

(Pages : 4)

P – 7504

Reg. No. :

Name :

**First Semester B.A./B.Sc./B.Com. Degree Examination,
March 2023**

First Degree Programme under CBCSS

Language Course – I – English

EN 1111.1/EN 1111.2/EN 1111.3 : LANGUAGE SKILLS

**(Common for B.A./B.Sc. (EN 1111.1), B.Com. (EN 1111.2) &
Career Related Group 2(a) (EN 1111.3))**

(2019 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

- I. Answer **all** questions, each in a word or sentence.
1. The rate at which our vocal cord vibrates or the frequency of vibration is called _____.
2. Stress is marked by the sign _____.
3. There are _____ Pure vowels in English.
4. _____ intonation is used to express requests.
5. What is RP?
6. Since letters do not correspond to sounds, English is known as _____ Language.
7. When the listener is actively involved consciously, it is called _____ Listening.

P.T.O.

8. The influence of mother-tongue while speaking English becomes a barrier called _____.
9. _____ are sounds during the production of which air escapes through the mouth freely and continuously without any audible friction.
10. A word with many syllables is called a _____ word.

(10 × 1 = 10 Marks)

II. Answer any **eight**, each in a short paragraph not exceeding **50** words.

11. What is podcasting?
12. What is the difference between Skimming and Scanning?
13. What is Descriptive writing?
14. What is Plagiarism?
15. What is the role of gestures in communication?
16. Explain Netiquette.
17. Mention any four telephone etiquette one must be aware of.
18. What are entropy, redundancy and noise?
19. What are the barriers faced by a second language learner while learning English?
20. What are the major non-verbal cues one must watch out for in communication?
21. How can we improve listening skills?
22. What are diphthongs?

(8 × 2 = 16 Marks)

III. Answer any **six**, each in a paragraph not exceeding **100** words.

23. Complete the conversation given below :

Seena : Hi John! How was the interview?

John : _____

Seena : Did they ask you a lot of questions?

John : _____

Seena : What was the first question?

John : _____

Seena : How many people were there in the panel?

John : _____

Seena : Will they take your experience into consideration?

John : _____

Seena : Hope you get your dream job, John. All the best!

John : _____

24. You are the anchor of the Union Inauguration at your college. Write a script for the same.

25. Prepare a speech motivating students to refrain from drug and substance abuse.

26. Write not less than ten exchanges of a telephone interview you are attending for the post of an HR executive.

27. Write a blog on the rise in atrocities against children.

28. Draft an email to request your Municipality authorities requesting them to install a plastic decomposing unit in your locality.

29. Write a script for a podcast on environmental issues.

30. Edit the passage given below :

Children are our little selves. They are here to remind us that the world has innocence left to make life beautiful. Little meenu is only 3 years old. But she is more sensitive to her Environment than adults. Every day, she takes time to feed the birds and squirrels in her back yard. The last day, she asked a curious question to her mother when she gave her scrambled eggs: "Mamma, are these babies not allowed to be born? Then I don't want them. Their mother will be crying". The mother was not able to answer her. That's' how children are. They make us think about things we choose to conveniently forget. Yes, as the poet said, *Child is the father of man.*

31. You are the General Captain of your college. Prepare the minutes of the meeting conducted to decide about the conduct of the Annual Sports Day.

(6 × 4 = 24 Marks)

IV. Answer any **two** each in about **300** words.

32. Write a paragraph on any **two** of the following :

(a) The World Cup Football

(b) Videogames

(c) Safe Driving

33. Write a telephone conversation between you and your manager regarding applying for a week's leave for a family function.

34. Prepare a speech to be delivered on World Human Rights Day.

35. Prepare a covering letter and a CV for the post of a reporter in a Sports Magazine in response to an advertisement you came across in a newspaper.

(2 × 15 = 30 Marks)

(Pages : 3)

P – 7511

Reg. No. :

Name :

First Semester B.A./B.Sc. Degree Examination, March 2023

First Degree Programme under CBCSS

Language Course : Additional Language – Hindi

HN 1111.1 – HINDI KATHA SAHITYA

(2020 Admission onwards)

Time : 3 Hours

Max. Marks : 80

- I. एक शब्द या वाक्य में उत्तर लिखिए।
1. सुकुमारी किसकी पत्नी है?
 2. दुखी चमार की मृत्यु कैसे हुई?
 3. किशोर सिंह के पास शरण मांगकर कौन आये?
 4. मां की रसोई कैसे दिखती थी?
 5. 'अमरूद का पेड़' कहानी का रचयिता कौन है?
 6. घोष बाबू के माली ने मां से क्या कहा?
 7. कमल गाँव क्यों आया था?
 8. मोबाईल उपन्यास की नायिका कौन हैं?
 9. नवीन खन्ना कौन है?
 10. रिद्धी और सिद्धी कौन हैं?

