SI |



23. Common types of flat files which are
- A) .csv
 - B) .txt
 - C) .xlsx
 - D) All of the above
24. When connecting to a SQL Server, database to get data, what language should you use to extract data?
- A) DAX
 - B) T-SQL
 - C) MDX
 - D) None
25. In a power BI Desktop model design, which type of object do you create to connect multiple tables?
- A) Connect
 - B) Relationship
 - C) Column
 - D) Measure
26. A good starting point when designing reports is to define clear goals. In your reporting project, those goals should strive to help you determine your reporting requirements for:
- A) Audiences
 - B) Report type
 - C) User Interface requirements
 - D) All of the above
27. Which of the following is/are broad report consumer audiences?
- A) Executive
 - B) Analyst
 - C) Information worker
 - D) All of the above
28. An _____ is a person who provides guidance to the organization.
- A) Executive
 - B) Analyst
 - C) Information worker
 - D) None
29. Report Visuals are focused, self explanatory, and clearly labelled in which type of reports?
- A) Analytical
 - B) Operational
 - C) Dashboard
 - D) Educational
30. The Primary goal of an _____ report is to help report consumers discover answers to a broad array of questions by interacting with the report and its visuals.
- A) Analytical
 - B) Operational
 - C) Dash board
 - D) Educational
-





24BSLGHN3L

III Semester B.Sc./B.C.A. (SEP) (Regular) Degree

Examination, Dec. 2025/Jan. 2026

HINDI

Paper – III : The Study of Indian Language

Time : 3 Hours

Max. Marks : 80

सूचना : लिखावट शुद्ध तथा देवनागरी लिपि में हो ।

1. किन्हीं दस प्रश्नों को चुनकर लिखिए ।

(1×10=10)

- 1) 'संघर्ष' कहानी के लेखिका का नाम क्या है ?
- 2) घड़ी बेचने का व्यापार कौन कर रहा था ?
- 3) सतवंती किसकी पत्नी है ?
- 4) लेखक कमलेश्वर लिखी कहानी का नाम क्या है ?
- 5) गुँगा किसके घर में काम कर रहा था ?
- 6) मुनरी किसको प्यार करती थी ?
- 7) फणीश्वरनाथ रेणु लिखित कहानी का नाम क्या है ?
- 8) विज्ञापन का अर्थ समझाइए ।
- 9) लालबिहारी के बड़े भाई का नाम क्या था ?
- 10) बड़े घर की बेटी का नाम क्या है ?
- 11) बिरादारी बाहर कहानी के प्रमुख पात्र कौन है ?

2. किन्हीं तीन संदर्भों की व्याख्या कीजिए ।

(5×3=15)

- 1) जाती की बंदीश क्या जबकि जाती की इज्जत ही पानी में बही जा रही है । क्यों जी दीवान ?
- 2) मेरी लाश पर मालती की शादी होगी माँडे से घसीट लाऊँगा ।
- 3) कितनी बार कहा है स्कूल के समय में मेरे स्कूल के पास से मत निकाला करो.... लडके मेरा मजाक उड़ाते हैं । मुझे शर्म आती है ।
- 4) हुजूर मेरी घड़ियों की दुकान चाँदनी चौक में है । मैं खुद घड़ियों का डीलर हूँ । पर दुकान से बिक्री नहीं होती, इसलिए मैं दफ्तर में जाकर खुद घड़ियाँ बेचता हूँ ।

P.T.O.



3. किन्हीं तीन प्रश्नों के उत्तर दीजिए ।

(5×3=15)

- 1) विज्ञापन किसे कहते हैं ? उसका अर्थ और परिभाषा पर प्रकाश डालिए ।
- 2) पारसनाथ बाबु की मानसिक वेदना पर एक लेख लिखिए ।
- 3) 'पंचलाईट' कहानी का आशय स्पष्ट कीजिए ।
- 4) शंकर का जीवन संघर्ष पर अपना विचार व्यक्त कीजिए ।

4. किन्हीं तीन प्रश्नों के उत्तर विस्तार से लिखिए ।

(10×3=30)

- 1) विज्ञापन लेखन के कुछ उदाहरण देकर विज्ञापन का महत्व पर प्रकाश डालिए ।
- 2) 'एक रुक़ि हुई जिंदगी' कहानी की आलोचना कीजिए ।
- 3) 'बड़े घर की बेटी' कहानी का सार अपने वाक्यों में लिखिए ।
- 4) 'गूँगे' कहानी को कहानी के तथ्यों के आधार पर समीक्षा कीजिए ।

5. किन्हीं दो पर टिप्पणी लिखिए ।

(5×2=10)

- 1) बेनिमाधव
- 2) प्रेमचंद
- 3) कमलेश्वर
- 4) फणीश्वरनाथ रेणु ।



21BSC3C3CHL

III Semester B.Sc. (NEP) (Repeaters) Degree Examination,
December 2025/January 2026

CHEMISTRY

DSC – 03 : Analytical and Organic Chemistry

Time : 2 Hours

Max. Marks : 60

Instruction : Answer *all* questions.

SECTION – A

1. Answer the following sub-questions. **Each** sub-question carries **one** mark. (10×1=10)

- | | |
|---|---|
| a) Define wavelength and give its unit. | 1 |
| b) What is standard addition ? | 1 |
| c) What is stationary phase ? | 1 |
| d) Give Van Deemter's equation. | 1 |
| e) Mention the factors affecting partition. | 1 |
| f) State Nernst distribution law. | 1 |
| g) Give the order of stability of carbocations. | 1 |
| h) What is isotopic labelling ? | 1 |
| i) Define geometrical isomerism. | 1 |
| j) What are enantiomers ? | 1 |

SECTION – B

Answer **any four** of the following questions. **Each** question carries **five** marks. (4×5=20)

- | | |
|---|---|
| 2. Discuss the instrumentation of single beam spectrophotometer. | 5 |
| 3. Explain the instrumentation of turbidimetry. | 5 |
| 4. Derive an expression for Nernst distribution law. | 5 |
| 5. Give the mechanism of aldol condensation. | 5 |
| 6. Explain cis-trans and syn-anti isomerism with an example. | 5 |
| 7. How does the delocalization of carbonium ion leads to dieone-phenol rearrangement ? Explain with suitable example. | 5 |

P.T.O.



SECTION – C

Answer **any three** of the following questions. **Each** question carries **ten** marks. (3×10=30)

8. a) Derive an expression for Beer-Lambert law. 6
b) Discuss the determination of Cu calorimetrically. 4
9. a) Discuss the differences between nephelometry and turbidimetry. 6
b) Write a note on factors affecting the column efficiency. 4
10. a) Give the applications of thin layer chromatography. 6
b) Explain the mechanism of cation and anion exchange process in ion-exchange chromatography. 4
11. a) How free radicals are stabilised by : 6
i) Inductive effect
ii) Resonance effect
b) Discuss the effect of catalyst on reaction mechanism. 4
12. a) Explain C.I.P. rules with an example. 6
b) Write a note on D/L and R/S designations. 4
-



24MJZOO3L

**III Semester B.Sc. (SEP) (Regular) Degree
Examination, December 2025/January 2026
ZOOLOGY**

DSC : Biochemistry, Physiology and Comparative Anatomy

Time : 3 Hours

Max. Marks : 80

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

SECTION – A

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

- 1) What are non-essential amino acids ? Give an example.
- 2) Differentiate between electrical and chemical synapse.
- 3) Define Cardiac cycle and Cardiac output.
- 4) Expand ACTH and ADH.
- 5) What is venous heart ? Where do you find it ?
- 6) List any 2 hormones produced by the placenta.
- 7) What is oxygen dissociation curve ?
- 8) Name the cavity present in pectoral and pelvic girdle of man.
- 9) Expand ECG and RMP.
- 10) Write the chemical name of Vitamin – D and Vitamin – B₂.
- 11) What is glycolysis ? Name the site where it occurs.
- 12) Mention any two bile pigments.

SECTION – B

II. Answer **any four** of the following questions. **(4×5=20)**

- 13) Draw a neat labelled diagram of multipolar neuron.
- 14) Explain briefly about the mechanism of protein digestion.
- 15) Write a note on functions of the ovarian hormones.

P.T.O.



- 16) Describe the urea cycle.
- 17) Compare the brain of Shark with that of a Frog.
- 18) Sketch and label the structure of human skin.

SECTION – C

III. Answer **any four** of the following questions. **(4×10=40)**

- 19) Write a note on hormones of anterior pituitary and their functions.
- 20) Describe the mechanism of urine formation.
- 21) Compare the heart of Shark with that of a human.
- 22) What is spermatogenesis ? Explain it in detail with a schematic representation.
- 23) Describe the Kreb's cycle.
- 24) Give a comparative account on pectoral girdle of Frog and Lizard with labelled diagrams.



21BSC3C3ZOL

**III Semester B.Sc. (NEP) (Repeaters) Degree
Examination, December 2025/January 2026**

ZOOLOGY

DSC 3 : Molecular Biology, Bioinstrumentation and Techniques in Biology

Time : 2 Hours

Max. Marks : 60

Instructions : 1) Answer **all** questions.

