B030010/B070010

Reg. No. | | | | | | | | |

II Semester B.Sc. Degree (NEP) Examination, September/October - 2022

KANNADA

ತೆರೆದ ಮನ

Paper : Ability Enhancement Compulsory Course-II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

ಭಾಷೆ ಮತ್ತು ಬರಹದ ಶುದ್ಧಿಯನ್ನು ಗಮನಿಸಲಾಗುವುದು.

I. ಆದರ್ಶ ಇಲ್ಲದಿದ್ದರೆ ಜೀವನವಿಲ್ಲ – ಪಾಠದ ಆಶಯಗಳನ್ನು ನಿರೂಪಿಸಿರಿ. **(10)**

(ಅಥವಾ)

'ಚೈತನ್ಯದ ಪೂಜೆ' ಕಾವ್ಯದ ಸ್ವಾರಸ್ಯ ವಿವರಿಸಿರಿ.

II. 'ಕಲ್ಕಿ' ಕವನದ ಭೀಕರ ಕ್ರೌರ್ಯ ಮತ್ತು ರೌದ್ರತೆಯನ್ನು ಚರ್ಚಿಸಿರಿ. **(10)**

(ಅಥವಾ)

ಧನಿಯರ ಸತ್ಯನಾರಾಯಣ – ಕಥೆಯ ಆಶಯಗಳನ್ನು ವಿವರಿಸಿರಿ.

III. 'ಧಾರವಾಡದಲ್ಲಿ ಮಳೆಗಾಲ' ಕವಿತೆಯ ವೈಶಿಷ್ಟ್ಯತೆಗಳನ್ನು ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

'ಬರ' ಕಥೆಯಲ್ಲಿರುವ ಭೌಗೋಳಿಕ ಬರ, ಆಂತರಿಕ ಬರ ಇವೆರಡರ ಮುಖಾಮುಖಿಯನ್ನು ಚರ್ಚಿಸಿರಿ.

IV. ಮಹಿಳೆ ಮತ್ತು ವಿಜ್ಞಾನದ ಸಂಬಂಧವನ್ನು ಕುರಿತು ನೇಮಿಚಂದ್ರನ ಅಭಿಪ್ರಾಯಗಳನ್ನು ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

ನ್ಯಾನೋ ತಂತ್ರಜ್ಞಾನದ ಕುರಿತಾಗಿ ಬರೆಯಿರಿ.

V. ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ ಬೇಕಾದ **ಎರಡಕ್ಕೆ** . **(2×5=10)**

1) ಜೀವನ ಕಲೆ

2) ನಾನೊಂದು ಕನಸು ಕಂಡೆ

3) ಮಳೆ ನಿಂತ ಮೇಲೆ

4) ವಿಗ್ರಹಗಳೋ ಗ್ರಹಗಳೋ

[P.T.O.

VI. **ಒಂದೇ** ವಾಕ್ಯದಲ್ಲಿ ಉತ್ತರಿಸಿರಿ. (10×1=10)

1) 'ತೆರೆದ ಮನ' ಇದು ಯಾರ ಆತ್ಮಕಥನ ?

2) ಡಿ.ವ್ಹಿ.ಜಿ.ಯವರ ಅಂಕಿತನಾಮವೇನು ?

3) ಸಾಫ್ಟವೇರ್ ಕಂಪನಿಯಲ್ಲಿ ಕೂಲಿ ಮಾಡುತ್ತಿದ್ದಾಕೆ ಏನಾದಳು ?

4) ಕಲ್ಕಿ ಕವನವನ್ನು ಯಾವ ಸಂಕಲನದಿಂದ ಆಯ್ದುಕೊಳ್ಳಲಾಗಿದೆ ?

5) ತಮ್ಮ ಇಷ್ಟದ ಪುಸ್ತಕಗಳ ಪಟ್ಟಿ ಮಾಡಿದವರು ಯಾರು ?

6) ಜನಪದ ಹಾಡಿನ ವಸ್ತು ಯಾವುದು ?

7) ಕಣವಿಯವರು ಜನಿಸಿದ್ದು ಎಲ್ಲಿ ?

8) ಪುಟ್ಟಿ ಜೊತೆ ಮಳೆ ನೋಡಿದವರು ಯಾರು ?

9) ಸುಧೀಂದ್ರ ಹಾಲ್ದೊಡ್ಡೇರಿ ಅವರು ಬರೆದ ಲೇಖನ ಯಾವುದು ?

10) ನೇಮಿಚಂದ್ರ ಯಾರು ?

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II Semester B.C.A/B.B.A/B.Sc. (Computer Science) Degree (NEP) Examination, September/October - 2022

KANNADA (Basic)

ಕರ್ಪೂರದ ಗಿರಿ

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

ಭಾಷೆ ಮತ್ತು ಬರಹದ ಶುದ್ಧಿಗೆ ಹೆಚ್ಚಿನ ಗಮನ ಕೊಡಲಾಗುವುದು.

1. ಕುರುಡು ಕಾಂಚಣಕ್ಕೆ ಬಲಿಯಾದ ಪ್ರೊಫೆಸರ್ ಅವರ ಮನೋಭಾವ ಹೇಗಿದೆ ? ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

ನಗರೀಕರಣ ಉಂಟುಮಾಡಿರುವ ತಲ್ಲಣಗಳು 'ದಿಕ್ಕು' ಕವಿತೆಯಲ್ಲಿ ಹೇಗೆ ಚಿತ್ರಿತವಾಗಿದೆ ? ವಿವರಿಸಿರಿ.

2. ಮೊಬೈಲ್ ಗೀಳು ಮನುಷ್ಯ ಸಮಾಜವನ್ನು ಹೇಗೆ ಕಂಗೆಡಿಸಿದೆ ? ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

'ಅಂತರ್ಜಾಲದ ಮಹತ್ವ' ಕುರಿತು ವೀರೇಶ ಬಡಿಗೇರ ಅವರ ವಿಚಾರಗಳನ್ನು ಸಂಗ್ರಹಿಸಿರಿ.

3. ಜಾನಪದ ಬದುಕಿನ ಔನತ್ಯವನ್ನು 'ಗರತಿಯ ಹಾಡು' ಪ್ರಬಂಧ ಹೇಗೆ ಸಾರುತ್ತದೆ ? ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

ಬಾಲ್ತಿದಾರನ ವ್ಯಕ್ತಿತ್ವ 'ಬಣ್ಣ' ಕಥೆಯಲ್ಲಿ ಹೇಗೆ ಮೂಡಿ ಬಂದಿದೆ ? ವಿವರಿಸಿರಿ.

4. ಹಮೀದಾ ಬಾನುವಿನ ಶೋಷಣೆ 'ತಿರುಗಿ ಹೋದಳು' ಕಥೆಯಲ್ಲಿ ಹೇಗೆ ಚಿತ್ರಿತವಾಗಿದೆ ? ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

ಅಕ್ಕಮಹಾದೇವಿಯ ವಚನಗಳಲ್ಲಿ ಮೂಡಿಬಂದ ಜೀವನ ಮೌಲ್ಯಗಳನ್ನು ವಿಶ್ಲೇಷಿಸಿರಿ.

5. ಬೇಕಾದ **ಎರಡಕ್ಕೆ** ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ. **(2×5=10)**

a) ಶಿಶುನಾಳ ಶರೀಫ

b) ತಂತ್ರಜ್ಞಾನದ ಪ್ರಾಚೀನತೆ

c) ಕೋಟಿನ ಮಹತ್ವ

d) ದ.ರಾ. ಬೇಂದ್ರೆ

[P.T.O.

6. **ಒಂದೇ** ವಾಕ್ಯದಲ್ಲಿ ಉತ್ತರಿಸಿರಿ. (10×1=10)

a) ಶಿಶುನಾಳ ಶರೀಫರು ಹಾಡುವ ಅನುಭಾವ ಪದಗಳನ್ನು ಯಾರು ಬರೆದಿಟ್ಟುಕೊಳ್ಳುತ್ತಿದ್ದರು ?

b) 'ಬರಹ' ಕನ್ನಡ ಸಾಫ್ಟವೇರ್ ತಯಾರಿಸಿದವರು ಯಾರು ?

c) ಡಾ. ಜಿ. ರಾಮಕೃಷ್ಣ ಅವರ ಪೂರ್ಣ ಹೆಸರೇನು ?

d) ತಂದೀಯ ನೆನೆದರ ಏನು ಬಿಸಿಯಾಗುತ್ತದೆ ಎಂದು ಗರತಿ ಹೇಳುತ್ತಾಳೆ ?

e) ಬೇಂದ್ರೆ ಅವರ ಯಾವ ಕೃತಿಗೆ ಜ್ಞಾನಪೀಠ ಪ್ರಶಸ್ತಿ ದೊರೆತಿದೆ ?

f) ಎಂ.ಎಸ್. ಸುಂಕಾಪುರ ಅವರ ಪೂರ್ಣ ಹೆಸರನ್ನು ಬರೆಯಿರಿ.

g) ನಾ. ಡಿಸೋಜಾ ಅವರ ಜನ್ಮಸ್ಥಳ ಯಾವುದು?

h) ಯಾರ ಸಂಗವು ಕರ್ಪೂರದ ಗಿರಿಯನ್ನು ಉರಿಯು ಕೊಂಡಂತಾಗುತ್ತದೆ ?

i) ಅಕ್ಕಮಹಾದೇವಿಯ ವಚನಾಂಕಿತವೇನು ?

j) ನಿರಂಜನರ ಪತ್ನಿಯ ಹೆಸರೇನು ?

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B Sc II Sem

B030020/B040020/B070020

Reg. No. | | | | | | | | |

II Semester B.Sc. Degree (NEP) Examination, September/October - 2022

ENGLISH

GENERIC ENGLISH - II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

I. Answer the following in a word, a phrase or a sentence each. **(10×1=10)**

1. Who is called the father of 'Zero budget Natural farming'?
2. State any one principle of ZBNF?
3. Name the coaches of Milkha singh.
4. Where had Milkha singh his rigerous practice daily?
5. Who is the writer of "on saying please"?
6. Where does the poet's daughter sleep?
7. What kind of life did Helen choose to live?
8. Who is Maya Angelou?
9. What do you mean by the word 'I' in the poem "Still I Rise"?
10. Who wrote the poem "How did you die"?

II. 1) Write a note on Zero budget natural farming. **(1×10=10)**

(OR)

2) Comment on the essay "on saying please".

III. 1) Critically appreciate the poem "Still I Rise". **(1×10=10)**

(OR)

2) What does W.B. Yeats pray for his daughter? Explain.

IV. A) Rewrite as directed. **(5×2=10)**

1. Give the synonyms of the following.
   i. Fear
   ii. Happy.
2. Use the following homophones in your own sentence (any one) :
   i. Tail - tale

   (OR)

   ii. Sun - son.
3. Fill in the blanks with appropriate prefix or suffix for the given words in the brackets.
   i. Shashi looked _____ at the puppy (happy).
   ii. Geeta wants to be a _____ when she grows up (mathematics).

[P.T.O.

4. Match the words in column 'A' with its collective words in Column 'B'.

	A		B
1.	Freedom	-	Fighter/writer/swimmer.
2.	Railway	-	Station/run/stop/chair.

5. Bring out the difference in meaning of the following pair of words by using them in your own sentences.
Affect - Effect

(OR)

B) 1. Read the following passage carefully and identify the technical terms related to the field of the topic and write in the answer script. **(5)**

In the year 1962, Indian national committee for space research was formed which paved the way for our achievements in the field of space research. India entered into the space research field on november 21, 1963. when India launched her first rocket from Thumba. The progress of India in this field was rapid and in 1975 April 19, we launched our first artificial satellite 'Aryabhatta' which followed the launching of a number of artificial satellites including the 'Insat' for tele communication. Now India is one among the advanced countries in the field of space research.

2. A) What is listening? Mention the types of listening. **(1×5=5)**

(OR)

B) What are the barriers for effective listening? Discuss the techniques to improve listening skills.

V. Answer any **Two** of the following. **(2×5=10)**

1. Change into indirect speech.
   a) He says, "Tea is ready".
   b) Priya asked Ravi. "Do you know me?"
   c) Vijay said to Vani, "I Know you and your brother".
   d) Suresh said to sharan, "I was watching TV yesterday".
   e) "When I reached the station, the train had left" said shreya to Trupti.
2. Write an imaginary dialogue between you and your friend about the preparation of annual exam.
3. Give an example each to verbal and non - verbal communication, with the definition.
4. Summarise the following passage in your own words and give a suitable title.

The Triveni Sangam is located on the banks of the Ganges and Yamuna, in Allahabad. Sangam in Hindi language means confluence. the Triveni sangam in Allahabad is a confluence of three rivers : the Ganga, Yamuna and Saraswati of these, the river Saraswati is invisible and said to be flowing beneath the earth. It meets the other two rivers from the base.

VI. Answer any **Two** of the following. **(2×5=10)**

1. Draft a copy of speech on "Importance of water"/
2. Write an essay on "Waste Management".
3. Write a short paragraph on "Mahatma Gandhi".
4. Translate the following paragraph into kannada or Hindi or Marathi or Urdu.

"The Mayan civilization was a group of people who lived in Central America they lived for a very long time and some of the Maya people live there even today. They lived 4000years ago. The Mayans were the only people in America to have a written language before columbus came to America in 1492 AD. They were good at art, building and Mathematics. They knew about stars and planets, which helped them make calendars.