(10 × 1 = 10 Marks)

P.T.O.

II. किन्हीं आठ प्रश्नों के उत्तर करीब 50 शब्दों में लिखिए।

11. पंडित घासीराम दुखी चमार से क्या-क्या काम करवाये?
12. किशोर सिंह कैसा व्यक्ति था?
13. चित्रा मुद्गल के दो उपन्यासों के नाम लिखिए।
14. डोमिन क्या काम करती थी?
15. अमरुद के पेड़ को लेकर क्या अंधविश्वास फैला था?
16. सलाम रिवाज़ क्या है?
17. हरीश सलाम के लिए क्यों नहीं जाना चाहता?
18. प्रेमचंद का साहित्यिक परिचय दीजिये।
19. आदित्य कौन है?
20. नवीन खन्ना कैसा व्यक्ति है?
21. मोबाइल उपन्यास में फरहत की भूमिका क्या है?
22. मधुलिका और नवीन की मुलाकात कैसे हुई?

(8 × 2 = 16 Marks)

III. किन्हीं छः प्रश्नों के उत्तर करीब 120 शब्दों में लिखिए।

23. नवीन खन्ना ने मधुलिका को धोखा कैसे दिया?
24. आदित्य की चरित्रगत विशेषताएं लिखिए।
25. फरहत के परिवार का परिचय दीजिये।
26. दुखी चमार के शव के साथ घासीराम ने कैसा अनादर प्रकट किया?

27. क्षमा शर्मा का साहित्यिक परिचय दीजिये।
28. ऐलिस और विल्फ्रेड शरणार्थी कैसे बने?
29. अमरुद के पेड़ से सम्बंधित क्या-क्या यादें लेखक के मन में अब भी ताज़ा है?
30. अपने घर में हरीश को लाने से कमल की मां नाराज़ क्यों थी?
31. सद्गति कहानी में अभिव्यक्त सामाजिक विसंगति पर टिप्पणी लिखिए?

(6 × 4 = 24 Marks)

IV. किन्हीं दो प्रश्नों के उत्तर करीब 250 शब्दों में लिखिए।

32. 'मोबाइल' उपन्यास का सारांश लिखिए।
33. नवीन खन्ना के नायक-खलनायक भूमिका पर प्रकाश डालिए।
34. 'सलाम' कहानी में अभिव्यक्त जातिगत भेदभाव पर प्रकाश डालिए।
35. 'मां रसोई में रहती है' कहानी में चित्रित मां-बेटे के आत्मीय सम्बन्ध पर प्रकाश डालिए।

(2 × 15 = 30 Marks)

(Pages : 6)

P – 7508

Reg. No. :

Name :

First Semester B.A./B.Sc. Degree Examination, March 2023

First Degree Programme under CBCSS

Language Course II – Additional Language I – Malayalam

ML 1111.1 : മലയാളകവിത

(2021 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

1. ഒരു വാക്കിലോ വാക്യത്തിലോ ഉത്തരം എഴുതുക.
1. മലയാളത്തിലെ ഏറ്റവും പ്രാചീനമായ പാട്ടുകൃതി ഏത്?
2. “എന്നുടെ ഭർത്താവു തുണയിനിക്ക്” ആരുടെ വാക്കുകൾ?
3. “ചീർക്കുന്ന മോദത്തെ പൂണ്ടു കണ്ണൻ” - എപ്പോൾ?
4. ‘മാസലപർവ്വം’ കഥ പറയുന്നതാര്? ആരോട്?
5. ‘മലയാളത്തിലെ മഹോപനിഷത്ത്’ എന്നറിയപ്പെടുന്ന കൃതിയേത്?
6. ചന്ദ്ര എന്നാൽ എന്ത്?
7. ‘കരുണ’യുടെ വൃത്തം ഏത്?
8. “ചന്ദനത്തയ്യാണെങ്കിലുരഞ്ഞാൽ മണം പൊങ്ങും” ആരെക്കുറിച്ചാണ് ഈ പരാമർശം?