2) Draw diagrams **wherever** necessary.

SECTION – A

1. Answer the following subquestions.

(10×1=10)

- a) Define Exons.
- b) What is the function of the anticodon ?
- c) Which operon is an example of a repressible operon ?
- d) Define Glycosylation.
- e) What is ubiquitination ?
- f) What is microscopy ?
- g) What is the purpose of a Northern blot ?
- h) Expand HPLC and TLC.
- i) Define DNA finger printing.
- j) What is the Kozak sequence on m-RNA ?

SECTION – B

Answer **any four** of the following questions.

(4×5=20)

2. Describe the principle of fluorescence microscopy.
3. Write a short note on the principle of centrifugation.
4. Briefly explain the Sanger's dideoxy method.

P.T.O.



5. Describe the role of mRNA, t-RNA and r-RNA in protein synthesis.
6. Explain the salient features of Genetic code.
7. Explain the process of trp operon in E.coli.

SECTION – C

Answer **any three** of the following questions.

(3×10=30)

8. Explain the entire process of transcription in eukaryotes.
9. Describe the principle, applications and safety measures of Autoradiography technique.
10. Explain in detail steps about ELISA.
11. What is the principle and application of (SEM and TEM) electron microscopy ?
12. Explain the following post transcriptional modifications.
 - a) Capping
 - b) Polyadenylation
 - c) Splicing.

**III Semester B.Sc. (SEP) (Regular) Degree
Examination, December 2025/January 2026**

MATHEMATICS

DSC : Series and Sequences and Vector Calculus

Time : 3 Hours

Max. Marks : 80

Instruction : Answer all Parts.

PART – A

1. Answer any ten questions.

(10×2=20)

- a) Define infimum of a sequence.
- b) Define divergent sequence with an example.
- c) Define convergent series.
- d) State D'Alembert's ratio test.
- e) Define vector triple product.
- f) Find the volume of parallelopiped whose co-terminus edges are $2i - 3j + k$, $i - j + 2k$, $2i + j - k$.
- g) Find the gradient of the surface $x^2 + y - z = 1$ at the point $(1, 0, 0)$.
- h) If r represents the position vector of a point P, then show that $\text{div } r = 3$.
- i) Find the area of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.
- j) Using Gauss divergence theorem show that $\iiint_S \vec{r} \cdot \hat{n} \cdot dS = 3v$.
- k) State p-series test.
- l) Test the convergence of $\sqrt{n+1} - \sqrt{n}$.



PART – B

Answer **any eight** questions.

(8×5=40)

2. Show that every convergent sequence is bounded.
3. If $\{x_n\}$ and $\{y_n\}$ are two convergent sequences and let $\lim_{n \rightarrow \infty} x_n = l$, and $\lim_{n \rightarrow \infty} y_n = m$, then prove that $\lim_{n \rightarrow \infty} (x_n - y_n) = l - m$.
4. State and prove Geometric series test.
5. Examine the convergence of the series $1 + \frac{1}{2} + \frac{1.3}{2.4} + \frac{1.3.5}{2.4.6} + \dots$
6. Find the unit vector perpendicular to $\vec{a}$ and co-planar with $\vec{b}$ and $\vec{c}$ where $\vec{a} = 2\vec{i} - \vec{j} + \vec{k}$, $\vec{b} = \vec{i} + 2\vec{j} - \vec{k}$ and $\vec{c} = 2\vec{i} + 3\vec{j}$.
7. Given the space curve $\vec{r}(t) = (t, t^2, t^3)$. Calculate the curvature k at $t = 2$.
8. Find the directional derivative of $\phi(x, y, z) = xyz - xy^2z^3$ at $(1, 2, -1)$ in the direction of the vector $\vec{i} - \vec{j} - 3\vec{k}$.
9. Find the angle between the normals to the surface $x^2y = 2 - z$ and $x \log z = y^2 - 1$ at the point $(1, 1, 1)$ common to them.
10. Verify Green's theorem in the plane $\oint_C [(xy + y^2)dx + x^2 dy]$ where C is the closed curve of the region bounded by $y = x$ and $y = x^2$.
11. Evaluate $\int_S \vec{F} \cdot \hat{n} dS$ where $\vec{F} = yzi + zxj + xyk$ where S is the part of the surface of the sphere $x^2 + y^2 + z^2 = 1$ which lies in first octant.



PART – C

Answer **any two** questions.

(2×10=20)

12. i) Define monotonic increasing sequence and show that the sequence $\left\{1 - \frac{1}{n}\right\}$ is a monotonic increasing sequence. 4
- ii) Test the convergence of $\frac{2}{1^p} + \frac{3}{2^p} + \frac{4}{3^p} + \frac{5}{4^p} + \dots$ 4
- iii) Find the limit of the sequence whose n^{th} term is $\frac{2n+5}{5n+2}$. 2
13. i) If $\vec{a} = 2\mathbf{i} + 3\mathbf{j} + 4\mathbf{k}$, $\vec{b} = \mathbf{i} + \mathbf{j} - \mathbf{k}$ and $\vec{c} = \mathbf{i} - \mathbf{j} + \mathbf{k}$, find (i) $\vec{a} \times (\vec{b} \times \vec{c})$ and (ii) $(\vec{a} \times \vec{b}) \times \vec{c}$. 4
- ii) Show that $\text{curl}(\phi F) = \phi \text{curl} F + (\text{grad } \phi) \times F$. 4
- iii) Show that the vector $(x + 3y)\mathbf{i} + (y - 3z)\mathbf{j} + (x - 2z)\mathbf{k}$ is solenoidal. 2
14. i) Find the limit of the sequence $\{x_n\}$ where $x_n = 1 + \frac{1}{3} + \frac{1}{3^2} + \dots + \frac{1}{3^n}$. 4
- ii) Evaluate $\oint_C \vec{F} \cdot d\vec{r}$ where $\vec{F} = yz\mathbf{i} + zx\mathbf{j} + xy\mathbf{k}$ and C is the portion of the curve $\vec{r} = (a \cos t)\mathbf{i} + (b \sin t)\mathbf{j} + (ct)\mathbf{k}$ for $t = 0$ to $\frac{\pi}{2}$. 4
- iii) State Stoke's theorem. 2
-

**III Semester B.Sc. (NEP) (Repeaters) Degree
Examination, December 2025/January 2026**

PHYSICS

DSC – 3 : Wave Motion and Optics

Time : 2 Hours

Max. Marks : 60

Instructions : i) Answer **all** questions in Section – A.
ii) Use of scientific calculators are **allowed**.

SECTION – A

1. Answer the following sub-questions. **Each** question carries **one** mark. **(10×1=10)**
- Define transverse waves.
 - State superposition principle.
 - Which harmonics are present in closed pipe ?
 - Define stationary waves.
 - State wave particle duality.
 - Why oil on water looks colourful ?
 - Define resolving power of grating.
 - What is Fresnel biprism ?
 - Define extra ordinary ray.
 - What is population inversion ?

SECTION – B

Answer **any four** of the following questions. **Each** question carries **five** marks.
(4×5=20)

- Derive an expression for differential equation of progressive wave.
- Give the theory of Helmholtz resonator.
- Give the theory of Newton's rings due to reflected light.



5. Compare zone plate convex lens.
6. Explain induced absorption and stimulated emission using Einstein's co-efficients.
7. Give the theory of quarter wave plate.

SECTION – C

Answer **any three** of the following. **Each** question carries **ten** marks. **(3×10=30)**

8. a) Derive Newton's formula for velocity of sound. Discuss the laplace correction for Newton's formula. 7
b) Calculate the velocity of sound waves in carbon dioxide at N.T.P. If the density of carbon dioxide at N.T.P. is 1.9777 kgm^{-3} and ratio of the specific heat capacities of the gas is 1.306. 3
 9. Derive Sabine formula for reverberation time. 10
 10. a) Explain construction and working Michelson interferrometer. 7
b) Light of wavelength $6000\text{\AA}$ from narrow slit is incident on a double slit. If the overall separation of 10 fringes on a screen 2 m away is 18 mm, find the slit separation. 3
 11. Describe Fraunhofer diffraction due to a single slit and deduce the position of maxima and minima. 10
 12. a) Give the construction and explain the working of He-Ne lasers. 7
b) Give the three characteristics of laser light. 3
-



21BSC3C3BOL

III Semester B.Sc. (NEP) (Repeaters) Degree

Examination, Dec. 2025/Jan. 2026

BOTANY

DSC 3 : Plant Anatomy and Developmental Biology

Time : 2 Hours

Max. Marks : 60

Instructions : a) Answer **all** the Sections.

b) **Draw** diagrams **wherever** necessary.

SECTION – A

I. Answer **all** the sub-questions. **(10×1=10)**

- 1) a) Name the dead mechanical tissue.
- b) What is aerenchyma ?
- c) What is Cambium ?
- d) What is epidermis ?
- e) Expand RAM.
- f) What is bud dormancy ?
- g) What is microspore tetrad ?
- h) What is endothecium ?
- i) What is autogamy ?
- j) What is double fertilization ?