B030050/B0050

Reg. No. | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, September/October - 2022

HINDI (Basic)

1) काव्य कुसुम 2) अनुवाद

Paper - 01 MIL

(Regular)

Time : 2 Hours **Maximum Marks : 60**

I. किन्ही दस प्रश्नों के उत्तर लिखिए : **(10×1=10)**

1) कर्मवीर कविता के कवि ---------

a) हरिऔध b) निराला c) पंत

2) रामधारिसिह दिनकर जी का जन्म -------

a) 1909 b) 1908 c) 1907

3) वैधनाथ मिश्र नागार्जुन की रचना

a) हिमालय b) हिरोशिमा c) कालिदास

4) सुमित्रानन्दन पंत का जन्म स्थान

a) कौसानी b) कानपुर c) रायबरेली

5) अटल बिहारी वाजपेयी ने अपनी कविता व्दारा कौन सा संदेश देना चाहते है।

a) कदम मिलाकर चलना होगा b) हाथ मिलाकर चलना होगा c) खुश होकर चलना होगा

6) औरत अलसर किस की भीड में गुम होती है

a) दुनिया b) समाज c) जनता

7) आठवी मंजिल पर इस कविता में कितनी खिडकियाँ बाहर की ओर खुलती है।

a) चार b) दो c) तीन

8) दातुन बनाने के लिए किस पेड की टहानियाँ थी

a) बबूल b) निम c) बरगद

9) ओ अच्छी लडकियों इस कविता में बेलगाम नाचने को किसे कहा है

a) इच्छाओंको b) ख्वाहिंशो को c) मनको

10) प्रिय प्रवास ----- की प्रसिद्ध रचना है

a) हरिऔध b) अज्ञेय c) कुवर नारायण

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11) हिमालय यह कविता किस रचना से ली है

a) रसवन्ती b) रेणुका c) उर्वशी

12) भवानी प्रसाद मिश्र का निधन ------

a) 1983 b) 1982 c) 1981

II. किन्ही तीन का संदर्भ के साथ स्पष्टीकरण दे। **(3×5=15)**

1) मानव का रचा हुआ सूरज
मानव का भाप बनाकर सोख गया।

2) कालिदास सच सच बतलाना
रति रोयी या तुम रोये थे?

3) मै उतारना नही चाहता जाहिल अपने बाने
धोती कुरता बहुत जोर से लिपटाए हुँ याने।

4) कल वे जाएगे शहर
सोमवार हाट में।

5) सुनो, उतार दो अपने सर से अच्छे होने का बोझ लहराओ न आसमान तक अपना आँचल

III. किसी दो प्रश्नों के उतर लिखिए। **(2×10=20)**

1) देश कागज पर बना नकशा नहीं होता इस कविता के माध्यम से कविने मनुष्य को सचेत कैसे किया है?

2) आ धरती कितना देती है। इस कविता का साराश लिखिए।

3) दातून बेचने वाले बच्चों के प्रति कवि का मन क्यों भावक हो गया।

4) प्रतिभा कटियार ने लडकियोंको क्या कहा है?

IV. हिन्दी में अनुवाद कीजिए। **(1×15=15)**

Many of our graduates face up the unemployment problem. It is true that all are not able to get the higher education. some selfish people coin the money only and forget the country. But let us tell them. The country is not for us, we are for the country.

ನಮ್ಮ ಬಹಳಷ್ಟು ಪದವೀಧರರು ನಿರುದ್ಯೋಗ ಸಮಸ್ಯೆಯನ್ನು ಎದುರಿಸುತ್ತಾರೆ. ಎಲ್ಲರೂ ಉನ್ನತ ಶಿಕ್ಷಣವನ್ನು ಪಡೆಯಲು ಅಸಮರ್ಥರಾಗಿದ್ದಾರೆನ್ನುವುದು ಕೂಡಾ ಸತ್ಯವಾಗಿದೆ. ಕೆಲವು ಸ್ವಾರ್ಥಿ ಜನರು ಕೇವಲ ಹಣ ಸಂಗ್ರಹಿಸುತ್ತಾರೆ ಮತ್ತು ದೇಶವನ್ನು ಮರೆಯುತ್ತಾರೆ ಆದರೆ " ದೇಶವು ನಮಗಾಗಿ ಅಲ್ಲ ನಾವು ದೇಶಕ್ಕಾಗಿ" ಎಂದು ನಾವು ಅವರಿಗೆ ಹೇಳಬೇಕು.

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Reg. No. | | | | | | | | |

II Semester B.Sc.3/B.Sc.4 Degree Examination, September/October - 2022

MATHEMATICS (OPTIONAL)

Differential and Integral Calculus

Paper - I

(Repeater)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates : *Answer all parts.*

PART - A

1. Answer any **TEN** of the following : (2 marks each). **(10×2=20)**

a. Find ϕ for the curve $r = ae^{\theta \cot \alpha}$.

b. Find P-r equation for the curve $r = a(1-\cos\theta)$.

c. Find the lengths of polar subtangent and subnormal for the curve $r = ae^{-\theta}$.

d. For the curve $x^{2/3} + y^{2/3} = a^{2/3}$. Find $\frac{ds}{dx}$.

e. Define
   i. Evolute
   ii. Involute.

f. Discuss the continuity of $f(x,y) = \begin{cases} \frac{xy}{\sqrt{x^2+y^2}}, (x,y) \neq (0,0) \\ 0, \text{ otherwise} \end{cases}$

g. If $u = \frac{xy}{x+y}$ then find $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$.

h. If $u = x^3 + y^3$, $x = at^2$, y = 2at. Find $\frac{du}{dt}$.

i. Show that $y = e^x$ is concave upwards everywhere.

j. Find the envelope of the family of lines $y = \alpha x + \frac{a}{\alpha}$, where '$\alpha$' is the parameter.

k. Evaluate $\int_0^{\pi/2} \cos^6 x dx$.

l. Evaluate $\int x^2 \log x dx$.

P.T.O.

PART - B

Answer any **FOUR** of the following : (5 marks each). **(4×5=20)**

2. Prove that

   i. $p = r\sin\phi$.

   ii. $\frac{1}{p^2} = \frac{1}{r^2} + \frac{1}{r^4}\left(\frac{dr}{d\theta}\right)^2$.

3. Find the equation of circle of curvature for the curve $2xy + x + y = 1$ at (1,1).

4. Find the evolute for the curve $x = a\cos^3\theta$, y. $= a\sin^3\theta$.

5. If $u = \frac{1}{\sqrt{x^2+y^2+z^2}}$ then show that $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = 0$.

6. Find the envelope of the family of straight line $\frac{x}{a} + \frac{y}{b} = 1$ when $ab = 1$.

7. Find the reducton formula for $\int \sec^4 x dx$, n > 0.

PART - C

Answer any **Four** of the following : (10 marks each). **(4×10=40)**

8. a. Usual notations, prove that $\tan\phi = r\frac{d\theta}{dr}$.

   b. Show that the curve $r = a(1+\cos\theta)$, and $r = b(1-\cos\theta)$ cut orthognally.

9. a. Derive the formula for radius of curvature in cartesian form.

   b. Find the radius of curvature at any point on the curves $x = a(\theta + \sin\theta)$ and $y = a(1-\cos\theta)$, θ is the parameter.

10. a. State and prove Euler's theorem for homogeneous function of degree n in x,y.

    b. If $V = r^m$ where $r^2 = x^2 + y^2 + z^2$ then show that $\frac{\partial^2 v}{\partial x^2} + \frac{\partial^2 v}{\partial y^2} + \frac{\partial^2 v}{\partial z^2} = m(m+1)r^{m-2}$.

11. a. Find the points of inflexion for the curve $y = 3x^5 - 40x^3 + 3x - 20$.

    b. Find the asymptotes of the curve $x^3 - 2x^2y + xy^2 + x^2 - xy + 2 = 0$.

12. a. Find the reduction formula for $\int \sin^n x dx (n > 0)$ and evaluate $\int \sin^4 x dx$.

    b. If $I_n = \int_0^{\pi/2} \tan^n x dx$ then show that $(n-1)(I_n + I_{n-2}) = 1$.

B030300

Reg. No. | | | | | | | | | |

II Semester B.Sc.6. Degree Examination, September/October - 2022

MATHEMATICS (DSC)

Algebra - II and Calculus - II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

Answer all questions.

1. Answer any **Six** of the following. **(6×2=12)**

a. Define suprimum and infimum of a set.

b. State Bolzano - Weierstrass theorem.

c. Prove that in a group identity element is unique.

d. If $G=\{1,-1,i,-i\}$ is a group and $H=\{1,-1\}$ is a subgroup of G. Find all right cosets of H in G.

e. If $z^2=xy^2+yz$. Find $\frac{\partial z}{\partial x}$ and $\frac{\partial z}{\partial y}$.

f. If $x=r\cos\theta$ and $y=r\sin\theta$. Find $\frac{\partial(x,y)}{\partial(r,\theta)}$.

g. Evaluate $\int_0^1\int_0^2 (x^2+y^2)\,dxdy$.

h. $\int_0^1\int_0^2\int_1^2 x^2yz\,dxdydz$.

2. Answer any **Three** of the following. **(3×4=12)**

a. Prove that R is not compact.

b. A set A in R is closed iff it contains all its limit points.

c. Prove that the interval [0,1] is uncountable.

d. State and prove Archimedean property.

[P.T.O.

3. Answer any **Three** of the following. (3×4=12)

a) Prove that non - empty set H is a subgroup of a group G iff $ab^{-1} \in H$, $\forall a, b \in H$.

b) Let G be a group, $a \in G$ be of order m then prove that

i) $e, a, a^2 \ldots . a^{m-1}$ are all distinct.

ii) a^n is equal to some one of $e, a, a^2 \ldots . a^{m-1}$, $\forall n \in I$.

c) Prove that every subgroup of a cyclic group is cyclic.

d) State and prove Lagrange's theorem on groups.

4. Answer any **Three** of the following. (3×4=12)

a) State the prove Euler's theorem on homogeneous function.

b) If $u = \log\sqrt{x^2 + y^2 + z^2}$. Prove that $\left(x^2 + y^2 + z^2\right)\left(\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2}\right) = 1$.

c) Expand *cosx cosy* by Maclaurin's series upto 3rd terms.

d) With usual notations prove that $\frac{\partial(u,v)}{\partial(r,\theta)} = \frac{\partial(u,v)}{\partial(x,y)} \times \frac{\partial(x,y)}{\partial(r,\theta)}$.

5. Answer any **Three** of the following. (3×4=12)

a) If f(x,y) is continuous function in domain $D = \{a \le x \le b;\ c \le y \le d\}$ prove that

$$\int_c^d \left[\int_a^b f(x,y)dx\right]dy = \int_a^b \left[\int_c^d f(x,y)dy\right]dx.$$

b) Find the area of an ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ by double integration.

c) Find the volume of tetrahedron bounded by the plane $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$ and the co-ordinates planes.

d) State and prove Leibnitz's theorem for differentiation under integral sign.

B030230

Reg. No. | | | | | | | | |

II Semester B.Sc.6. Degree (NEP) Examination, September/October - 2022
CHEMISTRY (DSC)
(Regulars)

Time : 2 Hours **Maximum Marks : 60**

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

1. Answer any **Six** questions. **(6×2=12)**

a. State Fajan's rule.

b. What is ionic bond? Give two molecules with ionic bond.

c. Compare the acidic strength of acetic acid and chloroacetic acid and give the reason.

d. Write staggard and eclipsed confirmations of ethane.

e. Define unit cell.

f. Write an expression for the rate constant of second order reaction when concentrations of reactants are unequal and mention the terms.

g. What is surface tension? How it vary with temperature.

h. Write two advantages of organic reagents over inorganic reagents.

2. Answer any **Three** questions. **(3×4=12)**

a. What is lattice energy? Explain the Born - Haber cycle for the formation of sodium chloride.

b. What is covalent bond? Write the general characteristics of covalent compounds.

c. Write the type of hydridisation and geometry of following molecules.

i. SF_6.

ii. BF_3.

iii. $BECl_2$.

iv. PCl_5.

d. Give the molecular orbital energy level diagram of oxygen molecule and write its electronic configuration and magnetic property.

[P.T.O.

3. Answer any **Three** questions. (3×4=12)

a. What is optical isomerism? Write the conditions for a molecule to show optical isomerism.

b. Explain the following.

i. Enantiomers.

ii. Mesocompounds.

c. Discuss the rules of assigning E and Z notations for compounds with examples.

d. Explain :

i. Anhydride formation method of determination of geometrical isomers.

ii. Biochemical method of resolution of recimic mixture.

4. Answer any **Three** questions. (3×4=12)

a. Explain the following of crystal system.

i. Plane of symmetry.

ii. Centre of symmetry.

b. Give the classification and applications of liquid crystals.

c. Derive integrated rate equation for second order reaction when concentrations of reactants are equal.

d. Explain the differential equation method of determination of order of reaction.

5. Answer any **Three** questions. (3×4=12)

a. Define parachor. Explain the elucidation of structure of Benzoquinone by parachor values.

b. Explain the determination of coefficient of viscosity by ostwald's viscometer.

c. Refractive index and density of Benzene are found to be 1.497 and 0.873 $gmcm^{-3}$ respectively. Calculate specific refraction and molar refraction of Benzene. (Given - Molecular weight of Benzene = 78).

d. Give the structure and use of following reagents in inorganic analysis.

i. Oxine.

ii. DMG

iii. Cupron.

B030320

Reg. No. | | | | | | | | |

II Semester B.Sc. 6 (NEP) Degree Examination, September/October - 2022

PHYSICS

Electricity and Magnetism

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates : *1. Calculator is allowed to solve the problems.*
2. Write intermediate steps.

Answer any **Six** questions. **(6×2=12)**

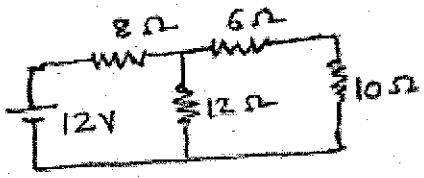
1. a. Define curl of a vector.
b. State Gauss Divergence theorem.
c. What are voltage and current sources?
d. State superposition theorem.
e. State Biot - Savart law.
f. Define peak and r.m.s. values of A.C.
g. What is self inductance.
h. Define electric dipole moment.