P.T.O.

- കൂടി മനസ്സിലാക്കി നോക്കുക. കൃഷിയിൽ എന്തെല്ലാം കാര്യങ്ങൾ ശ്രദ്ധിക്കേണ്ടതാണ്?

ചോദ്യങ്ങൾക്കു മറുപടി എഴുതുക. (10 മാർക്ക്)

15. "പാടാമെന്നു പറയുന്നതല്ല, പാടാമെന്നു പറയുന്നതല്ല" എന്നു പറയുന്നതിന്റെ അർത്ഥം എന്താണ്?

- ആരുടെ പാടാമെന്നു പറയുന്നതാണ്? കൃഷിയിൽ എന്തെല്ലാം കാര്യങ്ങൾ ശ്രദ്ധിക്കേണ്ടതാണ്?

14. "പുതിയതേ, പുതിയതേ, പുതിയതേ" എന്നു പറയുന്നതിന്റെ അർത്ഥം എന്താണ്?

- നവീകരണത്തിന്റെ അർത്ഥം എന്താണ്? പുതിയതേ, പുതിയതേ എന്നു പറയുന്നതിന്റെ അർത്ഥം എന്താണ്?

പുതിയതേ, പുതിയതേ എന്നു പറയുന്നതിന്റെ അർത്ഥം എന്താണ്?

13. "കൊടുക്കുക" എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

- നൽകുക എന്നർത്ഥം എന്താണ്? കൊടുക്കുക എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

അതേ അർത്ഥം എന്താണ്? കൊടുക്കുക എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

12. "മനസ്സിലാക്കുക" എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

- മനസ്സിലാക്കുക എന്നർത്ഥം എന്താണ്? മനസ്സിലാക്കുക എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

11. "ആരാണ്" എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

11. "ആരാണ്" എന്നാണിതിന്റെ അർത്ഥം എന്താണ്? 50 വാക്കുകളിൽ കൃഷിയിൽ എന്തെല്ലാം കാര്യങ്ങൾ ശ്രദ്ധിക്കേണ്ടതാണ്?

(10 x 1 = 10 Marks)

നവീകരണത്തിന്റെ അർത്ഥം എന്താണ്? പുതിയതേ, പുതിയതേ എന്നു പറയുന്നതിന്റെ അർത്ഥം എന്താണ്?

10. "നവീകരണം" എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

9. "കൃഷി" എന്നാണിതിന്റെ അർത്ഥം എന്താണ്?

(8 x 2 = 16 Marks)

- 16. "ഈ തെറ്റിപ്പോയിത്തോന്നിപ്പോയി" - നവദശകാലം - നവദശകാലം - നവദശകാലം
- 17. "ആശയം" - പാശ്ചാത്യചിന്താപരമ്പരകൾ
- 18. "പ്രകാശം" - പാശ്ചാത്യചിന്താപരമ്പരകൾ
- 19. "പ്രകാശം" - പാശ്ചാത്യചിന്താപരമ്പരകൾ
- 20. "പ്രകാശം" - പാശ്ചാത്യചിന്താപരമ്പരകൾ
- 21. "പ്രകാശം" - പാശ്ചാത്യചിന്താപരമ്പരകൾ
- 22. "പ്രകാശം" - പാശ്ചാത്യചിന്താപരമ്പരകൾ

- നവദശകൃഷ്ണകാവ്യത്തിൽ അക്ഷരമാലയിൽ എഴുതിയിട്ടുള്ളതുകൊണ്ട്

“കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്”

കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

പുറത്തുനിന്നു കടന്നുപോയിട്ടുണ്ട്

27. “പുറത്തുനിന്നു കടന്നുപോയിട്ടുണ്ട്”

- നവദശകൃഷ്ണകാവ്യത്തിൽ എഴുതിയിട്ടുള്ളതുകൊണ്ട്

“കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്”

26. “കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്”

- നവദശകൃഷ്ണകാവ്യത്തിൽ എഴുതിയിട്ടുള്ളതുകൊണ്ട്

“കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്”

കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

25. “കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്”

കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

24. “കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്”

കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

23. “കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്”

III. കുറിയൊന്നു കഴിഞ്ഞുപോയിട്ടുണ്ട്

28. അസ്തമയപർവ്വത്തിൽ ഭാസ്കരഭഗവാൻ മറഞ്ഞപ്പോഴുള്ള കാഴ്ചകൾ വർണ്ണിക്കുക.