SECTION – B

II. Answer **any four** of the following questions. **(4×5=20)**

- 2) Describe the Korper-Kappe theory of meristem organization.
- 3) Explain the T.S. of dicot root with neat labelled diagram.
- 4) Write a note on structure and function of shoot apical meristem.
- 5) Explain the T.S of anther with neat labelled diagram.
- 6) Describe the structure of mature embryo with neat labelled diagram.
- 7) Write a note on types of ovules.

P.T.O.



SECTION – C

III. Answer **any three** of the following questions. **(3×10=30)**

- 8) What is anomalous secondary growth ? Describe the anomalous secondary growth in Bougainvillea and Dracena with diagram.
- 9) What is complex tissue ? Explain the elements of phloem with neat labelled diagram and mention its functions.
- 10) What is microsporogenesis ? Describe the microsporogenesis with neat labelled diagram.
- 11) Write a note on :
 - a) Differentiation of root
 - b) Cytological zonation of meristem.
- 12) What is endosperm ? Describe the different kinds of endosperm with neat labelled diagram.



24MJCHEM3L

III Semester B.Sc. (SEP) (Regular) Degree Examination, Dec. 2025/Jan. 2026
CHEMISTRY
DSC : Chemistry – III

Time : 3 Hours

Max. Marks : 80

Instruction : Answer **all** questions.

SECTION – A

1. Answer **any ten** of the following questions.

(2×10=20)

- Write the electronic configuration of Cr and Cu.
- What is lanthanide contraction ?
- State Pearson's HSAB principle.
- Write the Wurtz-Fitting reaction.
- What is Lucas test ?
- Give Hell-Volhard-Zeilinsky reaction.
- What is Compton effect ?
- State third law of thermodynamics.
 - Write the BET equation.
 - Define the chromatography.
- What are spray reagents ? Give one example.
- State Nernst distribution law.

SECTION – B

2. Answer **any three** of the following questions.

(3×5=15)

- Explain the magnetic properties of '3d' series of transition elements.
- Discuss density and oxidation state in '3d' series of transition elements.
- Explain the colour properties of '4d' and '5d' series elements with their '3d' analogues.
- Write a note on separation of Lanthanides by ion exchange method.
- Explain electronegativity and hardness and softness of acids and bases.

P.T.O.



3. Answer **any three** of the following questions. (3×5=15)
- Explain the mechanism of S_N1 reaction and its stereo chemical aspects.
 - Discuss the mechanism of E_2 reaction taking t-butyl bromide as an example.
 - Write the mechanism of pinacol-pinacolone rearrangement reaction.
 - Write the mechanism of Reimer-Tieman reaction.
 - Give any three methods of preparation of aliphatic mono carboxylic acids.
4. Answer **any three** of the following questions. (3×5=15)
- Derive the Schrodinger's fundamental wave equation.
 - Give the postulates of Quantum mechanics.
 - Derive Gibbs-Helmholtz equation.
 - What is Carnot Cycle ? Explain the calculation of efficiency of Carnot engine working between two temperatures.
 - Explain Langmuir's adsorption isotherm.
5. Answer **any three** of the following questions. (3×5=15)
- Briefly explain the criteria for the selection of stationary phase in chromatography.
 - Give the factors affecting column efficiency.
 - What is paper chromatography ? Explain its theory and applications.
 - What is thin layer chromatography ? Explain detection and identification of spots in TLC.
 - Explain extraction of iron by solvent extraction method.



B.Sc. III Semester Degree Examination, January/February - 2026

ZOOLOGY

Molecular Biology Bioinstrumentation and Techniques in Biology

Paper : 2.3

(NEP)

Time : 2 Hours

Maximum Marks : 60

- Instructions to Candidates:**
- i) **Answer all the questions.**
 - ii) **Draw diagrams wherever necessary**

SECTION - A

Answer the following. Sub-questions. Each question carries one mark.

(10×1=10)

1.
 - a) What is Transcription?
 - b) What are the termination codons?
 - c) Name any one RNA Polymerase.
 - d) What is Dark field microscopy?
 - e) Expand SEM.
 - f) Define Absorbance.
 - g) Mention any two applications of Spectrophotometer.
 - h) What is SDS-PAGE?
 - i) What is PCR?
 - j) Define Gene Silencing.



SECTION - B

**Answer any Four of the following. Questions. Each question carries Five marks.
(4×5=20)**

2. Explain the process of Eukaryotic Transcription.
3. Briefly explain post-transcriptional modifications in eukaryotes.
4. Describe the working principle and uses of centrifuge.
5. Write a short note on calorimeter.
6. Explain the procedure and applications of DNA finger printing.
7. Describe the safety measures in handling radioisotopes.

SECTION - C

**Answer any Three of the following questions. Each question carries Ten marks.
(3×10=30)**

8. Discuss gene regulation mechanisms in eukaryotes with examples.
 9. Explain detailed process of translation in eukaryotes.
 10. Describe the principle and steps of SDS-PAGE and its applications.
 11. Explain principle and applications of pH meter.
 12. Write an explanatory notes on southern, Northern, and western Blotting techniques.
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No of Printed Pages : 3

21BSCO ECS



Sl. No. 399066

B.Com./B.Sc. III Semester Degree Examination, January/February - 2026

COMPUTER SCIENCE
Electronic Commerce (OEC)
(NEP)

Time : 2 Hours

Maximum Marks : 60

SECTION - A

ವಿಭಾಗ-ಎ

Answer the following Sub-questions. Each sub-question carries One mark.
(10×1=10)

ಈ ಕೆಳಗಿನ ಉಪ-ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಉಪ-ಪ್ರಶ್ನೆಯು ಒಂದು ಅಂಕವನ್ನು ಹೊಂದಿರುತ್ತದೆ.

1. a) What is HTML?
HTML ಎಂದರೇನು?
- b) Who invent HTML?
HTML ನ್ನು ಕಂಡುಹಿಡಿದವರು ಯಾರು?
- c) Write any two Heading tags is used in HTML.
HTML ನಲ್ಲಿ ಬಳಸುವ ಯಾವುದಾದರೂ ಎರಡು ಶೀರ್ಷಿಕೆ ಟ್ಯಾಗ್‌ಗಳನ್ನು ಬರೆಯಿರಿ.
- d) What is E-Commerce?
ಇ-ಕಾಮರ್ಸ್ ಎಂದರೇನು?
- e) Expand B2C and B2B.
B2C ಮತ್ತು B2B ಅನ್ನು ವಿಸ್ತರಿಸಿ.
- f) Write any two features of E-Commerce.
ಇ-ಕಾಮರ್ಸ್‌ನ ಯಾವುದಾದರೂ ಎರಡು ವೈಶಿಷ್ಟ್ಯಗಳನ್ನು ಬರೆಯಿರಿ.
- g) What is digital marketing?
ಡಿಜಿಟಲ್ ಮಾರುಕಟ್ಟೆ ಎಂದರೇನು?



[P.T.O.]

- h) Write any two Antivirus Software's.
ಯಾವುದಾದರೂ ಎರಡು ಆಂಟಿವೈರಸ್ ಸಾಫ್ಟ್‌ವೇರ್‌ಗಳನ್ನು ಬರೆಯಿರಿ.
- i) Write any two examples of B2C.
B2C ನ ಯಾವುದಾದರೂ ಎರಡು ಉದಾಹರಣೆಗಳನ್ನು ಬರೆಯಿರಿ.
- j) Write any two examples of Social marketing.
ಸಾಮಾಜಿಕ ಮಾರುಕಟ್ಟೆಗೆ ಯಾವುದಾದರೂ ಎರಡು ಉದಾಹರಣೆಗಳನ್ನು ಬರೆಯಿರಿ.

SECTION - B

ವಿಭಾಗ - ಬಿ

Answer any Four of the following questions.

(4×5=20)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

2. Explain Structure of HTML?
HTML ನ ರಚನೆಯನ್ನು ವಿವರಿಸಿ.
3. What are the advantages of E-Commerce?
ಇ-ಕಾಮರ್ಸ್‌ನ ಅನುಕೂಲಗಳು ಯಾವುವು?
4. What is Encryption? Explain.
ಗೂಢಲಿಪೀಕರಣ (ಎನ್‌ಕ್ರಿಪ್ಷನ್) ಎಂದರೇನು? ವಿವರಿಸಿ.
5. Explain mobile marketing.
ಮೊಬೈಲ್ ಮಾರ್ಕೆಟಿಂಗ್‌ನ್ನು ವಿವರಿಸಿ.
6. How an online Credit card transaction works? Explain.
ಆನ್‌ಲೈನ್ ಕ್ರೆಡಿಟ್ ಕಾರ್ಡ್ ವಹಿವಾಟು ಹೇಗೆ ಕೆಲಸ ಮಾಡುತ್ತದೆ? ವಿವರಿಸಿ.
7. What is the difference between digital marketing and digital advertising?
ಡಿಜಿಟಲ್ ಮಾರ್ಕೆಟಿಂಗ್ ಮತ್ತು ಡಿಜಿಟಲ್ ಜಾಹಿರಾತುಗಳ ನಡುವಿನ ವ್ಯತ್ಯಾಸವನ್ನು ಬರೆಯಿರಿ.