2. Answer the questions 'a and b' **OR** 'c and d'.
a. Define divergence of a vector and explain its physical significance. **(8)**
b. Write a note on Maxwell's equations. **(4)**

(OR)

c. Derive General plane wave equation in free space. **(8)**
d. State and explain stoke's theorem. **(4)**

3. Answer the questions 'a and b' **OR** 'c and d'.
a. Derive Maximum power transfer theorem. **(8)**
b. Using Norton's theorem, find the current in 10Ω resistor in the network shown below. **(4)**



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(OR)

c) Give the theory of growth and decay of current in RL circuit. **(8)**

d) A Condenser of capacity 1 μF is first charged then discharged through 1 $M\Omega$ resistor. Find the time in which the charge will fall to 40% of its initial value. **(4)**

4. Answer the questions 'a and b' **OR** 'c and d'.

a) Give construction and theory of Helmholtz Galvenometer. **(8)**

b) A straight conductor is carrying a current of 1.5 A. Find the magnetic field at a distance of 0.05 m from it. **(4)**

(OR)

c) Derive an expression for admittance in parallel LCR circuit using j operator. **(8)**

d) A coil of radius 0.2 m and 100 turns carries current of 0.5 amp. Find the magnetic field at a point 0.4 m away from the centre of Coil. **(4)**

5. Answer the questions 'a and b' **OR** 'c and d'.

a) Give the theory of Ballistic Galvenometer. **(8)**

b) A capacitor of value of 0.3 μF is charged to 4.5 volts It gives a deflection of 10 cm when discharged through a ballistic galvenometer. If the time period of B.G is 12 sec calculate the current sensitivity. **(4)**

(OR)

c) Derive the relation between D,E and P in dielectrics. **(8)**

d) The first right throw and left throw of B.G. from its mean position are 0.22 m and 0.215 m respectively. Calculate the logarithmic decrement. **(4)**

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II Semester All UG Courses Degree (NEP) Examination,
September/October - 2022
ENVIRONMENTAL STUDIES
AECC (Ability Enhancement Compulsory Course)
(Regular)

Time : 1½ Hours **Maximum Marks : 30**

SECTION - A
ವಿಭಾಗ - ಅ

Answer any 5 of the following. **(5×2=10)**

ಈ ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಯಾವುದಾದರೂ **5ನ್ನು** ಉತ್ತರಿಸಿರಿ.

1. Food chain
   ಆಹಾರ ಸರಪಳಿ
2. Endangered species
   ಅಳಿವಿನಂಚಿನಲ್ಲಿರುವ ಪ್ರಭೇದಗಳು
3. Global Warming
   ಜಾಗತಿಕ ತಾಪಮಾನ
4. Renewable resources
   ನವೀಕರಿಸಬಹುದಾದ ಸಂಪನ್ಮೂಲಗಳು
5. Biodiversity
   ಜೀವವೈವಿಧ್ಯ
6. Population
   ಜನನಿಬಿಡತೆ
7. Climate
   ಹವಾಮಾನ

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SECTION - B

ವಿಭಾಗ - ಬ

Answer any 4 of the following. (4×5=20)

ಯಾವುದಾದರು 4 ಪ್ರಶ್ನೆಗಳನ್ನು ಉತ್ತರಿಸಿರಿ.

8. What is sustainability ? Describe sustainable development.

ಸುಸ್ಥಿರತೆ ಅಂದರೇನು ? ಸುಸ್ಥಿರ ಅಭಿವೃದ್ಧಿಯನ್ನು ವಿವರಿಸಿ.

9. Define ecosystem. Describe structure and functions of ecosystem.

ಪರಿಸರ ಎಂದರೇನು ? ಪರಿಸರ ವ್ಯವಸ್ಥೆಯ ರಚನೆ ಮತ್ತು ಕಾರ್ಯವನ್ನು ವಿವರಿಸಿ.

10. Mention Biogeographic Zones of India.

ಭಾರತದ ಜೈವಿಕ ಭೌಗೋಳಿಕ ವಲಯಗಳನ್ನು ಹೆಸರಿಸಿ.

11. Write importance of conservation of biodiversity.

ಜೀವವೈವಿಧ್ಯದ ಸಂರಕ್ಷಣೆಯ ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ಬರೆಯಿರಿ.

12. Name renewable energy resources. Describe any one energy resource.

ನವೀಕರಿಸಬಹುದಾದ ಶಕ್ತಿ ಸಂಪನ್ಮೂಲಗಳನ್ನು ಹೆಸರಿಸಿ ಮತ್ತು ಯಾವುದಾದರೂ ಒಂದು ಶಕ್ತಿ ಸಂಪನ್ಮೂಲವನ್ನು ವಿವರಿಸಿ.

13. Write impacts of climate change on human communities and agriculture.

ಹವಾಮಾನ ಬದಲಾವಣೆಯ ಪರಿಣಾಮಗಳನ್ನು ಬರೆಯಿರಿ.

42224/B240

Reg. No. | | | | | | | | |

II Semester B.Sc.4. Degree Examination, September/October - 2022

CHEMISTRY (OPTIONAL)

(Repeaters)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates :

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

SECTION - A

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

1. a) Calculate the bond order of Nitrogen molecule.

b) What is hybridization?

c) Draw the molecular orbital diagram of lithium molecule.

d) Write the structural formula of oxime.

e) State Markownikoff's rule.

f) Mention the electrophiles generated during the chlorination and sulphoration of Benzene.

g) How alcohols are obtained from alkanes.

h) What is inversion temperature?

i) Define coefficient of viscosity.

j) What is molar refraction.

k) What are liquid crystals? Give an example.

l) What are Miller indices?

SECTION - B

Answer any **Four** of the following. **(4×5=20)**

2. Discuss the shape of Ammonia molecule on the basis of VSEPR theory.

3. Draw and explain molecular orbital energy level diagram of oxygen molecule.

P.T.O.

4. Explain the following :
   i) Ozonolysis of 2 - methyl - 2 - butene.
   ii) Hydroboration and oxidation of alkenes.
5. Explain the mechanism of Nitration of Benzene.
6. Derive the Joule - Thomson coefficient.
7. Explain the determination of surface tension of the liquid by drop number method.

SECTION - C

Answer any **Four** of the following. **(4×10=40)**

8. a) What is hydrogen bonding? Explain inter molecular and intramolecular hydrogen bonding.
   b) Give the advantages of organic reagents over the Inorganic reagents.
9. a) What are dienes? Give the classification of dienes with examples.
   b) How is benzene converted into P - nitrobenzoic acid?
10. a) Write a note on Joule - Thomson effect.
    b) Refractive index and density of benzene are found to be 1.497 and 0.873 $gmcm^{-3}$ respectively calculate the specific refraction and molar refraction of benzene.
    (Given. molecular weight of benzene = 78).
11. a) Derive Bragg's equation.
    b) What are emulsions? Explain the types of emulsions.
12. a) Discuss the mechanism of alkylation of benzene.
    b) Derive Kirchoff's equation.

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47072/B030210

Reg. No. | | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, October - 2023

BOTANY (DSC)

Diversity of Non-Flowering Plants

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

Draw a neat labelled diagrams wherver necessary.

I. Answer any SIX of the following. **(6×2=12)**

1) Flagella
2) Capcells.
3) Rhizoids
4) Octant
5) Resin duct.
6) Stone cells
7) Impressions
8) Coenozoic

II. Answer any THREE of the following. **(3×4=12)**

9) Write a note on thallus organization in algae.
10) Describe the life cycle of Ectocarpus.
11) Write a note on economic importance of algae.
12) Explain sexual reproduction in spirogyra.

III. Answer any THREE of the following. **(3×4=12)**

13) Write a note on thallus organization in Bryophytes.
14) Explain the life-cycle of Funaria.
15) Write a note on fossil Bryophytes.
16) Write a note on classification of pteridophytes.

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IV. Answer any THREE of the following. **(3×4=12)**

17) Explain the stelar evolution in pteridophytes.

18) Write a note on economic importance of Gymnosperms.

19) Describe the T.S of pinus needle.

20) Enumerate general characters of Gymnosperms.

V. Answer any THREE of the following. **(3×4=12)**

21) Write a note on Lyginopteris

22) What is geological time? Mention paleozoic era.

23) Write a note on petrification and Moulds.

24) Write a note on Birbal sahni institute of Paleosciences.

47073/BO30230

Reg. No. | | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, October - 2023

CHEMISTRY (DSC)

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

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

1. Answer any SIX of the following questions. **(6×2=12)**

a) What is lattice energy ? Give its significance.

b) Write two characteristics of bonding molecular orbitals

c) Compare the acidic strength of acetic acid and benzoic acid and give the reason.

d) What is racemic mixture?

e) Write two applications of liquid crystals.

f) Define space lattice.

g) How half life period is related to initial concentration of reactant for zero order and second order reactions.

h) Define coefficient of viscosity.

2. Answer any THREE of the following questions. **(3×4=12)**

a) Calculate the lattice energy of Nacl using the born-Haber cycle from following data

Hent of sublimation of sodium = 108 kJ/mol

Ionisation energy of sodium gas = 495 kJ/mol

Dissociation energy of chlorine = 240 kJ/mol

Electron affinity of chlorine =- 347 kJ/mol

Heat of formation of Nacl = -381 kJ/mol

b) What is Ionic bond? Write the general characteristics of ionic compounds.

c) Explain the hybridization and geometry of pcls molecule.

d) Give the molecular orbital energy level diagram for O^{+1}_2 ion and write its molecular orbital configuration and magnetic property.

[P.T.O.

3. Answer any THREE of the following questions. (3×4=12)

a) What is geometrical isomerism? Write the conditions of geometrical isomerism.

b) Explain

i) Chirality

ii) Mesocompounds

c) Discuss the rules of assigning E and Z notaions for compounds with examples.

d) Give the rules of assigning R and S notations for compounds with examples.

4. Answer any THREE of the following questions. (3×4=12)

a) What are liquid crystals? Give the classification of liquid crystals.

b) Derive the Bragg's equation.

c) Write about laws of crystallography

d) Calculate the separation between two successive planes in a crystal in which a series of planes produce a first order reflection from x-rays of 1.539A^0 wavelength at an angle of 22.5^0

5. Answer any THREE of the following questions. (3×4=12)

a) Derive an expression for rate constant of second order reaction when concentration of reactants are equal.

b) Explain the structural illucidation of Benzoguinone by paractor values.

c) Write about following.

i) Molar refraction

ii) Structure of DMG and its use in inorganic analysis.

d) A second order reaction with reactants of equal concentrations is 20% completed in 500 seconds calculate

i) Rate constant of reaction

ii) Time for 60% completion of reaction.

19136/B035150

Reg. No. | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, September/October - 2023

CHEMISTRY (OEC)

Molecules of Life

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

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

I. Answer any **six** of the following. **(6×2=12)**

a. What are non - reducing sugars? Give an example.

b. What are co-enzymes?

c. Oils and fats are refined. Give reason.

d. What are peptide bonds?

e. Give the structure of thymine.

f. What is structure - activity relationship (SAR)?

g. Give any two sources of vitamin - A.

h. What are harmones? Name the harmone produced by pitutary gland.

II. Answer any **Three** Questions. **(3×4=12)**

a. Define

i. Epimers and

ii. Anomers.

b. What is mutarotation? Fructose and glucose undergo mutarotation while sucrose and cellulose does't why?

c. Give the open chain and Haworth ring structure of glucose.

d. What is isoelectric point? Give its importance.

[P.T.O.

III. Answer any **three** questions. (3×4=12)

a. What are the factors which affect the enzyme action?

b. What are enzyme inhibitors? Give their importance.

c. Write a note on drug receptors.

d. Give the biological importance of oils and fats.

IV. Answer any **three** questions. (3×4=12)

a. What are nucleosides and nucleotides?

b. Discuss the biological role of DNA.

c. What are the diseases of vitamin B deficiency?

d. What are the various functions of harmones?

V. Answer any **three** questions. (3×4=12)

a. i. What are polysaccharides? What are the monomer units of sucrose?

ii. What is glycosidic linkage?

b. Give the classification of proteins based on molecular shape.

c. Discuss the biological importance of steroids.

d. What are the types of RNA? Give their functions.

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47074/B030240/B0240

Reg. No.

II Semester B.Sc.6 (NEP) Degree Examination, October - 2023

COMPUTER SCIENCE

Data Structures Using C

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

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

2) Draw a neat diagrams wherever necessary

1. Answer any SIX of the following questions. Each carries 2 marks. (6×2=12)

a) What is lineqr data structure? Give example.

b) What is direct and indirect recursion?

c) Differentiate between linear search and binary search techniques.

d) Write the condition to check stack underflow

e) Define is circular queue with a neat diagram.

f) What is doubly linked list?

g) What is a tree?

h) Write the steps involved in inorder tree travessal of a binary tree.

2. Answer any THREE of the following questions. Each carries 4 marks. (3×4=12)

a) Explain the classification of non primitive data structure.

b) Write a c program to generate n Fibonacci numbers using recursion.

c) What is an array? Discuss declaration and initialization of single dimensional array.

d) With a neat diagram explain Tower of hanoi puzzle.

3. Answer any THREE of the following questions. Each carries 4 marks. (3×4=12)

a) Explain linear search technique with an example.

b) Write an algorithm to sort given elements using bubble sort technique.

c) convert the given infix expression into postfix expression

i) (A/(B-C) * D+E) (ii) (A+B) / (A-B) * C

d) Define stack. Write an algorithm for PUSH ( ) operation on stack.

[P.T.O.

4. **Answer any THREE of the following questions. Each carries 4 marks.** **(3×4=12)**

a) Explain dynamic memory allocation functions with a syntax.

b) What is queue? Write a c function to insert an element into simple queue.

c) Write an algorithm to delete a NODE from the beginning of the singly linked list.

d) Differentiate between dynamci and static memory allocation.