29. 'സൗന്ദര്യലഹരി' എന്ന കവിതയിൽ തെളിയുന്ന ചങ്ങമ്പുഴയുടെ ജീവിതദർശനം വിവരിക്കുക.

30. "പകലും രാത്രിയുമോരോ

പരുന്തുകൾ പോലെ വന്നെൻ

കവിളിന്മേൽ നഖം പോറി-

പ്പറന്നുപോകെ"

- സന്ദർഭം വെളിപ്പെടുത്തി സൂചിതത്തിന്റെ ഭംഗിയും ഔചിത്യവും വ്യക്തമാക്കുക.

31. "നല്ലതുവല്ലോ മോഷ്ടിച്ചാലുടനേ

അവനേ - വെറുതേ

കള്ളനാക്കും നിങ്ങളെ ചട്ടം"

- ആക്ഷേപഹാസ്യത്തിന്റെ ശക്തിയും ഔചിത്യവും ഈ വരികളെ മുൻനിർത്തി വിലയിരുത്തുക.

(6 x 4 = 24 Marks)

IV. മൂന്നുരു വാക്കിൽ ഏതെങ്കിലും രണ്ടു ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

32. കലികാലവർണ്ണനയിൽ തെളിയുന്ന എഴുത്തച്ഛന്റെ വർണ്ണനാപാടവം വിവരിക്കുക.

33. പെണ്ണ് അനുഭവിക്കുന്ന ദുരിതലോകങ്ങളെ പെൺകുഞ്ഞു 90, കുള്ളക്കടവിൽ, ഓർമ്മകൾ മറയുന്നത് എന്നീ കവിതകളെ മുൻനിർത്തി വിശദീകരിക്കുക.

34. പെരുന്തച്ചന്റെ മനോവിചാരങ്ങളെ മനഃശാസ്ത്രരീत्या അപഗ്രഥിക്കുക.

35. കവിജീവിതം തെരഞ്ഞെടുക്കുന്നതിന്റെ ദുഃഖങ്ങൾ കാടിന്റെ മടിയിൽ, വിരാമം, എഴുത്ത് എന്നീ കവിതകളെ അന്വദമാക്കി ചർച്ച ചെയ്യുക.

(2 × 15 = 30 Marks)

(Pages : 4)

P – 7763

Reg. No. :

Name :

First Semester B.Sc. Degree Examination, March 2023

First Degree Programme Under CBCSS

Physics

Complementary Course for Statistics

PY 1131.3 — MECHANICS AND PROPERTIES OF MATTER

(2018 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions in **one** or **two** sentences; each question carries **1** mark.

1. How the moment of inertia varies with mass of the body?
2. Define radius of gyration.
3. Define periodic motion?
4. What is energy density of a wave?
5. Define surface tension.
6. Write down the expression for the period of oscillation of a torsion pendulum.
7. What is meant by cohesive force?
8. Why mercury won't wet a glass surface while water wet the surface?

P.T.O.

9. What are the factors affecting viscous force?
10. Why rain drops attains constant velocity when it falls through air?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions, not exceeding a paragraph; each question carries **2** marks.

11. State and explain parallel axis theorem.
12. Obtain an expression for the moment of inertia of a disc about any diameter.
13. What are the three characteristics of simple harmonic motion?
14. Give four difference between transverse and longitudinal waves.
15. Obtain an expression for the potential energy of a particle executing SHM.
16. Explain flywheel.
17. Obtain an expression for twisting couple per unit twist of a wire.
18. What is meant by bending moment?
19. Distinguish between streamline and turbulent flow of a liquid.
20. How does temperature affect surface tension?
21. How will you determine the value of "g" using compound pendulum?
22. Explain the working of an Ostwald's viscometer.

(8 × 2 = 16 Marks)

SECTION – C

Answer any six, each question carries 4 marks.