SECTION - C

ವಿಭಾಗ- ಸಿ

Answer any Three of the following questions.

(3×10=30)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

8. Explain text formatting tags used in HTML.
HTML ನಲ್ಲಿ ಬಳಸಲಾಗುವ ಟೆಕ್ಸ್ಟ್-ಫಾರ್ಮಟಿಂಗ್ ಟ್ಯಾಗ್‌ಗಳನ್ನು ವಿವರಿಸಿ.
9. Explain tag with example.
 ಟ್ಯಾಗ್ ಅನ್ನು ಉದಾಹರಣೆಯೊಂದಿಗೆ ವಿವರಿಸಿ.
10. Explain types of E-Commerce.
ಇ-ಕಾಮರ್ಸ್‌ನ ವಿಧಗಳನ್ನು ವಿವರಿಸಿ.
11. What is Security threat? Explain different types of threats.
ಭದ್ರತಾ ಬೆದರಿಕೆ ಎಂದರೇನು? ವಿವಿಧ ಬಗೆಯ ಬೆದರಿಕೆಗಳನ್ನು ವಿವರಿಸಿ.
12. Explain Social, mobile and location based marketing.
ಸಾಮಾಜಿಕ ಮೊಬೈಲ್ ಹಾಗೂ ಸ್ಥಳ ಆಧಾರಿತ ಮಾರುಕಟ್ಟೆಗಳನ್ನು ವಿವರಿಸಿ.



III Semester B.Sc. (SEP) (Regular) Degree
Examination, December 2025/January 2026

PHYSICS

Paper No. – 3 : DSC : Electricity and Magnetism

Time : 3 Hours

Max. Marks : 80

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

SECTION – A

1. Answer **all** the following questions : (10×2=20)
- Define electric field due to point charge.
 - What is electric dipole ? Write the unit of dipole moment.
 - What is impedance ? How it is related to admittance ?
 - Find the resistance value of resistor for colors brown, black, red, gold.
 - State Ampere's circuit law. Write the expression of it.
 - Energy stored is 40J in a 5H inductor. Find current.
 - State Gauss divergence theorem.
 - What is displacement current ? Write the expression for it.
 - Arrive resonant frequency using resonance LCR series circuit.
 - What is Q factor ? How it is related with band width ?

SECTION – B

Answer **any four** of the following : (4×5=20)

- Derive the electric potential due to a point charge.
- Derive energy stored in a capacitor.
- Derive an expression for force between two parallel straight conductor.
- With neat diagram explain Hertz experiment for production of electromagnetic waves.
- Derive the power in LCR series circuit.
- State and prove maximum power transfer theorem.

P.T.O.



SECTION – C

Answer **any four** of the following :

(4×10=40)

8. Derive an expression of electric potential due to an quadrupole. 10
9. Derive an expression for growth and decay of current through RL circuit. 10
10. State Biot-Savart's law. Derive the magnetic field at a point due to steady current in a long straight wire. 10
11. a) Show that $\nabla \times (\nabla \times \mathbf{A}) = \nabla (\nabla \cdot \mathbf{A}) - \nabla^2 \mathbf{A}$ where $\mathbf{A} = A_1 \hat{i} + A_2 \hat{j} + A_3 \hat{k}$.
b) Find the speed of electromagnetic waves in free space. (7+3)
12. a) Derive an expression for current and impedance in case of RLC series AC circuit using j notation.
b) Find impedance in an series LCR circuit with $R = 12\Omega$, $L = 0.15\text{H}$ and $C = 100\ \mu\text{F}$ connected to a 200 V, 50Hz supply. (7+3)
13. a) Write the differential form of Maxwell's equations. Write their physical significance.
b) What is High pass filter ? Derive an expression for its cut off frequency. (5+5)



24MJBOTN3L

**III Semester B.Sc. (SEP) (Regular) Degree
Examination, December 2025/January 2026**

BOTANY

DSC : Plant Histology, Anatomy and Reproductive Biology

Time : 3 Hours

Max. Marks : 80

SECTION – A

I. Answer **all** the following questions. **(10×1=10)**

- 1) What is meristematic tissue ?
- 2) What is quiescent centre ?
- 3) What is epidermis ?
- 4) What is anomalous secondary growth ?
- 5) What is microsporogenesis ?
- 6) What is pollen embryosa ?
- 7) What is cross pollination ?
- 8) Mention the function of endothecium.
- 9) What is embryo ?
- 10) What is polyembryony ?

SECTION – B

II. Answer the following questions. **(10×2=20)**

- 11) Write two objectives of plant anatomy.
- 12) What are secretory cells ? Give an example.
- 13) Mention the types of vascular bundles.
- 14) Name any two plants in which abnormal secondary growth is observed.
- 15) Draw neat labelled diagram of pollen grain.
- 16) What is tapetum ? Mention its function.
- 17) Mention the types of stigma and style.

P.T.O.



- 18) Mention any two contrivances of cross pollination.
- 19) What is radicle ? Mention its function.
- 20) Mention the types of polyembryony.

SECTION – C

III. Answer **any four** of the following.

(4×5=20)

- 21) Describe the ultra structure of plant cell with neat labelled diagram.
- 22) Describe the T.S. of Dicot Stem.
- 23) Write a note on Cytological Zonation theory.
- 24) Write life history and contributions of B.M. Johri.
- 25) Draw and describe the structure of mature embryo sac.
- 26) Describe the types of endosperm with neat labelled diagram.
- 27) What is seed dormancy ? Briefly explain the methods of breaking seed dormancy.

SECTION – D

IV. Answer **any three** of the following.

(3×10=30)

- 28) Describe the theories on organization of shoot meristem.
- 29) What is secondary growth ? Describe the secondary growth with neat labelled diagram.
- 30) Write a note on :
 - a) Agents of pollination
 - b) Double fertilization and triple fusion.
- 31) Write a note on structure and development of dicot seed.
- 32) Write a note on :
 - a) Anther wall layers
 - b) Microspore tetrad
 - c) Pollinia.



B.Sc. III Semester Degree Examination, January/February - 2026
ZOOLOGY
Molecular Biology Bioinstrumentation and Techniques in Biology
Paper : 2.3
(NEP)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates: i) Answer all the questions.
 ii) Draw diagrams wherever necessary

SECTION - A

Answer the following. Sub-questions. Each question carries one mark.

(10×1=10)

1. a) What is Transcription?
- b) What are the termination codons?
- c) Name any one RNA Polymerase.
- d) What is Dark field microscopy?
- e) Expand SEM.
- f) Define Absorbance.
- g) Mention any two applications of Spectrophotometer.
- h) What is SDS-PAGE?
- i) What is PCR?
- j) Define Gene Silencing.



SECTION - B

**Answer any Four of the following. Questions. Each question carries Five marks.
(4×5=20)**

2. Explain the process of Eukaryotic Transcription.
3. Briefly explain post-transcriptional modifications in eukaryotes.
4. Describe the working principle and uses of centrifuge.
5. Write a short note on calorimeter.
6. Explain the procedure and applications of DNA finger printing.
7. Describe the safety measures in handling radioisotopes.

SECTION - C

**Answer any Three of the following questions. Each question carries Ten marks.
(3×10=30)**

8. Discuss gene regulation mechanisms in eukaryotes with examples.
 9. Explain detailed process of translation in eukaryotes.
 10. Describe the principle and steps of SDS-PAGE and its applications.
 11. Explain principle and applications of pH meter.
 12. Write an explanatory notes on southern, Northern, and western Blotting techniques.
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B.Sc. III Semester Degree Examination, January/February - 2026

CHEMISTRY

Analytical and Organic Chemistry

Paper : DSC-3

(NEP) (Rp.)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates: Answer all the sections.

SECTION - A

Answer the following sub-questions. Each sub-question carries one mark.

(10×1=10)

1.
 - a) Write any two limitations of Beer's law.
 - b) Write the principle of colorimetry.
 - c) Write any two applications of Nephelometry.
 - d) Which material is used as stationary phase in TLC.
 - e) What are spraying agent in TLC
 - f) What are cation resins ? Give an example.
 - g) Draw the structure of dichlorocarbene.
 - h) Write the stability order of carbocation.
 - i) Draw the fischer projection formula for 2,3-Dichlorobutane.
 - j) Define Diastereoisomers.



[P.T.O.]

SECTION - B

Answer any Four of the following. Each question carries Five marks. (4×5=20)

2. Discuss the factors influence on deviation of Beer-Lambert's law.
3. Illustrate the double beam spectrophotometry. Discuss the principle and working.
4. Discuss the principle, working and instrumentation of Turbidimetry?
5. Discuss the perkin Reaction. with mechanism.
6. Explain the CIP rules to assign an R/S configuration of the chiral molecules?
7. Explain the difference between Enantiomer and Diastereoisomers.