V. **Answer any THREE of the following. Each carries 4 marks.** **(3×4=12)**

a) Define the following terms with respect to tree.

i) Root Node

ii) Ancestors

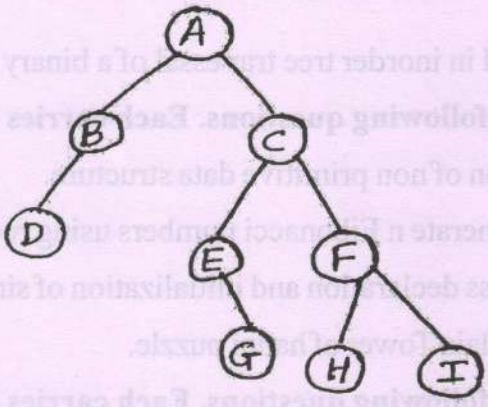
iii) height of a tree

iv) Leaf node

b) What is binary search tree? Explain the construction of binary search tree for the given data elements 45, 15, 79, 90, 10, 55

c) Explain strict binary tree and complete binary tree with a neat diagram.

d) Write the inorder, preorder and postorder tree traversal for the following binary tree.



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Reg. No. | | | | | | | | |

II Semester UG (NEP) Degree Examination, October - 2023
ECONOMICS (OE)
Contemporary Indian Economy
(Repeater/Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

1) Answer all the **three** Sections.
ಎಲ್ಲಾ **ಮೂರು** ವಿಭಾಗಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.
2) Draw diagrams and tables wherever necessary.
ಅವಶ್ಯವಿದ್ದೆಡೆ ಚಿತ್ರಗಳನ್ನು ಮತ್ತು ಪಟ್ಟಿಗಳನ್ನು ತೆಗೆಯಿರಿ.
3) Answer to all the questions in proper sequence.
ಎಲ್ಲ ವಿಭಾಗಗಳ ಪ್ರಶ್ನೆಗಳಿಗೆ ಒಂದೇ ಕಡೆ ಸರಿಯಾದ ಕ್ರಮದಲ್ಲಿ ಉತ್ತರಿಸಿರಿ.

SECTION - A
ವಿಭಾಗ - ಅ

Answer any Ten of the following questions in one or two sentences each.
ಕೆಳಗಿನ ಬೇಕಾದ **ಹತ್ತು** ಪ್ರಶ್ನೆಗಳಿಗೆ 2-3 ವಾಕ್ಯಗಳಲ್ಲಿ ಉತ್ತರಿಸಿರಿ. **(10×1=10)**

1. a) What do you mean by Population Policy?
ಜನಸಂಖ್ಯಾ ನೀತಿ ಎಂದರೇನು ?
b) What is Human Development Index?
ಮಾನವ ಅಭಿವೃದ್ಧಿ ಸೂಚ್ಯಾಂಕ ಎಂದರೇನು ?
c) Define Urbanization.
ನಗರೀಕರಣವನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿರಿ.
d) What do you mean by Atma Nirbhar Bharat?
ಆತ್ಮ ನಿರ್ಭರ ಭಾರತ ಎಂದರೇನು ?
e) Expand MGNREGP
MGNREGP ಇದನ್ನು ವಿಸ್ತರಿಸಿ ಬರೆಯಿರಿ.

[P.T.O.

f) State any two objectives of Agricultural Price Policy.
ಕೃಷಿ ಬೆಲೆ ನೀತಿಯ ಯಾವುದಾದರು ಎರಡು ಉದ್ದೇಶಗಳನ್ನು ಹೆಸರಿಸಿರಿ.

g) What do you mean by Public Sector?
ಸಾರ್ವಜನಿಕ ವಲಯ ಎಂದರೇನು ?

h) What are multi-national companies?
ಬಹುರಾಷ್ಟ್ರೀಯ ಕಂಪನಿಗಳೆಂದರೇನು ?

i) What is Repo rate?
ರೆಪೊ ದರ ಎಂದರೇನು ?

j) What do you mean by deficit budget?
ಕೊರತೆ ಮುಂಗಡ ಪತ್ರ ಎಂದರೇನು ?

k) Who is the chairman of 15th Finance Commission?
15ನೇ ಹಣಕಾಸು ಆಯೋಗದ ಅಧ್ಯಕ್ಷರು ಯಾರು ?

l) What is Rupee Convertibility?
ರೂಪಾಯಿ ಪರಿವರ್ತನೆ ಎಂದರೇನು ?

SECTION - B

ವಿಭಾಗ - ಬ

Answer any Four of the following questions. **(4×5=20)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

2. Explain how can India reap demographic dividend?
ಭಾರತ ಹೇಗೆ ಜನಸಂಖ್ಯಾ ಲಾಭಾಂಶವನ್ನು ಪಡೆಯಬಹುದು ? ವಿವರಿಸಿರಿ.

3. Write note on Smart city mission.
ಸ್ಮಾರ್ಟ ಸಿಟಿ ಮಿಶನ್ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

4. What are the causes of agrarian crisis? Explain.
ಕೃಷಿ ಬಿಕ್ಕಟ್ಟಿನ ಕಾರಣಗಳನ್ನು ವಿವರಿಸಿರಿ.

5. Discuss the features of make in India.
ಮೇಕ್ ಇನ್ ಇಂಡಿಯಾದ ಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿರಿ.

6. Discuss the types of deficit budget.
ಕೊರತೆ ಮುಂಗಡ ಪತ್ರದ ಪ್ರಕಾರಗಳ ಬಗ್ಗೆ ಚರ್ಚಿಸಿರಿ.

7. Explain the trends of foreign direct investment in India.
ಭಾರತದಲ್ಲಿ ವಿದೇಶಿ ನೇರ ಹೂಡಿಕೆಯ ಪ್ರವೃತ್ತಿಯ ಬಗ್ಗೆ ವಿವರಿಸಿರಿ.

SECTION - C

ವಿಭಾಗ - ಕ

Answer any Three of the following questions. (3×10=30)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಮೂರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

8. Discuss the National Population Policy-2000.
ರಾಷ್ಟ್ರೀಯ ಜನಸಂಖ್ಯಾ ನೀತಿ-2000 ಬಗ್ಗೆ ಚರ್ಚಿಸಿರಿ.

9. Explain the role of multinational companies in the industrial development of India.
ಭಾರತದ ಕೈಗಾರಿಕಾ ಅಭಿವೃದ್ಧಿಯಲ್ಲಿ ಬಹುರಾಷ್ಟ್ರೀಯ ಕಂಪನಿಗಳ ಪಾತ್ರದ ಕುರಿತು ವಿವರಿಸಿರಿ.

10. Explain the recommendations of 15th finance commission.
15ನೇ ಹಣಕಾಸು ಆಯೋಗದ ಶಿಫಾರಸುಗಳನ್ನು ವಿವರಿಸಿರಿ.

11. Discuss various components of Indian money market.
ಭಾರತದ ಹಣದ ಮಾರುಕಟ್ಟೆಯ ವಿವಿಧ ಘಟಕಗಳ ಬಗ್ಗೆ ಚರ್ಚಿಸಿರಿ.

12. Write a note on W.T.O and India.
W.T.O ಮತ್ತು ಭಾರತದ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

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Reg. No. | | | | | | | | | |

II Semester B.Sc.(NEP) Degree Examination, September/October - 2023

ENGLISH

Generic English - II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

I. Answer the following in a word, a phrase or a sentence each. **(10×1=10)**

1) What were grown during 1000 to 500 BC?
2) What is alternative to the Green Revolution methods?
3) What are the two little courtesies expressed in on saying please.
4) Who threw the passenger out of the lift?
5) Who followed Milkha Singh wherever he went?
6) What was the focus of Milkha Singh?
7) How many hours did W.B. yeats pray for his daughter?
8) What does 'reverie' mean in the poem a prayer for my daughter?
9) How does the speaker laugh like?
10) How to come up in life?

II. 1) Describe practice sessions of Milkha singh? **(1×10=10)**

(OR)

2) Explain ZBNF as a chemical free farming.

III. 1) How does Maya Angelou assert her dignity and resilience in the poem 'Still I Rise'? **(1×10=10)**

(OR)

2) What virtues does the Poet want his daughter to be blessed with?

IV. A. Rewrite as directed **(5×2=10)**

1) Give the synonyms of the following
   i) Cute
   ii) Create

[P.T.O.

2) Use the following homophones in your own sentences (any one)

i) Brake-Break

(OR)

ii) Diary-Dairy

3) Fill in the blanks with appropriate form of words given in the bracket adding affixes.

i) Scientists try to ---------- their ideas (code)

ii) Bharat is a popular -------- in the North karnataka (sing).

4) Match the words in column 'A' with its collective words in column 'B'.

	A	B
i)	Brain	Storm/wind/sharp
ii).	Pony	tail/head/ fish

5) Bring out the difference in meaning of the following pair of words by using them in your own sentences Advice - Advise.

(OR)

B. 1) Read the following passage carefully and identify the technical terms related to the field of and write in the answer script. **(5)**

A press release is a short yet compelling news story It is written by a public relations professional and sent to targeted members of the media Its goal is to press release the interest of a community or business. The press release contains information for the journalists.

2) a) Write a note Types of Listening **(1×5=5)**

(OR)

b) Techniques to improve the listening skills.

V. Answer any Two of the following. **(2×5=10)**

1) Change into Indirect Speech

a) Ashita said 'when are you leaving'?
b) He said ' I am going out'.
c) Rama said ' I had already left'.
d) Sita said 'where do they stay'?
e) Kavita said 'shall we begin'?

2) Write an imaginary dialogue between you and your friend about the independence Day Preparations

3) Explain verbal and Non. Verbal communication.

4) Summarize the following passage in your own words and give a suitable title.

Student life involves walking up early in the morning, rushing to school or college, completing assignments, studying, learning, gaining an education etc. Apart from these we also learn many sports and skills that usually help us in the future, Generally student life is considered the best part of our life.

VI. Answer any two of the following **(2×5=10)**

1) Draft a copy of speech on Swachh Bharat Abhiyan

2) Write a brief essay on science for peace and development.

3) Write a short paragraph on 'Bhagat Singh'.

4) Translate the following paragraph into Kannada or Hindi or Marathi or Urdu .

Ashita was on a long road trip outside the city to reach her project site, Lates, on the way her car got a break down, she tried hard but couldn't restart the car. But soon a young man with a peaceful grin on his face knocked on her car window said 'Sister do you need a any help. Ashita was surprised to see the young man suddenly appearing from nowhere on the dark lonely road.

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II Semester B.Sc. Degree Examination, October - 2023

ENVIRONMENTAL-STUDIES - AECC

(Regular/Repeater)

Time : 1½ (90 Minutes) **Maximum Marks : 30**

Instructions to Candidates:

1. Check for complete printing of **30** questions.
2. The last page of the question paper may be used for rough work.
3. Each question has four multiple choice answer and choose the correct one.
4. Darken the appropriate circle with the ball pen.
5. Damaging/overwriting using whitener on the **OMR** sheets are strictly prohibited.
6. No candidates 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.
7. Candidates should ensure that the invigilator has verified all the entries and that the invigilator has offixed his/her signature in the space provided on the **OMR**.

[P.T.O.

1. Which component constitutes the plants, animals and the micro-organisms?
   A) Internal components B) Abiotic components
   C) Biotic components D) External components
   ಕೆಳಗಿನ ಯಾವುದು ಪ್ರಾಣಿಗಳು, ಗಿಡಮರಗಳು ಹಾಗೂ ಸೂಕ್ಷ್ಮಾಣುಜೀವಿಗಳನ್ನು ಹೊಂದಿವೆ.
   A) ಇಂಟರ್ನಲ್ ಕಾಂಪೋನಂಟ್ B) ಅಬಯೋಟಿಕ್ ಕಾಂಪೋನಂಟ್
   C) ಬಯೋಟಿಕ್ ಕಾಂಪೋನಂಟ್ D) ಎಕ್ಸ್‌ಟರ್‌ನಲ್ ಕಾಂಪೋನಂಟ್

2. Air-Pollution causes_____
   A) Respiratory diseases B) Gastro-intestinal disease
   C) Blindness D) All the above
   ವಾಯು–ಮಾಲಿನ್ಯದಿಂದಾಗುವ ಪರಿಣಾಮಗಳು_____
   A) ಸ್ವಾಶಕೋಶದ ಕಾಯಿಲೆ B) ಜೀರ್ಣಕ್ರಿಯೆ ಕಾಯಿಲೆ
   C) ಅಂಧತೆ D) ಮೇಲಿನ ಎಲ್ಲವೂ

3. The word biological or biotic means
   A) Living B) Non-living
   C) Organism D) Non-organism
   ಜೈವಿಕ ಪದದ ಅರ್ಥ
   A) ಜೀವಿಸುವ B) ಜೀವ ಇಲ್ಲದೇ ಇರುವ
   C) ಜೀವಿ D) ಅಜೀವಿ

4. The example for renewable-resources are
   A) Coal B) Oil
   C) Iron D) Forest
   ನವೀಕರಿಸಬಹುದಾದ ಸಂಪನ್ಮೂಲಗಳಿಗೆ ಉದಾಹರಣೆ ಇದು
   A) ಕಲ್ಲಿದ್ದಲು B) ತೈಲ
   C) ಕಬ್ಬಿಣ D) ಕಾಡು

5. Terrestrial ecosystem includes _____
   A) Fresh-water ecosystem B) Marine-ecosystem
   C) Grass-land ecosystem D) None of these
   ಭೂಮಂಡಲದ ಪರಿಸರ ವ್ಯವಸ್ಥೆಯೂ_____ಗಳನ್ನು ಹೊಂದಿರುತ್ತದೆ.
   A) ಸಿಹಿನೀರಿನ ಪರಿಸರವ್ಯವಸ್ಥೆ B) ಉಪ್ಪುನೀರಿನ ಪರಿಸರ ವ್ಯವಸ್ಥೆ
   C) ಹುಲ್ಲುಗಾವಲಿನ ಪರಿಸರ ವ್ಯವಸ್ಥೆ D) ಯಾವುದೂ ಅಲ್ಲ