23. A flywheel in the form of a solid circular disc of mass 5000kg and radius 1 meter is rotating making 120 revolutions per minute. Compute the kinetic energy.
24. A solid sphere of mass 100 gm and radius 2.5 cm rolls without sliding with a uniform velocity of 10 cm per second along a straight line on a smooth horizontal table. Calculate its total energy.
25. A wave of frequency 400 Hz is travelling with a velocity 800 m/sec. How far are two points situated whose displacement differ in phase by $\frac{\pi}{4}$.
26. A square block of aluminium of side 4cm is firmly fixed at the bottom. A tangential force of 7×10^5 N is applied parallel to the upper face and it is sheared through an angle 1° . Find the rigidity modulus of aluminium.
27. Calculate the linear depression of a cantilever loaded by 2.5 kg if its dimensions are 80 cm \times 3 cm \times 0.8 cm and its Young's modulus 2×10^{11} N/m².
28. Calculate the work done against surface tension force in blowing a soap bubble of 5 cm radius if the surface tension of soap solution is 0.025 n/m.
29. A plate of metal 10^{-2} m² area rests on a layer of oil 2×10^{-3} m thick, whose coefficient of viscosity is 1.55 N.S/m². Calculate the horizontal force required to move the plate with a uniform speed of 3×10^2 m/s.
30. An air bubble of radius 1 cm is allowed to rise through a long cylindrical column of viscous liquid and travel at a steady rate of 0.21 cm/s. If the density of the liquid is 1470kg/m³, find the viscosity of the liquid. Neglect the density of the air.
31. Calculate the moment of inertia of a disc of mass 1.2 Kg and radius 8 cm about (a) its diameter (b) an axis parallel to a diameter and tangential to the disc.

(6 \times 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks.

32. What is the difference between simple pendulum and compound pendulum?
Obtain an expression for the period of oscillation of a compound pendulum?
33. Define a cantilever. Obtain an expression for the depression of a beam supported at its ends and loaded in the middle.
34. Discuss Poiseulli's method for determining the coefficient of viscosity.
35. Derive the one dimensional general equation of wave motion.

(2 × 15 = 30 Marks)

Reg. No. :

Name :

First Semester B.Sc. Degree Examination, March 2023

First Degree Programme Under CBCSS

Mathematics

Complementary Course I for Statistics

MM 1131.4 : MATHEMATICS I – DIFFERENTIAL CALCULUS

(2021 Admission onwards)

Time : 3 Hours

Max. Marks : 80

- I. Answer all questions. Each questions carries 1 mark.
1. Determine whether the statement is true or false. If $f(x)$ is cubic polynomial, then $f'(x)$ is a quadratic polynomial.
2. Find x such that $\ln(x + 1) = 5$.
3. Find $\lim_{x \rightarrow 0} \frac{2x^2 + x}{x}$.
4. State Mean-value theorem.
5. Find $\lim_{x \rightarrow +\infty} \frac{x}{e^x}$.
6. What is meant by a function is concave up on an interval?
7. Find $\frac{\partial z}{\partial y}$ if $z = 9xy^2 - 3x^5y$.
8. Define the partial derivative of $f(x, y)$ with respect to x at (x_0, y_0) .

9. Find all critical points of $f(x) = 3x^3 - 12x$.
10. Determine whether the statement is true or false. If a function f is continuous on $[a, b]$, then f has an absolute maximum on $[a, b]$.

(10 × 1 = 10 Marks)

II. Answer any eight questions. Each questions carries 2 marks.

11. Find $\frac{d^2y}{dx^2}$ if $y = \ln(x^2 + 1)$.
12. Find $\frac{dy}{dx}$ if $y = \tan(\sqrt{x})$.
13. Find $\lim_{x \rightarrow -3} \frac{3x + 9}{x^2 + 4x + 3}$.
14. Find the intervals on which $f(x) = 5 - 4x - x^2$ is concave up.
15. Find the relative extrema of the function $f(x) = x^3 - 4x^2 + 4x$.
16. Prove that $f(x) = \frac{1}{x}$ is decreasing on $(0, +\infty)$.
17. Find $\lim_{x \rightarrow 1} \frac{x^2 - 1}{x^3 - 1}$.
18. Find the slope of the surface $z = x^2y + 5y^3$ in the x-direction at the point $(1, -2)$.
19. Find $\frac{dz}{dt}$ if $z = 3x^2y^3$; $x = t^4$; $y = t^2$.
20. Show that $\frac{\partial^2 z}{\partial x \partial y} = \frac{\partial^2 z}{\partial y \partial x}$ if $z = x^2y^3 + x^4y$.
21. Describe the natural domain of $f(x, y, z) = \sqrt{25 - x^2 - y^2 - z^2}$.
22. Describe the level surface of the function $f(x, y, z) = \sqrt{x^2 + y^2 + z^2 - 1}$.