SECTION - C

Answer any Three of the following. Each question carries Ten marks. (3×10=30)

8.
 - a) Discuss the quantitative application of Fe and PO_4^{3-} by colorimetric method.
 - b) Illustrate the calibration graph with respect to absorption version Concentration.
9.
 - a) How do particle size and wavelength of incident light affect the scattering of light in suspension.
 - b) Illustrate the primary function of the stationary phase in a chromatography.
10.
 - a) Define the term R_f value in chromatography. what is its significance in TLC.
 - b) Differentiate between a cation Exchange resin and an anion resin giving one example of each.
11.
 - a) Discuss on relative stability of nitrene.
 - b) Explain with example on cross over experiments.
12.
 - a) Illustrate the interconversion between Newman and Sawhorse projection formulae.
 - b) Discuss difference between Enantiomers and Diastereoisomers.



No of Printed Pages : 2

21BSC3C3PHL



Sl. No. 465324

B.Sc. III Semester Degree Examination, January/February - 2026

PHYSICS

Wave Motion and Optics

Paper : 03

(NEP)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates:

- 1) *Answer All the Sections.*
- 2) *Non - Programmable scientific Calculators are allowed.*

SECTION - A

Answer All the following sub - questions. Each sub-question carries 1 mark.
(10×1=10)

1.
 - a) Write the relation between Phase velocity and Group velocity.
 - b) State the principle of super positioning waves.
 - c) What is energy deposits?
 - d) Define Reverberation time
 - e) What is Fresnel's biprism?
 - f) What is thin film?
 - g) On what factors resolving power of a grating depends.
 - h) What is Zone Plate?
 - i) What is an optical activity
 - j) Define Stimulation emission

SECTION - B

Answer any Four of the following questions. Each question carries 5 marks.
(4×5=20)

2. "Obtain an expression for velocity of a transverse wave along a stretched string."
3. Derive an expression for intensity of progressive wave.



[P.T.O.]

4. "Derive an expression for fringe width in an interference pattern of Young's double-slit experiment."
5. Define resolving power of a grating and obtain an expression for it.
6. Describe the method of producing plane polarised light by reflection.
7. Write any five applications of Lasers.

SECTION - C

Answer any Three of the following questions. Each question carries 10 marks.
(3×10=30)

8. a) Derive Newton's formula for velocity of sound. Discuss laplace correction for Newton's formula.
b) Write any three applications of Lissajous figures. (7+3)
9. a) Explain the modes of vibrations in an open and closed pipes.
b) What will be in pitch of fundamental note emitted by a closed pipe 32.4 cm long. If the velocity of sound in air is 332 ms^{-1} ? (7+3)
10. a) Explain the theory of Newton's Rings by reflected light.
b) Explain Huygen's theory and concept of Wavefront. (5+5)
11. a) Describe Fraunhofer diffraction due to double slit
b) Write any three differences between zone plate and a convex lens (7+3)
12. a) Explain the principle and working of Ruby Laser
b) Define:
 - i) Spontaneous emission (7+3)
 - ii) Population Inversion
 - iii) Active medium





Sl. No. 507583

B.Sc. III Semester Degree Examination, January/February - 2026

MATHEMATICS

Ordinary Differential Equation and Real Analysis - I

Paper : DSE-III

(NEP)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates: Answer All the Sections.

SECTION - A

Answer the following sub-questions. Each sub-question carries 1 mark.

(10×1=10)

1. a) Define order and degree of the differential equation.
- b) Solve $(P - 7)(P + 2) = 0$.
- c) Find the complementary function of $(D^3 - 2D^2 + 4D - 8)y = 0$.
- d) Find the particular integral of $(6D^2 + 17D + 12)y = e^{-x}$.
- e) Define variation of parameters.
- f) Write Sturm Liouville boundary value problem.
- g) Define total differential equation.
- h) Write the condition for integrability of total differential equation.
- i) Define Riemann's integrable function.
- j) State First Mean Value theorem.



[P.T.O.]

SECTION - B

Answer any FOUR of the following questions. Each question carries 5 marks.
(4×5=20)

2. Verify the Exact differential equation and solve

$$(5x^4 + 3x^2y^2 - 2xy^3)dx + (2x^3y - 3x^2y^2 - 5y^4)dy = 0.$$

3. Solve $(D^2 - 2D + 5)y = e^{2x} \sin x$.

4. Solve $\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 13y = \cos 2x$.

5. Solve $x\frac{d^2y}{dx^2} - 2(x+1)\frac{dy}{dx} + (x+2)y = (x-2)e^{2x}$, $(x > 0)$, given that e^x is a part of the complementary function.

6. Solve $(y^2 + yz)dx + (xz + z^2)dy + (y^2 - xy)dz = 0$ by verifying the condition of integrability.

7. Let f be a bounded function defined on $[a, b]$ and m, M be the infimum and supremum of f on $[a, b]$. Then for any partition P of $[a, b]$ show that $m(b-a) \leq L(p, f) \leq U(p, f) \leq M(b-a)$.

SECTION - C

Answer any THREE of the following questions. Each question carries 10 marks.
(3×10=30)

8. a) Solve for y , $x^2p^2 + x = 2yp$.
b) Find the general and singular solution of $x^2p^3 - yp^2 + 1 = 0$.

9. a) Solve $x^2\frac{d^2y}{dx^2} + x\frac{dy}{dx} + 9y = \sin(3\log x)$.

- b) Solve the Simultaneous equation $\frac{dx}{dt} + x = y + e^t$, $\frac{dy}{dt} + y = x + e^t$.



10. a) Solve $(1-x)\frac{d^2y}{dx^2} + x\frac{dy}{dx} - y = (1-x^2)$, $x \neq 1$ by the method of variation of parameters.

- b) Solve by changing the dependent variable

$x^2 \frac{d^2y}{dx^2} - 2x(1+x)\frac{dy}{dx} + 2(1+x)y = x^3 (x > 0)$ given that $y = \frac{1}{2}$ and $\frac{dy}{dx} = 1$ where $x = 1$.

11. a) Verify the condition for integrability and solve $(2y-z)dx + 4dy - 2dz = 0$.

- b) Verify the condition for integrability and solve

$$3x^2 dx + 3y^2 dy - (x^3 + y^3 + e^{2z}) dz = 0$$

12. a) If $f(x) \in R[a, b]$ and $\phi(x)$ is a primitive of $f(x)$ then show that

$$\int_a^b f(x) dx = \phi(b) - \phi(a).$$

- b) By applying mean value theorem to the integral $\int_0^{\pi/4} \sec x \cdot dx$ show that

$$\frac{\pi}{4} \leq \int_0^{\pi/4} \sec x \cdot dx \leq \frac{\pi}{2\sqrt{2}}.$$



Reg. No.

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24MJPHYS3S

III Semester B.Sc. (SEP) (Regular) Degree

Examination, December 2025/January 2026

SEC : RENEWABLE ENERGY AND ENERGY HARVESTING

Time : 1 Hour 30 Minutes

Max. Marks : 40

INSTRUCTIONS TO THE CANDIDATES

1. The question paper will be given in the form of a Question Booklet.
2. Immediately after the commencement of the Examination, the candidate should check that the Question Booklet supplied to him/her contains all the **40** questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so, he/she should bring it to the notice of the Invigilator and get it replaced by a Complete Booklet. This is most important.
3. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer.
4. **Each** correct answer carries **1** mark and no negative mark for wrong answer.
5. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
6. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the Candidate.

P.T.O.



1. Which of the following is a renewable energy source ?
 - A) Coal
 - B) Solar energy
 - C) Natural gas
 - D) Petroleum
2. The main advantage of renewable energy source is
 - A) High pollution
 - B) Sustainability
 - C) Limited availability
 - D) Scarcity
3. What does PV stands for in solar energy systems ?
 - A) Potential voltage
 - B) Photovoltaic
 - C) Power variation
 - D) Physical value
4. Which device converts solar energy directly into electrical energy ?
 - A) Solar collector
 - B) Photovoltaic cell
 - C) Battery
 - D) Transformer
5. The basic principle of wind energy conversion is
 - A) Heating air
 - B) Movement of air
 - C) Chemical reaction
 - D) Magnetism
6. The efficiency of wind turbine typically depends on
 - A) Wind speed
 - B) Solar radiation
 - C) Water flow
 - D) Fuel type
7. Hydroelectric plants primarily use the energy of
 - A) Sun
 - B) Moving water
 - C) Wind
 - D) Biomass
8. Tidal energy is generated by using
 - A) Wind movement
 - B) Ocean currents
 - C) Sunlight
 - D) Animal waste
9. Which energy source is considered non-renewable ?
 - A) Solar
 - B) Wind
 - C) Coal
 - D) Biomass
10. The photo thermal effect is the conversion of solar energy into
 - A) Electrical energy
 - B) Thermal energy
 - C) Kinetic energy
 - D) Mechanical energy
11. Which is not a piezoelectric material application ?
 - A) Vibration energy harvesting
 - B) Microbial fuel cells
 - C) Sensors
 - D) Actuators
12. Bioenergy can be generated using
 - A) Coal
 - B) Sunlight
 - C) Biomass
 - D) Wind
13. A commonly used piezoelectric material is
 - A) Silicon
 - B) Quartz
 - C) Copper
 - D) Iron
14. In thermoelectric generators, efficiency is determined by
 - A) Light intensity
 - B) Temperature difference
 - C) Water flow
 - D) Pressure