6. The complex Network of interconnected food-chains is called.
   A) Trophic level B) Food web
   C) Ecological pyramid D) Ecotone
   ಅತಿಯಾದ ಸಂಕೀರ್ಣವಾದ ಆಹಾರ ಸರಪಳಿಗಳನ್ನು ಹೀಗೆನ್ನುತ್ತಾರೆ.
   A) ಟ್ರಾಪಿಕಲ್ ಲೇವಲ್ B) ಫೂಡ್ ವೆಬ್
   C) ಇಕೋಲಾಜೀಕಲ್ ಫಿರಾಮಿಡ್ D) ಇಕೋಟೋನ್

7. Succession that begins on a sterile region where conditions of existence are not at first favourable.
A) Primary B) Secondary
C) Territory D) Climax
ಸಕ್ಕೇಶನ್ ಎನ್ನುವುದು ಬರಡಾದ ಪ್ರದೇಶದಿಂದ ಪ್ರಾರಂಭವಾದರೆ, ಅದನ್ನು ಮೊದಲು ಅನುಕೂಲವಾಗುವಂತಹ ಸ್ಥಿತಿಯಲ್ಲಿರುವುದಿಲ್ಲ.
A) ಪ್ರಾಥಮಿಕ B) ದ್ವೀತಿಯ
C) ಭೂಮಂಡಲದ ಪ್ರದೇಶ D) ಕ್ಲೈಮ್ಯಾಕ್ಸ್

8. The term ecology was coined by
A) A.G. Tansley B) Ernst Haeckel
C) Aristotle D) Linnaeus
'ಪರಿಸರ ವಿಜ್ಞಾನ' ಪದವನ್ನು ಕಂಡು ಹಿಡಿದವರು
A) ಎ.ಜಿ. ಟಾನ್ಸ್ಲೇ B) ಅರ್ನಸ್ಟ ಹಾಕೇಲ್
C) ಅರಿಸ್ಟಾಟಲ್ D) ಲಿನೇಯಸ್

9. The animals which consumes decaying organic matter is called.
A) Carnivore B) Detrivore
C) Herbivore D) Omnivore
ಕೊಳೆತ ಪದಾರ್ಥವನ್ನು ತಿನ್ನುವ ಜೀವಿಗಳಿಗೆ ಹೀಗೆ ಕರೆಯುತಾರೆ.
A) ಕಾರ್ನಿವೋರ್ B) ಡೇಟ್ರಿವೋರ್
C) ಹರ್ಬಿವೋರ್ D) ಓಮ್ನಿವೋರ್

10. Which of the following is responsible for Air pollution.
A) Burning fossil fuels B) Carbon Dioxide
C) Both A and B D) None of these
ಕೆಳಗಿನ ಯಾವುವು ಗಾಳಿ-ಮಾಲಿನ್ಯಕ್ಕೆ ಕಾರಣವಾಗಿವೆ.
A) ಪಳಿಯುಳಿಕಾ ಇಂಧನಗಳು B) ಕಾರ್ಬನ್ ಡೈಆಕ್ಸೈಡ್
C) A ಮತ್ತು B D) ಯಾವುದೂ ಅಲ್ಲ

11. The endangered bird is_____
A) Passenger Pigeon B) Pink headed duck
C) Great Indian Bustrad D) Vulture
ಅಪಾಯದಲ್ಲಿರುವ ಪಕ್ಷಿಯೂ_____
A) ಪ್ಯಾಸೆಂಜರ್ ಪಿಜನ್ B) ಪಿಂಕ್ ಹೆಡೆಡ್ ಡಕ್
C) ಗ್ರೇಟ್ ಇಂಡಿಯನ್ ಬಸ್ಟರ್ಡ್ D) ವಲ್ಚರ್

12. A species restricted to a given area is
A) Endemic species B) Allopatric Species
C) Sympatric species D) Sibling species
ಈ ಕೆಳಗಿನ ಜಾತಿಯ ಜೀವಿಗಳನ್ನು ಒಂದೇ ಪ್ರದೇಶದಲ್ಲಿ ನಿರ್ಬಂಧಿಸಲಾಗಿದೆ
A) ಎಂಡೆಮಿಕ್ ಸ್ಪಿಸೀಸ್ B) ಅಲ್ಲೊಪ್ಯಾಟ್ರೀಕ್ ಸ್ಪಿಸೀಸ್
C) ಸಿಂಪ್ಯಾಟ್ರೀಕ್ ಸ್ಪಸೀಸ್ D) ಸಿಬ್ಲಿಂಗ್ ಸ್ಪಿಸೀಸ್

13. Ranganathittu is Karnataka is known for
A) Lions B) Tigers
C) Elephants D) Birds
ರಂಗನತಿಟ್ಟು, ಕರ್ನಾಟಕದಲ್ಲಿದೆ, ಇದನ್ನು ಯಾವುದಕ್ಕೆ ಹೆಸರು.
A) ಸಿಂಹ B) ಹುಲಿ
C) ಆನೆ D) ಪಕ್ಷಿಗಳು

14. Zoos are example for
A) In-situ conservation B) In-vivo conservation
C) Ex-situ-conservation D) Ex-vivo conservation
'ಜೂ'ಗಳು ಯಾವುದಕ್ಕೆ ಉದಾಹರಣೆ
A) ಇನ್-ಸೀಟು ಕಂಸರ್ವೇಶನ್ B) ಇನ್-ವಿವೊ ಕಂಸರ್ವೇಶನ್
C) ಎಕ್ಸ್-ಸೀಟು ಕಂಸರ್ವೇಶನ್ D) ಎಕ್ಸ್-ವಿವೋ ಕಂಸರ್ವೇಶನ್

15. The number of bio-geographical region in India are_____
A) 3 B) 4
C) 7 D) 10
ಜೀವಿ-ಬೌಗೋಳಿಕ ಪ್ರದೇಶದಲ್ಲಿ ಎಷ್ಟು ಭಾರತದಲ್ಲವೆ.
A) 3 B) 4
C) 7 D) 10

16. The hotspots of biodiversity regions generally include
A) Richness of species B) Richness in endemic species
C) Both A and B D) Richness in biotic and abiotic factors
ಜೀವವೈವಿಧ್ಯತೆ ಪ್ರದೇಶದ ಹಾಟ್‌ಸ್ಪಾಟಗಳು ಇವುಗಳನ್ನು ಹೊಂದಿವೆ.
A) ಜೈವಿಕ ಸಂಪನ್ಮೂಲಗಳು B) ಅಪಾಯದಲ್ಲಿರುವ ಜಾತಿ ಸಂಪನ್ಮೂಲಗಳು
C) A ಮತ್ತು B ಎರಡೂ D) ಜೈವಿಕ ಮತ್ತು ಅಜೈವಿಕ ಸಂಪನ್ಮೂಲಗಳು

17. The historical monument that is affected by acid-rain is
A) Taj-Mahal B) Pyramid of Egypt
C) Pisa-tower D) Golden Temple
ಯಾವ ಐತಿಹಾಸಿಕ ಕಟ್ಟಡವು ಆಮ್ಲ ಮಳೆಯಿಂದ ಹಾನಿಗೊಳಗಾಗಿದೆ.
A) ತಾಜ್-ಮಹಲ್ B) ಇಜೀಪ್ಷನ ಪಿರಾಮಿಡ್
C) ಪಿಸಾ ಟಾವರ್ D) ಗೋಲ್ಡ್‌ನ್ ಟೆಂಪಲ್

18. DDT is _____
A) Degradable B) Bio-degradable
C) Non-degradable D) Renewable
DDT ಇದು_____
A) ಕೊಳೆಯುವಂತಹದು B) ಜೈವಿಕ ವಿಘಟನೆಯಾಗುವುದು
C) ಕೊಳೆಯದೆ ಇರುವಂತಹದು D) ನವೀಕರಿಸಬಹುದಾದ

19. Acid-rain contains
A) Sulphuric acid B) Hydrochloric acid
C) Oxalic acid D) Acetic acid
ಆಮ್ಲ-ಮಳೆಯು ಇದನ್ನು ಹೊಂದಿರುತ್ತದೆ.
A) ಸಲ್ಫೂರಿಕ್ ಆಸಿಡ್ B) ಹೈಡ್ರೋಕ್ಲೋರಿಕ್ ಆಮ್ಲ
C) ಆಕ್ಸಾಲಿಕ್ ಆಸಿಡ್ D) ಅಸೇಟಿಕ್ ಆಸಿಡ್

20. Environment protection act has been passed in the year.
A) 1968 B) 1936
C) 1986 D) 1948
ಪರಿಸರ ರಕ್ಷಣಾ ಆಕ್ಟ್‌ಅನ್ನು ಈ ವರ್ಷ ಕಾರ್ಯಗತ ಮಾಡಲಾಯಿತು
A) 1968 B) 1936
C) 1986 D) 1948

21. Drinking water contamination causes_____
A) Scurvy B) Typhoid
C) Malaria D) Anaemia
ಕುಡಿಯುವ ನೀರಿನ ಅನೈರ್ಮಲ್ಯೀಕರಣಕ್ಕೆ ಕಾರಣ_____
A) ಸ್ಕರ್ವಿ B) ಥೈರಾಯಿಡ್
C) ಮಲೇರಿಯಾ D) ಅನೇಮಿಯಾ

22. Which of the following is Air-pollutant?
A) Co B) O_2
C) N_2 D) All of the above
ಈ ಕೆಳಗಿನ ಯಾವುದು ಗಾಳಿ-ಮಾಲಿನ್ಯಕಾರಕಣವಾಗಿದೆ.
A) Co B) O_2
C) N_2 D) ಮೇಲಿನ ಎಲ್ಲವೂ

23. Vermicomposting is a method of
A) Producing Compost manure B) Producing worms
C) Management of fabric waste D) Destroying worms
ಜೈವಿಕ-ವಿಘಟನಾ ವಿಧಾನವೂ
A) ಮ್ಯಾನುವರ್ ತಯಾರಿಸುವುದು B) ವರ್ಮಗಳನ್ನು ತಯಾರಿಸುವುದು
C) ಪ್ಯಾಬ್ರಿಕ್ ತ್ಯಾಜ್ಯವನ್ನು ನಿರ್ವಹಿಸುವುದು D) ವರ್ಮಗಳಿಗೆ ಹಾನಿಮಾಡುವುದು

24. Ozone - layer is present in
A) Mesosphere B) Troposphere
C) Stratosphere D) Ionosphere
ಓಜೋನ್ ಪದರವು ಈ ಸ್ಥಳದಲ್ಲಿದೆ.
A) ಮೀಸೋಸ್ಪಿಯರ್ B) ಟ್ರೋಪೋಸ್ಪಿಯರ್
C) ಸ್ಟ್ರಾಟೋಸ್ಪಿಯರ್ D) ಆಯನೋ ಸ್ಪೀಯರ್

25. The wildlife-protection act was enacted in the year
A) 1986 B) 1974
C) 1994 D) 1972
ವನ್ಯಜೀವಿ ಸಂರಕ್ಷಣಾ ಕಾಯ್ದೆ ಜಾರಿಗೆ ಬಂದ ವರ್ಷ.
A) 1986 B) 1974
C) 1994 D) 1972

26. The international protocol to protect ozone layer is
A) Vienna Protocal B) Kyoto Protocol
C) Cartagena protocol D) Montreal protocol
ಜಾಗತಿಕ ಓಜೋನ್ ಪದರ ಸಂರಕ್ಷಣಾ ಪ್ರೊಟೋಕಾಲ್
A) ವಿಯಾನ್ನಾ ಪ್ರೋಟೋಕಾಲ್ B) ಕ್ಯೋಟೋ ಪ್ರೋಟೋಕಾಲ್
C) ಕಾರ್ಟೆಜೇನಾ ಪ್ರೋಟೋಕಾಲ್ D) ಮಾಂಟ್ರಿಯಲ್ ಪ್ರೋಟೋಕಾಲ್

27. The most prelevant form of land degradation in India is
A) Landslide B) Soil-Subsidence
C) Soil erosion D) Desertification
ಭೂಹಾನಿಗೆ ಕಾರಣವಾದ ಅತಿ ಮುಖ್ಯ ಅಂಶವು
A) ಲ್ಯಾಂಡ್ ಸ್ಲೇಡ್ B) ಸಾಯಿಲ್ ಸಬಸೀಡೆನ್ಸ್
C) ಸಾಯಿಲ್ ಇರೋಜನ್ D) ಡಿಸರ್ಟಿಫಿಕೇಶನ್

28. Enrichment of water body by phosphorus and nitrogen is
A) Succesion B) Eutrophication
C) Stratification D) Precipitation
ಜಲಮೂಲಗಳು ಫಾಸ್ಪರಸ್ ಮತ್ತು ನೈಟ್ರೋಜನ್‌ನಿಂದ ಭರಿತವಾಗಿರುವುದಕ್ಕೆ ಕಾರಣ
A) ಸಕ್ಸೇಶನ್ B) ಯುಟ್ರೋಫಿಕೇಶನ್
C) ಸ್ಟ್ರಾಟಿಫಿಕೇಶನ್ D) ಪ್ರೆಸಿಪಿಟೇಶನ್

29. Birth rate of population is called
A) Mortality B) Vital index
C) Natality D) None of these
ಜನನ ಪ್ರಮಾಣದ ಜನಸಂಖ್ಯೆಯೂ
A) ಮರಣ ಪ್ರಮಾಣ B) ವೈಟಲ್ ಇಂಡೆಕ್ಸ್
C) ಜನ್ಮಜಾತ D) ಯಾವುದು ಅಲ್ಲ

30. World water day is observed on
A) 22 March B) 23 March
C) 24 March D) 28 March
ಜಾಗತಿಕ ನೀರಿನ ದಿನವನ್ನು ಈ ದಿನ ಆಚರಿಸುತ್ತಾರೆ.
A) 22ನೇ ಮಾರ್ಚ್ B) 23ನೇ ಮಾರ್ಚ್
C) 24ನೇ ಮಾರ್ಚ್ D) 28ನೇ ಮಾರ್ಚ್

(7) B019010/20902

Reg. No. | | | | | | | | |

II Semester All UG. Courses (NEP) Examination, October - 2023
ENVIRONMENTAL STUDIES (AECC)
DESCRIPTION

Time : 1½ Hours **Maximum Marks : 30**

Instructions to Candidates:

Answer for Section - I and II compulsory

SECTION - A
ವಿಭಾಗ - ಅ

Answer any **Five** of the following. **(5×2=10)**
ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ 5 ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

1. Environment
ಪರಿಸರ
2. Ecosystem
ಪರಿಸರ ವ್ಯವಸ್ಥೆ
3. Biodiversity hotspots
ಜೀವವೈವಿಧ್ಯದ ಸೂಕ್ಷ್ಮ ಪ್ರದೇಶಗಳು
4. Ex-situ conservation
ಕೃತಕ ಸಂರಕ್ಷಣೆ
5. Pollution
ಪರಿಸರ ಮಾಲಿನ್ಯ
6. Global warming
ಜಾಗತಿಕ ತಾಪಮಾನ
7. CBD
ಸಿಬಿಡಿ

SECTION - B
ವಿಭಾಗ - ಬ

Answer any **Four** of the following. **(4×5=20)**
ಯಾವುದಾದರೂ **4**ಕ್ಕೆ ಉತ್ತರಿಸಿರಿ.