(8 × 2 = 16 Marks)

III. Answer any six questions. Each questions carries 4 marks.

23. Find the values of x at which $f(x) = \begin{cases} 2x + 3 & x \leq 4 \\ 7 + \frac{16}{x} & x > 4 \end{cases}$ is not continuous.

24. Find $\frac{d}{dx}(1 + x^5 \cot x)^{-8}$.

25. Suppose that $s = 1 + 5t - 2t^2$ is the position function of a particle, where s is in meters and t is in seconds. Find the average velocities of the particle over the time intervals

(a) $[0, 2]$ and

(b) $[2, 3]$.

26. Find $\lim_{x \rightarrow 0} (1 + \sin x)^{\frac{1}{x}}$.

27. Verify Rolle's theorem for $f(x) = x^2 - 8x + 15$ in $[3, 5]$.

28. Find $\frac{dw}{d\theta}$ is $w = \sqrt{x^2 + y^2 + z^2}$, $x = \cos \theta$, $y = \sin \theta$, $z = \tan \theta$.

29. Find the relative extrema of $f(x, y) = x^2 + xy + y^2 - 3x$.

30. Show that the function $z = e^{-t} \sin\left(\frac{x}{c}\right)$ satisfies the Heat equation $\frac{\partial z}{\partial t} = c^2 \frac{\partial^2 z}{\partial x^2}$.

31. If $f(x, y) = x^2 + xy + y^2$, prove that $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = 2f(x, y)$.

(6 × 4 = 24 Marks)

IV. Answer any **two** questions. Each questions carries **15** marks.

32. (a) A man has 100ft of fencing to enclose a rectangular garden. Find the dimension of the garden of largest area he can have if he uses all of the fencing.

(b) Find the slope and an equation of the tangent line to the graph $f(x) = x^2$ at the point $(1,1)$.

33. (a) Let f be a differentiable function of one variable and let $w = f(u)$, where $u = (x^2 + y^2 + z^2)^{\frac{1}{2}}$. Show that

$$\left(\frac{\partial w}{\partial x}\right)^2 + \left(\frac{\partial w}{\partial y}\right)^2 + \left(\frac{\partial w}{\partial z}\right)^2 = \left(\frac{dw}{du}\right)^2$$

(b) Find the absolute extrema of $f(x) = \frac{1}{x^2 - x}$ on $(0,1)$

34. (a) Find $\frac{\partial z}{\partial u}$ and $\frac{\partial z}{\partial v}$ if $z = e^{xy}$, $x = 2u + v$, $y = \frac{u}{v}$.

(b) Solve $\frac{e^x - e^{-x}}{2} = 1$ for x .

35. (a) Use implicit differentiation to find $\frac{d^2y}{dx^2}$ if $5y^2 + \sin y = x^2$.

(b) Use Lagrange multipliers to determine the point on the line $2x - 4y = 3$ that is closest to the origin.

(2 × 15 = 30 marks)

(Pages : 4)

P – 7758

Reg. No. :

Name :

First Semester B.Sc. Degree Examination, March 2023

First Degree Programme Under CBCSS

Statistics

Core Course I

ST 1141 : STATISTICAL METHODS – I

(2022 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer all questions. Each question carries 1 mark.

1. Give briefly the characteristics of a good questionnaire.
2. Name two fields where statistics is inevitable.
3. Define line diagram.
4. Define bar diagram.
5. If the sum of N observations is 630 and their mean is 42, then the value of N is _____.
6. Define weighted mean.
7. Define quartile deviation.
8. Write any two properties of standard deviation.

P.T.O.

9. A distribution that is more peaked than normal is called _____.
10. Define r^{th} central moment for a frequency distribution.

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions. Each question carries **2** marks.