15. The principle behind electromagnetic energy harvesting is
 - A) Seebeck effect
 - B) Induced emf
 - C) Piezoelectric effect
 - D) Ferroelectric effect
16. Which method converts biomass directly to biofuel ?
 - A) Electrolysis
 - B) Fermentation
 - C) Evaporation
 - D) Distillation
17. Which device is used for grid integration of wind energy ?
 - A) Wind turbine
 - B) Inverter
 - C) Transformer
 - D) All of the above
18. Environmental considerations in energy systems include
 - A) Carbon emissions
 - B) Waste heat
 - C) Land use
 - D) All of the above
19. The Peltier effect is used in
 - A) Heat engines
 - B) Thermoelectric coolers
 - C) Fuel cells
 - D) Piezoelectric generators
20. What type of energy harvesting uses temperature gradients ?
 - A) Wind
 - B) Piezoelectric
 - C) Thermoelectric
 - D) Hydroelectric
21. Hydropower mainly depends on
 - A) Water availability
 - B) Solar intensity
 - C) Wind velocity
 - D) Biomass
22. Which of the following is not a bio-fuel ?
 - A) Ethanol
 - B) Biogas
 - C) Diesel
 - D) Biodiesel
23. Biodiesel is mainly produced from
 - A) Vegetable oils or animal fats
 - B) Coal tar
 - C) Natural gas
 - D) Mineral oil
24. The main gas produced in anaerobic digestion is
 - A) CO_2
 - B) CH_4
 - C) O_2
 - D) N_2
25. Which is true for ocean energy ?
 - A) Used for cooking only
 - B) May involve wave and tidal systems
 - C) Operates only at night
 - D) It is non-renewable
26. Which effect is used in thermoelectric energy conversion ?
 - A) Photovoltaic
 - B) Seebeck
 - C) Piezoelectric
 - D) Electrolysis
27. Piezoelectric generators convert
 - A) Electricity to heat
 - B) Mechanical vibrations to electricity
 - C) Solar to chemical energy
 - D) Bioenergy to heat
28. Which renewable source is most suited for off-grid remote areas ?
 - A) Nuclear
 - B) Solar
 - C) Coal
 - D) Oil



29. Microbial fuel cells require
- A) Only sunlight
 - B) Micro organisms
 - C) High pressure
 - D) Magnet
30. Which of the following is a disadvantage of wind energy ?
- A) Clean
 - B) Free resource
 - C) Intermittency
 - D) Sustainable
31. Which unit is used to measure the output of the solar cell ?
- A) Volts
 - B) Watts
 - C) Ohms
 - D) Tesla
32. The microbes in MFC act as
- A) Fuel source
 - B) Biocatalyst
 - C) Insulator
 - D) Magnetic material
33. What is the byproduct of anaerobic digestion in biogas plants ?
- A) Oxygen
 - B) Biogas
 - C) Ash
 - D) Nitrogen
34. EMF induction can be demonstrated using
- A) Stationary magnet and conductor
 - B) Moving conductor in magnetic field
 - C) Static electric field
 - D) Heat flow
35. Capacitive energy harvesting is based on
- A) Magnetic fields
 - B) Changes in capacitance
 - C) Fermentation
 - D) Light emission
36. The efficiency of a hydropower station is mainly affected by
- A) Solar radiation
 - B) Water flow and height
 - C) Wind speed
 - D) Biomass input
37. Biofuels can be generated from
- A) Fossil fuels
 - B) Organic wastes
 - C) Metals
 - D) Plastics
38. Which device shows the working of a solar thermal system ?
- A) Solar water heater
 - B) Wind turbine
 - C) Hydroelectric dam
 - D) Biogas plant
39. The unit of magnetic flux is
- A) Tesla
 - B) Weber
 - C) Henry
 - D) Joule
40. The direction of induced current in EMF induction is given by
- A) Coulomb's law
 - B) Lenz's law
 - C) Ohm's law
 - D) Biot-Savart law

[illegible]

21S2AI

III Semester B.Sc./B.Com. (NEP) (Repeaters) Degree

Examination, December 2025/January 2026

SEC : ARTIFICIAL INTELLIGENCE

Time : 1 Hour

Max. Marks : 30

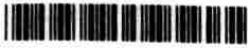
INSTRUCTIONS TO THE CANDIDATES

1. The question paper will be given in the form of a Question Booklet.
2. Immediately after the commencement of the Examination, the candidate should check that the Question Booklet supplied to him/her contains all the **30** questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so, he/she should bring it to the notice of the Invigilator and get it replaced by a Complete Booklet. This is most important.
3. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer.
4. **Each** correct answer carries **1** mark and no negative mark for wrong answer.
5. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
6. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the Candidate.

P.T.O.



1. In Azure Machine Learning Studio, what can you use to author regression machine learning pipelines using a drag-and-drop interface ?
 - A) Notebooks
 - B) Automated Machine Learning
 - C) Designer
 - D) All of the above
2. You want to use the Computer Vision Service to identify the location of individual items in an image. Which of the following features should you retrieve ?
 - A) Objects
 - B) Tags
 - C) Categories
 - D) All of the above
3. What is one aspect that may impair facial detection ?
 - A) Glasses
 - B) Extreme angles
 - C) Fast shutter speed
 - D) None of the above
4. You plan to use the Computer Vision Service's Read API. What results can the Read API provide ?
 - A) Results arranged in pages, lines and words
 - B) Only the bounding box co-ordinations
 - C) Results arranged by pages that have photographs first, then pages that exclusively have text
 - D) All of the above
5. You want to use the language service to determine the key talking points in a text document. Which feature of the service should you use ?
 - A) Sentiment analysis
 - B) Key phrase extraction
 - C) Entity detection
 - D) All of the above
6. You are developing an application that must take English input from a microphone and generate a real time text-based transcription in Hindi. Which service should you use ?
 - A) Translator
 - B) Speech
 - C) Language
 - D) Spoke
7. What is meant by seasonal data ?
 - A) Data based on the time or year it was recorded
 - B) How far apart the values are by default for each recorded period
 - C) Data occurring at regular intervals
 - D) All of the above
8. Which data format is accepted by Azure Cognitive search when you're pushing data to the index ?
 - A) CSV
 - B) SQL
 - C) JSON
 - D) All of the above
9. What data analyst task has a critical performance impact on reporting and data analysis ?
 - A) Model
 - B) Analyze
 - C) Visualize
 - D) All of the above



10. Which of the followings are building blocks of power BI ?
 - A) Tiles, dashboards, databases, mobile devices
 - B) Visualizations, data sets, reports, dashboards, tiles
 - C) Visual studio, C# and JSON files
 - D) All of the above
11. Which two functions will help you compare dates to the previous month ?
 - A) CALCULATE and PREVIOUS MONTH
 - B) TOTAL YTD and PREVIOUS MONTH
 - C) CALCULATE and TOTAL TYD
 - D) All of the above
12. Which of the following filters are not available in PowerBI reports ?
 - A) Drill through
 - B) Page type
 - C) Report level
 - D) Page level
13. What visual should be used to display outliers ?
 - A) The line chart is best-suited to display outliers
 - B) The scatter chart is best-suited to display outliers
 - C) The clustered column chart is best-suited to display outliers
 - D) All of the above
14. What feature in PowerBI service can you use to troubleshoot the flow of data from its source to its destination ?
 - A) Usage metrics report
 - B) Query caching
 - C) Quick insights
 - D) Lineage view
15. Where can you test RLS by using different security roles ?
 - A) PowerBI Desktop only
 - B) PowerBI Service only
 - C) Both PowerBI Desktop and PowerBI Service
 - D) All of the above
16. What are three microsoft guiding principles for responsible AI ? Each correct answer presents a complete solution.
 - A) Knowledgeability
 - B) Decisiveness
 - C) Inclusiveness
 - D) Opinionatedness
17. Your company has training videos that are published to microsoft stream. You need to surface the videos directly in a Microsoft PowerBI dash board. Which type fo file should you add ?
 - A) Video
 - B) Custom streaming data
 - C) Text box
 - D) Web content
18. SQL stand for
 - A) Structured Query Language
 - B) Simple Query Language
 - C) Stand Query Language
 - D) Stack Queue Language
19. Counting the number of animals in as area based on a video feed is an example of
 - A) Forecasting
 - B) Computer Vision
 - C) Conversational AI
 - D) Anomaly detection