8. What are energy sources? Describe any one of alternative energy source.
ಶಕ್ತಿಯ ಮೂಲ ಎಂದರೇನು? ಯಾವುದಾದರೂ ಒಂದು ಪರ್ಯಾಯ ಶಕ್ತಿಯ ಮೂಲವನ್ನು ವಿವರಿಸಿ.
9. Describe grass land ecosystem
ಹುಲ್ಲುಗಾವಲು ಪರಿಸರ ವ್ಯವಸ್ಥೆಯನ್ನು ವಿವರಿಸಿರಿ.
10. Mention Biogeographic zones of India. Describe any one of them.
ಭಾರತದ ಜೈವಿಕ ಭೌಗೋಳಿಕ ವಲಯಗಳನ್ನು ಹೆಸರಿಸಿ ಅವುಗಳಲ್ಲಿ ಒಂದನ್ನು ವಿವರಿಸಿ.
11. What is pollution? Describe air pollution types and its effects and control measures.
ಪರಿಸರ ಮಾಲಿನ್ಯ ಎಂದರೇನು? ವಾಯು ಮಾಲಿನ್ಯದ ಬಗೆಗಳು ಮತ್ತು ಪರಿಣಾಮಗಳು ಮತ್ತು ನಿಯಂತ್ರಣ ವಿಧಗಳನ್ನು ವಿವರಿಸಿ.
12. Describe impact of human population on environment.
ಪರಿಸರದ ಮೇಲೆ ಜನಸಂಖ್ಯೆಯ ಪರಿಣಾಮಗಳನ್ನು ವಿವರಿಸಿ.
13. Write a note on Role of Indian and other religions in environmental conservation.
ಪರಿಸರ ಸಂರಕ್ಷಣೆಯಲ್ಲಿ ಭಾರತದ ವಿವಿಧ ಸಂಪ್ರಧಾಯಗಳ ಪಾತ್ರಗಳನ್ನು ವಿವರಿಸಿ. **[P.T.O.**

47055/BO30050

Reg. No. | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, October - 2023

HINDI

1) काव्यकुसूम

2) अनुवाद

PAPER - AECC

(Regular)

Time : 2 Hours | Maximum Marks : 60

I. किन्हीं दस प्रश्नों के सही उत्तर लिखिए। (10×1=10)

1. 'कर्मवीर कविता में किसका गुनगान वर्णित है?

   अ) कर्मवीरों का

   ब) सैनिकों का

   क) नेताओं का

2. राष्ट्र कवि के रुप में किसे सम्मानित किया जाता है?

   अ) रामधारीसिंह 'दिनकर'

   ब) अज्ञेय

   क) भवानी प्रसाद मिश्र

3. 'हिमालय' कविता में हिमालय किसका मुकुट है?

   अ) मानवजाति का

   ब) सामाजिकता का

   क) भारतमाता का

4. परमाणु बम की भयंकरता का चित्रण किस कविता में हुआ है?

   अ) जाहिंल मेरे बाने

   ब) हिमालय

   क) हिरोशिमा

P.T.O.

5. किस कविता में शहरी मनुष्य की सभ्यता पर व्यंग्य कसा है?

अ) औरत

ब) कालिदास

क) जाहिल मेरे बाने

6. हम जैसा बोएँगे, वैसा ही पाएँगे यह बात किस कविता में कहा है?

अ) आः धरती कितना देती है

ब) हिमालय

क) आठवी मंजिल पर

7. 'कदम मिलाकर चलना होगा' कविता के कवि कौन है?

अ) नागार्जुन

ब) अटल बिहारी वाजपेयी

क) एकान्त श्रीवास्तव

8. औरत की स्थिति का चित्रण किस कविता में हुआ है?

अ) औरत

ब) देश कागज पर बना नक्शा नहीं होता

क) हिमालय

9. बालश्रमिकों की दयनीयता का चित्रण किस कविता में हुआ है?

अ) जाहिल मेरे बाने

ब) आठवी मंजिल पर

क) दातून बेचनेवाले बच्चे

10. स्त्री को मुक्त होकर जीने का संदेश किस कविता में दिया है?

अ) ओ अच्छी लडकियों

ब) कालिदास

क) कदम मिलाकर चलना होगा

11. 'आठवी मंजिल पर' कविता के कवि कौन है?

अ) कुँवुर नारायण

ब) अज्ञेय

क) दिनकर

12. आ: धरती कितना देती है। कविता के कवि कौन है?

अ) सुमित्रानन्दन पन्त

ब) चन्द्रकात देवताले

क) भवानी प्रसाद मिश्र

II. किन्हीं तीन का संसदर्भ स्पष्टीकरण कीजिए। (3×5=15)

1. मेरी जमनी के दिम–किरीट
   मेरे भारत के दिव्य भाल
   मेरे नगपति मेरे विशाल।
2. मैं असभ्य हूँ क्योंकि खुले नगे पाँवो चलता हूँ।
   मैं असभ्य हूँ क्योंकि धूस की गोदी में पलता हूँ।।
3. सब कुछ देकर कुश्र ना माँगते
   पावस बनकर चलना होगा
   कदम मिलाकर चलन होगा।
4. मानवता की जीवन श्रम से हँसे दिशाएँ
   हम जैसी बोएँगे वैसा ही पाएँगे।

III. किन्हीं दो प्रश्नों के उत्तर लिखिए। (2×10=20)

1. 'कर्मवीर' कविता का आशय स्पष्ट कीजिए?
2. 'ओ अच्छी लड़कियों' कविता का सारांश लिखिए?
3. 'कदम मिलाकर चलना होगा' कवि हमे क्या संदेश देना चाहते है?
4. 'औरत' कविता में व्यक्त भारतीय नारी की स्थिति का चित्रण कीजिए?

P.T.O.

IV. हिन्दी में अनुवाद किजिए। (1×15=15)

The prosperity of India depends wholly upon the villages. So the Government should make effort to improve the stage of villages free and compulsory education should be given up to all Every village should have a school, a hospital, a library and a post office.

ಭಾರತದ ಅಭಿವೃದ್ಧಿಯ ಸಂಪೂರ್ಣವಾಗಿ ಹಳ್ಳಿಗಳ ಮೇಲೆ ಅವಲಂಬಿಸಿದೆ. ಆದ್ದರಿಂದ ಸರಕಾರವು ಹಳ್ಳಿಗಳ ಸ್ಥಿತಿಯನ್ನು ಸುಧಾರಿಸುವುದಕ್ಕಾಗಿ ಪ್ರಯತ್ನಿಸಬೇಕು. ಉಚಿತ ಹಾಗೂ ಕಡ್ಡಾಯ ಶಿಕ್ಷಣವು ಎಲ್ಲರಿಗೂ ನೀಡಲ್ಪಡಬೇಕು. ಪ್ರತಿಯೊಂದು ಹಳ್ಳಿಯೂ ಒಂದು ಶಾಲೆ, ಒಂದು ಆಸ್ಪತ್ರೆ, ಒಂದು ಗ್ರಂಥಾಲಯ ಹಾಗೂ ಒಂದು ಅಂಚೆ ಕಚೇರಿಯನ್ನು ಹೊಂದಿರಬೇಕು.

47051/48331/B030010/B070010

Reg. No. | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, September/October - 2023

KANNADA (Basic)

ತೆರೆದ ಮನ (ಎಇಸಿಸಿ)

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

ಭಾಷೆ ಮತ್ತು ಬರಹದ ಶುದ್ಧಿಯನ್ನು ಗಮನಿಸಲಾಗುವುದು.

I. a) ಜ್ಯೋತಿರೆಡ್ಡಿ ತನ್ನ ಬದುಕನ್ನು ಕಟ್ಟಿಕೊಂಡ ಪ್ರಸಂಗವನ್ನು ಕುರಿತು ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

b) ಎಲ್ಲಾ ಕಲೆಗಳಲ್ಲಿ ಶ್ರೇಷ್ಟವಾದ ಕಲೆ 'ಜೀವನ ಕಲೆ' ಎಂಬುದನ್ನು ಡಿ.ವಿ.ಜಿ. ಯವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದ ಹಿನ್ನಲೆಯಲ್ಲಿ ನಿರೂಪಿಸಿರಿ.

II. a) 'ನನ್ನ ಇಷ್ಟದ ಪುಸ್ತಕಗಳು' ವ್ಯಕ್ತಿಯ ವ್ಯಕ್ತಿತ್ವವನ್ನು ರೂಪಿಸುತ್ತವೆ? ಎನ್ನುವ ಲೇಖಕರ ವಿಚಾರಗಳನ್ನು ಸಂಗ್ರಹಿಸಿ ಬರೆಯಿರಿ. **(10)**

(ಅಥವಾ)

b) ಅಕ್ಕಮಹಾದೇವಿ ಚೆನ್ನಮಲ್ಲಿಕಾರ್ಜುನನ್ನು ಕುರಿತು ಕನಸಿನ ವೃತ್ತಾಂತವೇನು? ವಿವರಿಸಿರಿ.

III. a) 'ಮಳೆ ನಿಂತ ಮೇಲೆ' ಈ ಕಥೆಯ ಬಡತನದ ದಾರುಣತೆಯನ್ನು ಎತ್ತಿ ತೋರಿಸುತ್ತದೆ? ವಿವರಿಸಿರಿ **(10)**

(ಅಥವಾ)

b) 'ನಾನು ಪುಟ್ಟಿ ಮಳೆ ನೋಡಿದ್ದು' ಕವಿತೆಯ ವೈಶಿಷ್ಟ್ಯತೆಗಳನ್ನು ವಿವರಿಸಿರಿ.

IV. a) ಕಾಫಿ ಚಟ ಅನುವಂಶಿಕವೆ? ಪರಿಸರ ಪ್ರೇರಿತವೆ? ಎಂಬುದನ್ನು ವಿವರಿಸಿರಿ. **(10)**

(ಅಥವಾ)

b) 'ವಿಗ್ರಹಗಳೋಗ್ರಹಗಳೋ' ಸಂಬಂಧವನ್ನು ಕುರಿತು ಲೇಖಕರ ಅಭಿಪ್ರಾಯಗಳನ್ನು ಸಂಗ್ರಹಿಸಿ ವಿವರಿಸಿರಿ.

[P.T.O.

V. ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ ಬೇಕಾದ ಎರಡಕ್ಕೆ (2×5=10)

a) ಆದರ್ಶ ಜೀವನ.

b) ಚೈತನ್ಯದ ಪೂಜೆ.

c) ಧನಿಯರ ಸತ್ಯ ನಾರಾಯಣ.

d) ನ್ಯಾನೋ ತಂತ್ರಜ್ಞಾನ.

VI. ಒಂದೇ ವಾಕ್ಯದಲ್ಲಿ ಉತ್ತರಿಸಿರಿ. (10×1=10)

a) ಡಿ.ವಿ.ಜಿ. ಅವರ ಪೂರ್ಣ ಹೆಸರೇನು?

b) ಪಾಟೀಲ ಪುಟ್ಟಪ್ಪ ಅವರ ಜನ್ಮಸ್ಥಳ ಯಾವುದು?

c) ಡಾ.ಎಚ್. ನರಸಿಂಹಯ್ಯನವರಿಗೆ 1985 ರಲ್ಲಿ ಯಾವ ಪ್ರಶಸ್ತಿ ದೊರಕಿದೆ?

d) ಅಂಬಿಕಾತನಯದತ್ತ ಇದು ಯಾರ ಕಾವ್ಯನಾಮ?

e) ಕುವೆಂಪು ಅವರ ತಂದೆ-ತಾಯಿಯ ಹೆಸರೇನು?

f) ತೌಡನ ಹೆಂಡತಿಯ ಹೆಸರೇನು?

g) ಆಕಾಶಬುಟ್ಟಿ ಇದು ಯಾರ ಕೃತಿ?

h) 'ಬರ' ಈ ಕಥೆಯನ್ನು ಯಾವ ಪುಸ್ತಕದಿಂದ ಆಯ್ದುಕೊಳ್ಳಲಾಗಿದೆ?

i) ಜೆ.ಆರ್. ಲಕ್ಷ್ಮಣರಾವ್ ಅವರು ಯಾವ ವರ್ಷ ಜನಿಸಿದರು?

j) 'ಅಮ್ಮ ಹೇಳಿದ ಎಂಟು ಸುಳ್ಳುಗಳು' ಈ ಕೃತಿಗೆ ಯಾವ ಪ್ರಶಸ್ತಿ ದೊರಕಿದೆ?