11. Describe the limitations and misuses of statistics.
12. What are the sources of secondary data?
13. Write a note on histogram.
14. Define pictogram.
15. Define percentiles.
16. Write empirical relationship between mean, median and mode.
17. State the desirable properties of a good average.
18. Define range. What are its merits and demerits?
19. Define mean deviation.
20. Explain the relationship between raw and central moment.
21. The first three moments of a distribution about the value four of the variable are :
–1.5, 17, –30. Find variance and skewness.
22. Explain Sheppard's correction for moments for grouped data.

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. Each question carries **4** marks.

23. Explain nominal, ordinal, interval and ratio scales with examples.
24. Distinguish between primary and secondary data.
25. How do you represent a frequency distribution graphically?
26. Define arithmetic mean and explain three properties of arithmetic mean.
27. Let the average mark of 40 students of class A be 38, the average mark of 60 students of another class B is 42. What is the average mark of the combined group of 100 students?
28. Explain median for discrete and continuous frequency distribution.
29. Explain dispersion and write characteristics for an ideal measure of dispersion.
30. For the following data calculate mean deviation about mean of 8, 24, 12, 16, 10, 20.
31. Define skewness and describe Kelly's measures of skewness.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks.

32. (a) Define tabulation, explain different type of tables.
(b) Explain the different types of classifications of data with examples.
33. (a) Explain graphical representation of frequency distribution by frequency curve and ogive curve.
(b) Explain geometric mean and harmonic mean.

34. (a) Explain the different measures of dispersions.
- (b) Describe coefficient of variation as a measure of relative measure of dispersion.
35. (a) Explain Karl Pearson's and Bowley's measures of skewness.
- (b) Calculate standard deviation of 23, 25, 28, 31, 38, 40.

(2 × 15 = 30 Marks)

(Pages : 3)

P – 7536

Reg. No. :

Name :

First Semester B.A./B.Sc. Degree Examination, March 2023

First Degree Programme Under CBCSS

Foundation Course — I

EN 1121/CG 1121.3 : WRITINGS ON CONTEMPORARY ISSUES

(Common for B.A./B.Sc./English and Communicative English)

(2019 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

- I. Answer **all** questions, each in a word or a sentence.
 1. Name two NGOs mentioned in the article on drug abuse.
 2. Expand UTM and AI.
 3. When was the term secular first used?
 4. Which 'gizmo' is the author wary of?
 5. Which organization was created to oversee changing labour and trade laws?
 6. What is meant by selective abortion of fetuses?
 7. What is the single most pressing challenge to the welfare of an older person in our country?
 8. Mention one reason for religious fundamentalism in our country.
 9. What do you mean by 'shock therapy'?
 10. What was the League of Nations?

(10 × 1 = 10 Marks)

P.T.O.

II. Attempt **any eight** in not more than **50** words.

11. What is one of the major reasons for drug abuse as stated by Mukherjee?
12. What is the basis of the argument made by the Physicist Roger Penrose?
13. What is the role of social laws and civil laws?
14. Mention the role of the authority in the practice of secularism.
15. Describe briefly the phantom cat incident.
16. Why do we say that the notion of human rights is universal?
17. List out the first attempts made at writing down human rights in the form of a document.
18. Explain the phrase "natality discrimination".
19. What is the focus of Adam Smith's discussion, in *The Theory of Moral Sentiments*?
20. How does the lack of social support affect old age care in India?
21. Explain corporate globalism.
22. How has privatization affected healthcare in India?

(8 × 2 = 16 Marks)

III. Answer **any six** in around **100** words.

23. How do drugs affect the communication system of the brain?
24. "That I think is more humbling". Explain the context.
25. Comment on the relationship between religion and state.
26. What does Khyrunnisa say about apps?

27. What are the civil and political rights enshrined in the Universal Declaration of Human Rights?
28. Explain the attempts made by China and South Korea to empower women.
29. What are the differences between caring for the elderly in a rural versus an urban setting?
30. Discuss Sainath's ideas on 'engineered inequality' in India.
31. According to Amartya Sen, what are the advantages of women's education?

(6 × 4 = 24 Marks)

IV. Attempt **any two** questions in not less than **300** words.

32. Elucidate the solutions offered by Samudranil Mukherjee to the threat of drug abuse and the various initiatives to fight it.
33. Explain Romila Thapar's views on the idea of Indian Secularism and how they differ from other notion of secularism.
34. Trace the development of international recognition for and formulation of a written body of human rights.
35. Discuss the social challenges faced by elderly people in India.

(2 × 15 = 30 Marks)