20. Assigning classes to images before training a classification model is an example of
- A) Evaluation
 - B) Feature engineering
 - C) Hyper parameter tuning
 - D) Labeling
21. The principle that describes raising awareness of the limitations of responsible AI-based solutions is called
- A) Privacy and security
 - B) Reliability and safety
 - C) Transparency
 - D) Accountability
22. Which Technique Serves as the basis for modern image classification solutions ?
- A) Deep learning
 - B) Anomaly detection
 - C) Linear regression
 - D) Multiple linear regression
23. You can exchange chat bot activities with other services by implementing
- A) Cards
 - B) Channels
 - C) Dialog
 - D) Turns
24. In which year was Azure launched ?
- A) 2009
 - B) 2010
 - C) 2011
 - D) 2012
25. Which of the following programming languages supported by Azure ?
- A) Java
 - B) C#
 - C) PHP
 - D) All of the above
26. How many cloud service models does Azure supports ?
- A) 1
 - B) 2
 - C) 3
 - D) 6
27. _____ analyzes data collected over time to identify unusual changes such as fluctuations in engine revolutions or brake temperature.
- A) Anomaly detection
 - B) Computer Vision
 - C) NLP
 - D) Conversational AI
28. _____ detects and read car registration plates in an images.
- A) Object detection
 - B) Image classification
 - C) OCR
 - D) NLP
29. Computer Vision is divided into _____ basic categories.
- A) 1
 - B) 2
 - C) 3
 - D) 4
30. _____ functionality in Azure customization is used for classifying a set of images to groups.
- A) Object detection
 - B) Image classification
 - C) NLP
 - D) None of the above

No of Printed Pages : 3

21BSCOECH



Sl. No. 401803

B.Sc. III Semester Degree Examination, January/February - 2026

CHEMISTRY

Agro Chemistry (OEC)

(NEP)(RP)

Time : 2 Hours

Maximum Marks : 60

Instructions to Candidates:

Answer All the Sections.

ಎಲ್ಲಾ ವಿಭಾಗಗಳಿಗೂ ಉತ್ತರಿಸಿ.

SECTION - A

ವಿಭಾಗ - ಎ

I Answer the following sub-questions. Each sub-questions carries one mark.

ಕೆಳಗಿನ ಉಪ-ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಉಪ-ಪ್ರಶ್ನೆಗೆ ಒಂದು ಅಂಕ.

(10×1=10)

1. a) Give two examples of chemical methods for controlling weeds.
ಕಳೆಗಳನ್ನು ನಿಯಂತ್ರಿಸಲು ರಾಸಾಯನಿಕ ವಿಧಾನಗಳ ಎರಡು ಉದಾಹರಣೆಗಳನ್ನು ನೀಡಿ.
- b) Define crop rotation.
ಬೆಳೆ ತಿರುಗುವಿಕೆಯನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.
- c) Which process causes nutrient loss from sandy soils.
ಯಾವ ಪ್ರಕ್ರಿಯೆಯು ಮರಳು ಮಣ್ಣಿನಿಂದ ಪೋಷಕಾಂಶದ ನಷ್ಟವನ್ನು ಉಂಟುಮಾಡುತ್ತದೆ ?
- d) Define soil fertility.
ಮಣ್ಣಿನ ಫಲವತ್ತತೆಯನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.
- e) What is the primary purpose of fertilizers ?
ರಸಗೊಬ್ಬರಗಳ ಪ್ರಾಥಮಿಕ ಉದ್ದೇಶವೇನು ?
- f) What is one of the benefits of potassium as a fertilizer ?
ರಸಗೊಬ್ಬರವಾಗಿ ಪೊಟ್ಯಾಸಿಯಂನು ಪ್ರಯೋಜನಗಳಲ್ಲಿ ಒಂದಾಗಿದೆ ?



[P.T.O.]

- g) What is the IUPAC name for DDT ?
DDT ಗಾಗಿ IUPAC ಹೆಸರೇನು ?
- h) Name one common weedicide used in agriculture.
ಕೃಷಿಯಲ್ಲಿ ಬಳಸುವ ಒಂದು ಸಾಮಾನ್ಯ ಕಳೆನಾಶಕವನ್ನು ಹೆಸರಿಸಿ.
- i) What is the main function of fiber in the diet ?
ಆಹಾರದಲ್ಲಿ ಫೈಬರ್ ಮುಖ್ಯ ಕಾರ್ಯವೇನು ?
- j) What is food adulteration ?
ಆಹಾರ ಕಲಬೆರಕೆ ಎಂದರೇನು ?

SECTION - B

ವಿಭಾಗ - ಬಿ

II. Answer any Four of the following questions. Each question carries Five marks.
ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಪ್ರಶ್ನೆಗೆ ಐದು ಅಂಕಗಳು. (4×5=20)

- Explain the main factors that influence the natural fertility of a soil.
ಮಣ್ಣಿನ ನೈಸರ್ಗಿಕ ಫಲವತ್ತತೆಯ ಮೇಲೆ ಪ್ರಭಾವ ಬೀರುವ ಮುಖ್ಯ ಅಂಶಗಳನ್ನು ವಿವರಿಸಿ.
- What is organic manure? Explain its preparation.
ಜೀವಾಮೃತ ಎಂದರೇನು? ಅವುಗಳ ತಯಾರಿಕೆಯನ್ನು ವಿವರಿಸಿ.
- Write a note on weedicides.
ಕಳೆನಾಶಕಗಳ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
- What is rancidity? Mention its toxic effects.
ಅಡುಗೆ ಎಣ್ಣೆ ಕಮಿಟುವಿಕೆ ಎಂದರೇನು? ಅವುಗಳ ವಿಷಕಾರಿ ಪರಿಣಾಮಗಳನ್ನು ತಿಳಿಸಿ.
- List the major nutrients found in food and briefly describe their primary functions in the body.
ಆಹಾರದಲ್ಲಿ ಕಂಡುಬರುವ ಪ್ರಮುಖ ಪೋಷಕಾಂಶಗಳನ್ನು ಪಟ್ಟಿಮಾಡಿ ಮತ್ತು ದೇಹದಲ್ಲಿ ಅವುಗಳ ಪ್ರಾಥಮಿಕ ಕಾರ್ಯಗಳನ್ನು ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿ.
- Mention the functions and importance of vitamins, proteins and carbohydrates.
ಜೀವಸತ್ವಗಳು, ಪ್ರೋಟೀನ್‌ಗಳು ಮತ್ತು ಕಾರ್ಬೋಹೈಡ್ರೇಟ್‌ಗಳ ಕಾರ್ಯಗಳು ಮತ್ತು ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ಉಲ್ಲೇಖಿಸಿ.



SECTION - C

ವಿಭಾಗ - ಸಿ

III Answer any Three of the following questions. Each question carries Ten marks.
 ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ. ಪ್ರತಿ ಪ್ರಶ್ನೆಗೆ ಹತ್ತು ಅಂಕಗಳು.(3×10=30)

8. a) What are the reasons and measures to overcome malnutrition ? (6)
 ಅಪೌಷ್ಟಿಕತೆಯನ್ನು ಹೋಗಲಾಡಿಸಲು ಕಾರಣಗಳು ಮತ್ತು ಕ್ರಮಗಳು ಯಾವುವು ?
 b) Write a note on nitrogen fixation. (4)
 ಸಾರಜನಕ ಸ್ಥಿರೀಕರಣದ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.
9. a) How do leguminous plants helps in maintaining soil fertility. (6)
 ಮಣ್ಣಿನ ಫಲವತ್ತತೆಯನ್ನು ಕಾಪಾಡಿಕೊಳ್ಳಲು ದ್ವಿದಳ ಸಸ್ಯಗಳು ಹೇಗೆ ಸಹಾಯ ಮಾಡುತ್ತವೆ ?
 b) Outline five sustainable agricultural practices that can help maintain and improve soil fertility over time. (4)
 ಕಾಲಾನಂತರದಲ್ಲಿ ಮಣ್ಣಿನ ಫಲವತ್ತತೆಯನ್ನು ಕಾಪಾಡಿಕೊಳ್ಳಲು ಮತ್ತು ಸುಧಾರಿಸಲು ಸಹಾಯ ಮಾಡುವ ಐದು ಸುಸ್ಥಿರ ಕೃಷಿ ಪದ್ಧತಿಗಳನ್ನು ವಿವರಿಸಿ.
10. a) Differentiate between manures and fertilizers. (6)
 ಗೊಬ್ಬರ ಮತ್ತು ರಸಗೊಬ್ಬರಗಳ ನಡುವೆ ವ್ಯತ್ಯಾಸವನ್ನು ಗುರುತಿಸಿ.
 b) What are NPK fertilizer ? Explain their importance in agriculture and give an example of each nutrient source. (4)
 NPK ರಸಗೊಬ್ಬರಗಳು ಯಾವುವು ? ಕೃಷಿಯಲ್ಲಿ ಅವುಗಳ ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ವಿವರಿಸಿ ಮತ್ತು ಪ್ರತಿ ಪೋಷಕಾಂಶದ ಮೂಲಗಳ ಉದಾಹರಣೆ ನೀಡಿ.
11. a) Describe five different methods used to adulterate common food items. (6)
 ಸಾಮಾನ್ಯ ಆಹಾರ ಪದಾರ್ಥಗಳನ್ನು ಕಲಬೆರಕೆ ಮಾಡಲು ಬಳಸುವ ಐದು ವಿಧಾನಗಳನ್ನು ವಿವರಿಸಿ.
 b) Discuss the reasons why food adulteration is a prevalent problem. (4)
 ಆಹಾರ ಕಲಬೆರಕೆ ಪ್ರಚಲಿತ ಸಮಸ್ಯೆಯಾಗಿರುವ ಕಾರಣಗಳನ್ನು ಚರ್ಚಿಸಿ.
12. a) Define a balanced diet and explain its importance. (6)
 ಸಮತೋಲಿತ ಆಹಾರವನ್ನು ವಿವರಿಸಿ ಮತ್ತು ಅದರ ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ವಿವರಿಸಿ.
 b) How do the deficiency of nutritional compounds leads to disease ? Explain. (4)
 ಪೌಷ್ಟಿಕಾಂಶದ ಸಂಯುಕ್ತಗಳ ಕೊರತೆಯು ರೋಗಕ್ಕೆ ಹೇಗೆ ಕಾರಣವಾಗುತ್ತದೆ ? ವಿವರಿಸಿ.