47080/B030300/B0300

Reg. No. | | | | | | | | |

II Semester B.Sc. 6 (NEP) Degree Examination, October - 2023

MATHEMATICS

Algebra - II and Calculus - II

Paper : DSC

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates: **Answer all questions.**

Answer any Six questions. **(6 ×2=12)**

1. a) Define bounded set and give an example.

   b) Define limit point of a set.

   c) Prove that every cyclic group is abelian.

   d) Define left and right cosets.

   e) If $u = \tan^{-1}\left(\frac{y}{x}\right)$ *then find* $\frac{\partial u}{\partial x}$ *and* $\frac{\partial u}{\partial y}$

   f) If $x = u(1-v),\ y = uv$ *then find* $\frac{\partial(x,y)}{\partial(u,v)}$

   g) Evaluate $\int_0^1 \int_0^2 xy\,(x+y)\,dx\,dy.$

   h) Evaluate $\int_0^1 \int_0^2 \int_0^3 (x+y+z)\,dx\,dy\,dz.$

Answer any THREE of the following. **(3×4=12)**

2. a) Prove that the unit interval [0,1] is uncountable.

   b) State and prove Archimedian Property of real numbers

P.T.O.

c) i) Define open set and give an example.

ii) Prove that the union of a finite number of closed sets is a closed set.

d) Prove that every infinite subset of a denumerable set is denumerable.

Answer any THREE of the following. **(3 ×4=12)**

3. a) If G = {1, 5, 7, 11} then prove that G is abelian group w.r.t multiplication module 12.

b) A non empty subset H of a group (G *) is a sub group of G iff

i) $\forall, a, b \in H \Rightarrow a * b \in H$

ii) $\forall\ a, \in H \Rightarrow a^{-1} \in H$.

c) Prove that every subgroup of a cyclic group is cyclic.

d) State and prove lagrange's theorem for groups.

Answer any THREE of the following. **(3 ×4=12)**

4. a) If $u = \frac{1}{\sqrt{x^2+y^2+z^2}}$ then show that $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = 0$

b) State and prove Euler's theorem for homogeneous function.

c) if $J = \frac{\partial(u,v)}{\partial(x,y)}$, $J^1 = \frac{\partial(x,y)}{\partial(u,v)}$ then prove that $JJ^1 = 1$

d) Expand sin $(x + y)$ by maclaurian's series.

Answer any THREE of the following. **(3×4=12)**

5. a) Evaluate $\iint_D (x+2y+1)\,dx\,dy$, where D is domain bounded by $x = 0, y = 0, 3x + y - 3 = 0$.

b) Find the area of the circle $x^2 + y^2 = a^2$ by double integration.

c) Find the volume of the tetrahedron bounded by the coordinate planes and the plane $x+y+z=1$

d) State and prove Leibnitz's theorem for differentiation under integral sing.

19141/B035230

Reg. No. | | | | | | | | |

II Semester B.Sc. 6 (NEP) Degree Examination, October - 2023

MATHEMATICS - II

(For Science Stream Students) (OEC)

(Repeaters/Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates : *Answer all questions.*

Answer any **six** of the following. **(6×2=12)**

1. a. Define group.

b. Prove that a group has unique identity element.

c. Prove that every cyclic group is abelian.

d. If $Z = XY^2 + 2Y$ then find $\frac{\partial Z}{\partial X}$ and $\frac{\partial Z}{\partial Y}$.

e. If $Z = X^2Y + Y^2X$, $X = at^2$, $Y = 2at$ then find $\frac{dZ}{dt}$.

f. If $u = X + Y$ and $V = XY$ find $\frac{\partial(u, v)}{\partial(x, y)}$.

g. Evaluate $\int_0^3 \int_0^2 (X+Y)dX.dY$.

h. Evaluate $\int_0^1 \int_0^1 \int_0^1 (X+Y+Z)dX.dY.dZ$.

Answer any **four** of the following : **(4×4=16)**

2. a. Prove that set $G = \{a + b\sqrt{3} / a, b \in Q\}$ is a abelian group under adition.

b. A non empty subset H of a group G is subgroup iff $ab^{-1} \in H \ \forall a, b \in H$.

c. State and prove Lagrange's theorem on a finite group.

P.T.O.

d. If 'a' is a generator of cyclic group G then O(a) = O(G).

e. Prove that every subgroup of a cyclic group is cyclic.

Answer any **four** of the following. **(4×4=16)**

3. a. If $u = \tan^{-1}\left[\frac{X^3+Y^3}{X+Y}\right]$ then show that $x.\frac{\partial u}{\partial X} + y.\frac{\partial u}{\partial Y} = \sin 2u$.

b. If $u = x^y$ then show that $\frac{\partial^2 u}{\partial X.\partial Y} = \frac{\partial^2 u}{\partial Y.\partial X}$.

c. State and prove Euler's theorem on Homogeneous function.

d. If u and v are functions of X, Y then prove that

$$\frac{\partial(u,v)}{\partial(X,Y)}.\frac{\partial(X,Y)}{\partial(u,v)} = 1.$$

e. Expand $e^x.\sin y$ by Maclaurin's series up to 3rd terms.

Answer any **four** of the following. **(4×4=16)**

4. a. Evaluate $\int_C x^2y^2\,ds$ around the circle $X^2 + Y^2 = 1$.

b. Find the area of ellipse $\frac{X^2}{a^2} + \frac{Y^2}{b^2} = 1$.

c. Find the volume of the sphere $x^2 + y^2 + z^2 = a^2$.

d. Find the area of the surface $z = \sqrt{X^2+Y^2}$, $\frac{1}{16} < X^2 + Y^2 < \frac{1}{4}$.

e. State and prove Leibnitz's theorem for differentiation under integral sign.

42234/B340

Reg. No. | | | | | | | | | |

II Semester B.Sc.4. Degree Examination, October - 2023

MATHEMATICS

Algebra And Geometry

Paper - II

(W.e.f. 2017-2018 onwards Repaters)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates : *Answer all parts.*

PART-A

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

a. State idempotent property of lattice.

b. Define lattice and give an example.

c. Let $(A, \leq)$ be a lattice and for any elements $a, b \in A$ then prove that

i. $a \leq a \vee b$. ii. $b \leq a \vee b$.

d. Prove that $n(n+1)(n+5)$ is multiple of 6.

e. Define Euler's function.

f. Find the equation of a sphere whose centre is (-3,2,-1) and radius 5 units.

g. Find the equaton of a tangent plane to the sphere $x^2 + y^2 + z^2 = 9$ at (1,-2,2).

h. Show that the spheres $x^2 + y^2 + z^2 + 6y + 2z + 8 = 0$ and $x^2 + y^2 + z^2 + 6x + 8y + 4z + 20 = 0$ cut orthogonally.

i. Find the equation of the cone with vertex at the origin and having $z = 2$, $x^2 + y^2 = 4$ at guiding curve of cone.

j. Define cylinder and right circular cylinder.

k. Write the equation to the cone with vertex at origin.

l. Find the equation to the cylinder whose generater's are parallel to $\frac{x}{1} = \frac{y}{2} = \frac{z}{3}$ and passing through $x^2 + y^2 = 16, z = 0$.

PART - B

Answer any **Four** of the following. **(4×5=20)**

2. Let $a, b \in L$ where $(L, \leq)$ be a lattice, then for every a and b in L prove that

i. $a \vee b = b$ iff $a \leq b$.

ii. $a \wedge b = a$ iff $a \leq b$.

P.T.O.

3. State and prove fundamental theorem of arithemetic.
4. Find the equation of a sphere through the points (0,0,0), (-1,1,1), (1,-1,1) and (1,1,-1). Also find its centre and radius.
5. Prove that the spheres $x^2+y^2+z^2-2x-3=0$ and $x^2+y^2+z^2+6x+6y+9=0$ touch each other externally.
6. Find the equation of the cone with vertex at (1,1,0) and guiding curve is $x^2+z^2=4$, y =0.
7. Find the equation of right circular cylinder whose axis is $\frac{x-\alpha}{l}=\frac{y-\beta}{m}=\frac{z-\gamma}{n}$ and radius r.

PART - C

Answer any **Four** of the following. **(4×10=40)**

8. a. Let $a,b \in L$ where (L, $\leq$) be a lattice then prove that
   i. $a \vee (a \wedge b) = a$.
   ii. $a \wedge (a \vee b) = a$.
   b. For any $a,b,c \in L$ and let (L, $\leq$) be a lattice then prove that $a \wedge (b \vee c) = (a \wedge b) \vee (a \wedge c)$.
9. a. Find the number of divisor's and sum of divisor's of 84.
   b. Prove that $12! + 209 \equiv O(\text{mod } 221)$.
10. a. Find the equation of the tangent plane to the sphere $3(x^2+y^2+z^2)-2x-3y-4z-22=0$, at the point (1,2,3).
    b. Find the equation of sphere through the circle $x^2+y^2+z^2-2x+3y+5z+6=0$, $3x-4y+z-15=0$ and cutting the sphere $x^2+y^2+z^2+2x+4y-6z+11=0$.
11. a. Prove that equation of the cone whose vertex is at the origin is harmogeneous in x,y,z.
    b. Find the equation of enveloping cone to the sphere $x^2+y^2+z^2-2x+4z=1$ at (1,1,1).
12. a. Find the equation of the cylinder whose generating line have d.c. (l,m,n) and passing through a fixed circle $x^2+z^2=a^2$ on ZX plane.
    b. Find the equation of the enveloping cyclinder of the sphere $x^2+y^2+z^2=25$ whose generators are parallel to the line $\frac{x}{1}=\frac{y}{-2}=\frac{z}{3}$.

42233/B330

Reg. No. | | | | | | | | |

II Semester B.Sc.4. Degree Examination, October - 2023

MATHEMATICS

Differential And Integral Calculus

Paper - I

(Repeater)

(W.e.f. 2017-2018 onwards)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates : *Question paper contains 3 parts namely A,B,C Answer all parts.*

Part - A

1. Answer any **Ten** of the following. **(10×2=20)**

   a. Find the angle between the radius vector and tang cut to the curve $r = a\cos\theta$.

   b. Find the length of the polar subtangent for the curve $r = a\theta$.

   c. Find the pedal equation of $r^2 = a^2\cos 2\theta$.

   d. Write the formula for co-ordinate of the centre of curvature.

   e. Find the radius of curvature of the curve $2ap^2 = r^3$.

   f. Prove that $\lim_{(x,y)\to(0,0)} \frac{x^2 - y^2}{x^2 + y^2}$ does not exist.

   g. If $z = x^2 \sin(3x + y^2)$ find $\frac{\partial z}{\partial x}, \frac{\partial z}{\partial y}$.

   h. If $x = r\cos\theta$, $y = r\sin\theta$ show that $\frac{\partial r}{\partial x} = \frac{x}{\sqrt{x^2 + y^2}}$.

   i. Prove that the curve y = logx convex upwards everywhere.

   j. Find the envelope of the family of straight lines y=m(m+x), where 'm' is a parameter.

   k. Evaluate $\int \sin^5 x \, dx$ by using reduction formula.

   l. Obtain the reduction formula for $\int x^n e^{an} dx$.

Part - B

Answer any **Four** of the following. **(4×5=20)**

2. Derive $\frac{1}{p^2} = \frac{1}{r^2} + \frac{1}{r^4}\left(\frac{dr}{d\theta}\right)^2$ with usual notation.

P.T.O.

3. Find the angle of intersection of the curves $r = a\cos\theta$ and 2r=a.

4. Find the radius of curvature at any point on the curve $y = a\log\sec\left(\frac{x}{a}\right)$.

5. If $z = x^2\tan^{-1}\frac{y}{x} - y^2\tan^{-1}\frac{x}{y}$ show that $\frac{\partial^2 z}{\partial x\partial y} = \frac{x^2 - y^2}{x^2 + y^2}$.

6. Find the envelope of the family of curves $Y = mx + a\sqrt{1+m^2}$.

7. Find the reduction formula for $\int \cos ec^n x dx$.

PART - C

Answer any Four of the following. **(4×10=40)**

8. a. With usual notation prove that $\tan\phi = r.\frac{d\theta}{dr}$.

   b. Obtain pedal equation of the circle $x^2 + y^2 = 2aX$.

9. a. Prove that the radius of curvature in pedal form in $\delta = r.\frac{dr}{dp}$.

   b. Find the evolute of the parabola $y^2 = 4ax$.

10. a. State and prove Euler's theorem for homogeneous function in x and y of degree n.

    b. If $u = Sin^{-1}\left\{\frac{x^2 + y^2}{x + y}\right\}$ then show that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = \tan u$.

11. a. Find the range of values of x for which the curve $y = (x^2 + 4x + 5)e^{-x}$ is concave upwards and concave downwords.

    b. Find all the asymptotes of the curve

    $y^3 - x^2y + 2y^2 + 4y + 1 = 0$.

12. a. Find reduction formula for $\int \cos^n x dx$.

    b. Evaluate $\int_0^1 \frac{x^6}{\sqrt{1-x^2}} dx$.

19144

Reg. No. | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, September/October - 2023

PHYSICS

Optical Instruments

Paper : OEC

(Repeater/Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates : i. Use of calculators for calculations.
ii. Write a intermediate steps.

I. Answer any **six** questions. **(6×2=12)**

1. a. What is optical path?
   b. What is fermat's principle?
   c. Define focal points.
   d. What is dispersion of light?
   e. What is the function of pupil in human eye?
   f. Write the applications of compound microscope.
   g. What is a spectrometer?
   h. What is the difference between an astronomical and a terrestrial telescope?