Reg. No.

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24MJBOTN3S

III Semester B.Sc. (SEP) (Regular) Degree

Examination, December 2025/January 2026

BOTANY

SEC : Phytochemistry and Pharmacognostic Studies

Time : 1 Hour 30 Minutes

Max. Marks : 40

INSTRUCTIONS TO THE CANDIDATES

1. The question paper will be given in the form of a Question Booklet.
2. Immediately after the commencement of the Examination, the candidate should check that the Question Booklet supplied to him/her contains all the **40** questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so, he/she should bring it to the notice of the Invigilator and get it replaced by a Complete Booklet. This is most important.
3. Each question is provided with four choices **(A)**, **(B)**, **(C)** and **(D)** having one correct answer.
4. **Each** correct answer carries **1** mark and no negative mark for wrong answer.
5. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
6. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the Candidate.

P.T.O.



1. Pharmacognosy is the study of
 - A) Synthetic drugs
 - B) Drugs derived from natural sources
 - C) Drug interactions
 - D) Drug dosage calculations
2. Tissue culture is mainly used to
 - A) Increase the size of natural drugs
 - B) Produce secondary metabolites from plants
 - C) Improve taste of drugs
 - D) Increase solubility of drugs
3. Which of the following is an unorganized drug ?
 - A) Senna leaf
 - B) Clove bud
 - C) Dried latex of opium
 - D) Digitalis leaf
4. Alphabetical classification groups drugs based on
 - A) Plant taxonomy
 - B) Chemical nature
 - C) Arrangement of names in dictionary order
 - D) Pharmacological action
5. Identifying a drug by taste, color, odor and appearance refers to
 - A) Chemical evaluation
 - B) Biological evaluation
 - C) Microscopic evaluation
 - D) Organoleptic evaluation
6. Adulteration of natural drugs means
 - A) Increasing potency of drug
 - B) Intentional or unintentional substitution with inferior material
 - C) Standardization of drug
 - D) Purification of drug

7. Ayurveda primarily uses drugs derived from
- A) Synthetic chemicals
 - B) Natural sources such as plants, animals and minerals
 - C) Radioactive substances
 - D) Metallic implants
8. The Siddha system of medicine is believed to have originated in
- A) Northern India
 - B) China
 - C) Southern India (Tamil region)
 - D) Middle East
9. Cultivation of medicinal plants refers to
- A) Growing plants in artificial soil
 - B) Growing plants under controlled and supervised agricultural conditions
 - C) Growing plants only in forests
 - D) Growing plants in hydroponic systems
10. Which factor does not influence the cultivation of medicinal plants ?
- A) Climate
 - B) Soil
 - C) Drug price
 - D) Water supply
11. The best time for collection of root drugs is
- A) Early flowering stage
 - B) Full bloom
 - C) End of growing season when aerial parts die
 - D) During seed formation
12. Plant hormones are also known as
- A) Enzymes
 - B) Phytohormones
 - C) Polysaccharides
 - D) Glycosides
13. Cytokinins are primarily responsible for
- A) Leaf fall
 - B) Promoting cell division
 - C) Inhibiting seed germination
 - D) Fruit ripening



14. Ethylene is commonly used for
- A) Fruit ripening
 - B) Inhibiting flowering
 - C) Increasing seed dormancy
 - D) Reducing fruit size
15. Polyploidy refers to plants with
- A) Two sets of chromosomes
 - B) More than two sets of chromosomes
 - C) Only a single set of chromosomes
 - D) Damaged chromosomes
16. Mutation in plants can be induced by
- A) Chemical mutagens
 - B) Radiation
 - C) Both A) and B)
 - D) Only sunlight
17. In-situ conservation means
- A) Conserving plants outside their natural habitat
 - B) Storing seeds in seed banks
 - C) Conserving plants in their natural habitat
 - D) Growing plants in a greenhouse
18. The main reason for cultivating medicinal plants under controlled conditions is
- A) Increase variability
 - B) Obtain uniform quality and standardization
 - C) Reduce productivity
 - D) Increase adulteration
19. Primary metabolites are defined as substances that
- A) Are produced only during stress
 - B) Are essential for the basic growth and metabolism of plants
 - C) Have no physiological function
 - D) Occur only in roots
20. Agar is obtained from
- A) Acacia trees
 - B) Red algae (Gelidium, Gracilaria)
 - C) Fungi
 - D) Marine animals

21. The main carbohydrate present in Honey is
- A) Lactose
 - B) Mannose
 - C) Fructose and glucose
 - D) Starch
22. Alkaloids are chemically
- A) Nitrogen-containing compounds
 - B) Long-chain fatty acids
 - C) Carbohydrates
 - D) Minerals
23. According to Ayurveda, there are three life forces or biological humours in the body
- A) Vata, Pitta and Kapha
 - B) Vata, Seeta and Kapha
 - C) Seeta, Pitta and Kapha
 - D) All of the above
24. Hajbil Ghiza refers to
- A) Regimental therapy
 - B) Dietotherapy
 - C) Pharmacotherapy
 - D) All of the above
25. Homoeopathic system of medicine was developed by
- A) Germany physician
 - B) French physician
 - C) Greek physician
 - D) Creating jobs in the automotive sector
26. Botanical garden and seed banks are example for
- A) In-situ conservation method
 - B) Ex-situ conservation method
 - C) Partial in-situ and ex-situ conservation method
 - D) All of the above
27. The traditional Chinese medicine has the following different systems
- A) Yin and Yang theory
 - B) The five elements system
 - C) Both A) and B)
 - D) None of the above



28. Which of the following chemical constituents and plants are used as drugs ?

- A) Alkaloids – Datura, Vasaka, Vinca
- B) Glycoside – Cascara, Senna, Digitalis
- C) Volatile oils – Castor oil, Eucalyptus oil, Cinnamon
- D) All of the above

29. Which of the following are good source of fibres ?

- A) Jute
- B) Cotton
- C) Hemp
- D) All of the above

30. Ayurveda is the

- A) Science of diseases
- B) Science of life
- C) Science of drugs
- D) All of the above

31. Medicinal plants are multiplied by which of the following methods ?

- A) Vegetative propagation
- B) Sexual method
- C) Asexual method
- D) All of the above

32. Unani system of medicine is based on

- A) Hippocratic theory of four humours
- B) Pythagorean theory of four proximate qualities
- C) Both A) and B)
- D) None of the above

33. In Unani system of medicine

“Dam” refers to

- A) Blood
- B) Yellow bile
- C) Black bile
- D) All of the above



34. Hakim refers to
- A) The traditional healer who process Unani system
 - B) The traditional healer who process Ayurveda system
 - C) The traditional healer who process Homoeopathy system
 - D) All of the above
35. The origin of siddha system of medicine is attributed to the
- A) Agasthya
 - B) Sushruta
 - C) Charaka
 - D) All of the above
36. The term Aromatherapy was coined in
- A) 1982
 - B) 1928
 - C) 1938
 - D) 1983
37. Flavonoids
- A) Class of secondary metabolites
 - B) Derive from latin word
 - C) Both A) and B)
 - D) Class of primary metabolites
38. Gelatin gives a positive test with
- A) Biuret reagent
 - B) Iodine
 - C) Dragendorff's reagent
 - D) Molisch reagent
39. Starch gives a characteristic color with iodine
- A) Green
 - B) Blue
 - C) Red
 - D) Yellow
40. Stomatal index is defined as
- A) Number of stomata per unit area
 - B) Ratio of stomata to epidermal cells
 - C) Percentage relation of stomata to total cells
 - D) Number of stomata on lower surface only
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