II. Answer the following questions. **(4×12=48)**

2. a. Explain the laws of reflection and refraction using fermat's principle. **(8)**
   b. Write a note on any two of the following :
      i. Magnifying glass.
      ii. Thick and thin lenses.
      iii. Convex and concave lenses. **(4)**

(OR)

   c. Derive the lens maker's formulae for double concave and convex lenses. **(8)**
   d. Describe the lens equation and the terms in it. **(4)**

[P.T.O.

3. a. What is dispersion of light? With appropriate diagram, explain Newton's experiment on dispersion of light. (8)

b. Write a note on (4)

i. Focal points.

ii. Nodal points.

(OR)

c. Explain dispersion without deviation qualitatively. (8)

d. Write a note on (4)

i. Angular dispersion.

ii. Dispersive power.

4. a. Discuss the principle, construction and working of photographic camera. (8)

b. Explain Human eye in detail. (4)

(OR)

c. Explain the principle, construction and working of simple microscope. (8)

d. Write a note on Electron microscope and it's applications. (4)

5. a. Explain the principle, construction and working of an Astronomical telescope. (8)

b. Write a note on 'Reflecting telescopes'. (4)

(OR)

c. Discuss the construction and working of spectrometer. (8)

d. Write a short note on 'Eyepieces or Oculars'. (4)

47082/B030320

Reg. No. | | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, October - 2023

PHYSICS

Electricity and Magnetism

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates: 1) **Calculator is allowed to solve the Problems.**

2) **Write intermediate steps.**

1. Answer any Six questions. **(6 ×2=12)**

a) State coloumb's law of electrostatics.

b) Write expression for electrostatic energy of a charged sphere.

c) What are polar and nonpolar molecules?

d) State Biot-Savart's law?

e) Define Coercivity (in Hysteresis).

f) What is displacement current?

g) State Kirchhoff's laws of electrical circuits.

h) What is earth inductor?

2. Answer the question a and b or c and d .

a) Obtain an expression for torque acting on an electrical dipole placed in Electric field. **(8)**

b) Determine the magnitude and direction of the electric field at a point 0.03m to the left of point change of -5.2 n c. **(4)**

(OR)

c) Obtain an expression for electrostatic energy of a system of changes. **(8)**

d) The plates of a parallel plate air capacitor are separated by a distance of 10^{-3}m. what must be the plate area if the capacitance of the capacitor is to be 0.5F? Given the permittivity of free space = 8.854×10^{-12} $_{FM^{-1}}$ **(4)**

P.T.O.

3. Answer the question a and b or c and d .

a) Derive Relation between D.E and P. Where symbols have their usual meaning. **(8)**

b) A parallel plate capacitor has square plates of side 0.05m and separated by a distance of 0.001m.

i) Calculate the capacitance of this capacitor.

ii) If a dielectric of dielectric constant 6 is placed between plates of capacitor, what is new capacitance? **(4)**

(OR)

c) Derive an expression for magnetic field at a point along the axis of the Circular coil carrying current. **(8)**

d) A current of 10-A flows through a straight wire. calculate the magnitude of magnetic field at a point 0.02m away from the wire. [permeability of vaccum is $4\pi\times10^{-7} H/m$] **(4)**

4. Answer the question a and b or c and d .

a) Derive an expression for magnetic intensity at a point due to dipole. [magnet]. **(8)**

b) Define Magnetic intensity (H), magnetic induction (B), Magnetization Vector (M) write Relation between B, H, M. **(4)**

(OR)

c) Derive an expression for Energy stored in a Magnetic Field. **(8)**

d) The magnetic flux associated with a coil changes from zero to 6×10^{-2} Wb in 0.6s. Find the e.M.F. induced in the coil. **(4)**

5. Answer the question a and b or c and d .

a) Give the theory of growth and decay of current in RL CIrcuit. **(8)**

b) What is the characteristic time constant for a 7.50 mH inductor in Series with a 3Ω resistor? **(4)**

(OR)

c) What is Ballistic Galvanometer. Derive expression for current and time period of Ballistic galvanometer. **(8)**

d) What will be the angle of dip if the magnetic field of earth at a certain place has a horizontal component of earth's magnetic field as 0.3×10^{-4} Tesla and the total magnetic field strength is 0.5×10^{-4} Tesla. **(4)**

Reg. No. | | | | | | | | |

II Semester B.Sc. (NEP) Degree Examination, October - 2023

PHYSICS

Electricity and Magnetism

Paper :DSC.

(Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates: **1) Calculatory are allowed to solve the Problems.**

2) Write necessary intermediate steps.

1. Answer any Six questions. **(6 ×2=12)**

a) What are scalars and vectors?

b) Define divergence of a vector.

c) State kirchhoff's voltage and current laws.

d) State Biot-savart law.

e) What is j-operator?

f) Write an expression for resonant frequency of LCR parallel AC Circuit.

g) What is Self inductance?

h) What are polar molecules?

2. Answer the question a and b or c and d .

a) Derive Maxwell's equation in differential form. **(8)**

b) State and explain Gauss divergence theorem. **(4)**

(OR)

c) State and prove poynting theorem. **(8)**

d) State and explain stoke's theorem. **(4)**

3. Answer the question a and b or c and d .

a) State and prove Thevenin's theorem. **(8)**

b) A generator develops 200 VoH and has internal resistance of 100 ohm. Find the power delivered to the load of 100 ohm. **(4)**

(OR)

c) Give the theory of charging and discharging of a capacitor in RC circuit. (8)

d) Calculate the value of time constant in LR circuit when the current rises to 63.2% of its steady value in 1 second. (4)

4. Answer the question a and b or c and d .

a) Derive an expression for magnetic field at a point due to straight conductor carrying current. (8)

b) A Helmholtz galvanometer contains 50 turns and mean radius of 0.2m when a current of 0.1A is passed through the coil, a deflection of 45^0 is obtained. Calculate the horizontal component of Earth's field. (4)

(OR)

c) Obtain the expression for impedance and resonant frequency of LCR series circuit. (8)

d) A resistance of 10 ohm and inductance of 0.1 henry are connected in parallel with capacitance of 1 micro farad Calculate the frequency at which the current is minimum. (4)

5. Answer the question a and b or c and d .

a) Describe an experiment to determine the self - inductance of a coil by rayleigh's method. (8)

b) The current sensitivity of a ballistic galvanometer is 4.4×10^{-9} A for a deflection of 1 mm on a scale kept at a distance of 1m. calculate the charge sensitivity of a galvanometer if the periodic time of the coil is 3.14 second. (4)

(OR)

c) Derive an equation relating D,E and P in dielectrics. (8)

d) Sketch the block diagram of C.R.O. (4)

47084/B030340

Reg. No.

II Semester B.Sc. (NEP) Degree Examination, October - 2023
ZOOLOGY
Biochemistry and Physiology
(Repeater/Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

1. Answer all questions
   ಎಲ್ಲ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.
2. Draw diagrams wherever necessary.
   ಅವಶ್ಯವಿದ್ದಲ್ಲಿ ಚಿತ್ರ ಬರೆಯಿರಿ.

I. Answer any Six of the following: **(6×2=12)**

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಆರಕ್ಕೆ** ಉತ್ತರಿಸಿ.

1. Define Polysaccharides. Give examples.
   ಪೊಲಿಸಾಕ್ಕೈಡ್ಸನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ. ಉದಾಹರಣೆ ಸಹಿತ.
2. What is Gluconeogenesis?
   ಗ್ಲೂಕೋಜೆನೆಸಿಸ್ ಎಂದರೇನು ?
3. Write note on urea cycle.
   ಯೂರಿಯಾ ಸೈಕಲ್ ಕುರಿತು ಬರೆಯಿರಿ.
4. Name organs associated with respiration.
   ಉಸಿರಾಡುವಿಕೆಯ ವಿವಿಧ ಅಂಗಗಳನ್ನು ಹೆಸರಿಸಿ.
5. Give the components of Blood.
   ರಕ್ತದಲ್ಲಿನ ವಿವಿಧ ವಸ್ತುಗಳನ್ನು ಬರೆಯಿರಿ.
6. Name the Respiratory Pigments.
   ಉಸಿರಾಟದ ಪ್ರಕ್ರಿಯೆಯಲ್ಲಿ ಬರುವ ವಿವಿಧ ಪಿಗಮೆಂಟ್ಸಗಳನ್ನು ಹೆಸರಿಸಿ.
7. What is Cardiac cycle?
   ಕಾರ್ಡಿಯಾಕ್ ಸೈಕಲ ಎಂದರೇನು ?
8. Define Synapse.
   ಸಿನ್ಯಾಪ್ಸನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ.

[P.T.O.

II. Answer any Three of the following: (3×4=12)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಮೂರಕ್ಕೆ** ಉತ್ತರಿಸಿ.

9. Write a note on Enzyme-Action.

ಕಿಣ್ವಗಳ ಪಾತ್ರದ ಕುರಿತು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

10. Explain Glycolysis and add a note on Energy yields.

ಗ್ಲೈಕೋಲೈಸಿಸ್ ಪ್ರಕ್ರಿಯೆಯನ್ನು ವಿವರಿಸಿ ಮತ್ತು ಅಲ್ಲಿನ ಶಕ್ತಿಯ ಮೊತ್ತವನ್ನು ಕೊಡಿರಿ.

11. What are Carbohydrates? Give a general classification & Biological importance.

ಕಾರ್ಬೋಹೈಡ್ರೇಟ್ ಎಂದರೇನು? ಅವುಗಳ ವರ್ಗೀಕರಣ ಮತ್ತು ಜೀವವೈಜ್ಞಾನಿಕ ಮಹತ್ವ.

12. What are Lipids? Classify lipids based on their chemical composition with examples.

ಲಿಪಿಡ್ಸ ಎಂದರೇನು ? ಅವುಗಳನ್ನು ರಾಸಾಯನಿಕ ಆಧಾರಿತವಾಗಿ ವರ್ಗೀಕರಿಸಿ ಮತ್ತು ಸೂಕ್ತ ಉದಾಹರಣೆ ಕೊಡಿರಿ.

III. Answer any Three of the following: (3×4=12)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಮೂರಕ್ಕೆ** ಉತ್ತರಿಸಿ.

13. What are Enzyme? Give the classification of enzymes proposed by IUB-ENZYME-commission.

ಎಂಜೈಮ್ಸ ಎಂದರೇನು ? ಆಯುಬಿ-ಎಂಜೈಮ ಕಮಿಶನ ಅವರ ವರ್ಗೀಕರಣವನ್ನು ಕೊಡಿರಿ.

14. Write a note on Glycogenolysis.

ಗ್ಲೈಕೋಜಿನೋಲೈಸಿಸ್ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

15. What is Transamination? Explain.

ಟ್ರಾನ್ಸಅಮೈನೇಷನ್ ಎಂದರೇನು ? ವಿವರಿಸಿ.

16. Write a note on β oxidation.

ಬೀಟಾ ಆಕ್ಸಿಡೇಶನ ಕುರಿತು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

IV. Answer any Three of the following: (3×4=12)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ **ಮೂರಕ್ಕೆ** ಉತ್ತರಿಸಿ.

17. Explain chemical digestion of food.

ಆಹಾರದ ರಾಸಾಯನಿಕ ಜೀರ್ಣಕ್ರಿಯೆಯನ್ನು ವಿವರಿಸಿ.

18. With a neat labelled diagram, explain the structure of Mammalian Heart.

ಅಂದವಾದ ಚಿತ್ರದೊಂದಿಗೆ ಸಸ್ತನಿಯ ಹೃದಯವನ್ನು ಚಿತ್ರಿಸಿ ಭಾಗಗಳನ್ನು ಹೆಸರಿಸಿ ಹೃದಯವನ್ನು ವಿವರಿಸಿ.

19. Explain the structure of Nephron with a neat labelled diagram.

ನೆಫ್ರಾನನ ರಚನೆಯನ್ನು ಅಂದವಾದ ಚಿತ್ರದೊಂದಿಗೆ ವಿವರಿಸಿ.

20. Explain the process of Blood clotting.

ರಕ್ತ ಹೆಪ್ಪುಗಟ್ಟುವಿಕೆಯನ್ನು ವಿವರಿಸಿ.

V. Answer any Three of the following: **(3×4=12)**

ಕೆಳಗಿನ ಬೇಕಾದ **ಮೂರಕ್ಕೆ** ಉತ್ತರಿಸಿ.

21. Explain the Ultrastructure of skeletal muscle.

ಸ್ಕೆಲೆಟಲ ಸ್ನಾಯುವಿನ ರಚನೆಯನ್ನು ವಿವರಿಸಿ.

22. Describe the structure of Pituitary gland and write the secretions of the gland with functions.

ಪಿಟ್ಯೂಟರಿ ಗ್ರಂಥಿಯ ರಚನೆಯನ್ನು ವಿವರಿಸಿ ಹಾಗೂ ಅವುಗಳ ಸ್ರವಿಸುವಿಕೆಗಳನ್ನು ಕಾರ್ಯಗಳೊಂದಿಗೆ ಬರೆಯಿರಿ.

23. What is Muscle Twitch? Explain in detail with characteristics of muscle twitch.

ಮಸ್ಸಲ ಟ್ವಿಚ್ಚ ಎಂದರೇನು ? ಅವುಗಳ ಗುಣಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿ.

24. Write in detail the origin of action potential and propagation of nerve impulse in a non-myelinated narrations.

ಆಕ್ಷನ್ ಪೊಟೇಸ್ಸಿಯಲನ ಮೂಲ ಹಾಗೂ ನರಗಳ ಸಂವೇದನಗಳ ಹರಡುವಿಕೆಯನ್ನು ವಿವರಿಸಿ.
