(Pages : 4) **F – 1888**

Reg. No. : .....

Name : .....

First Semester B.Sc. Degree Examination, November 2018
First Degree Programme under CBCSS
MATHEMATICS
Core Course
MM 1141 : Methods of Mathematics
(2018 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – I

All questions **are** compulsory. **Each** question carries **1** mark.

1. What is the local linear approximation of the function $y = f(x)$ at $x = x_0$?
2. State L'Hôpital's rule.
3. Define mathematically the terms *concave up* and *concave down* for a real function.
4. State first derivative test for relative maximum of a function f(x).
5. For a particle in rectilinear motion, the velocity and position functions v(t) and s(t) are related by the equation _____
6. Area between the X-axis and the graph of the function $f : [a,b] \to \mathbb{R}$ is
7. The average value of a continuous function f on an interval [a, b] is
8. The volume of the solid that is obtained when the region under the curve $y = f(x)$ over the interval [a, b] is revolved about the x-axis is
9. If $y = f(x)$ is a smooth curve on the interval [a, b], then the arc length L of this curve over [a, b] is _____
10. State Newton's second law of motion.

P.T.O.

SECTION – II

Answer **any 8** questions. **Each** question carries **2** marks.

11. The diameter of a polyurethane sphere is measured with percentage error within ± 0.4%. Estimate the percentage error in the calculated volume of the sphere.

12. Evaluate $\lim_{x\to\frac{\pi}{4}}(1-\tan x)\sec 2x$.

13. Find all critical points of $f(x)=3x^{\frac{5}{3}}-15x^{\frac{2}{3}}$.

14. Find horizontal and vertical tangents of the curve $y=6x^{\frac{1}{3}}+3x^{\frac{4}{3}}$.

15. Verify Rolle's theorem for $f(x) = x^2 - 5x + 4$ in the interval (1, 4)

16. Evaluate $\lim_{x\to 0}(\sin x)^{\tan x}$.

17. Suppose that a particle moves with velocity $v(t) = \cos(\pi t)$ along a coordinate line. Assuming that the particle has coordinate $s = 4$ at time $t = 0$, find its position at time t.

18. Find the area of the region enclosed by $x = y^2$ and $y = x - 2$.

19. Derive the formula for the volume of a sphere of radius r.

20. State Pappus Theorem.

21. Find the fluid pressure and force on the top of a flat circular plate of radius 2 m that is submerged horizontally in water at a depth of 6 m.

22. Evaluate $\int_1^{\infty}\frac{dx}{x^3}$.

SECTION – III

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

23. Assume that oil spilled from a ruptured tanker spreads in a circular pattern whose radius increases at a constant rate of 2 ft/s. How fast is the area of the spill increasing when the radius of the spill is 60 ft ?

24. Find the intervals on which $f(x) = x^2 - 4x + 3$ is increasing and the intervals on which it is decreasing.

25. Find the relative extrema of $f(x) = 3x^5 - 5x^3$.

26. Find the absolute maximum and minimum values of the function $f(x) = 2x^3 - 15x^2 + 36x$ on the interval [1, 5] and determine where these values occur.

27. Verify Mean Value Theorem for the function $f(x) = x^3 - 3x^2 + 2x$ in [0, 1/2].

28. Use cylindrical shells to find the volume of solid generated when the region R under $y = x^2$ over the interval [0, 2] is revolved about the line $y = -1$.

29. Find the area of the surface that is generated by revolving the portion of the curve $y = x^3$ between $x = 0$ and $x = 1$ about the x-axis.

30. A 100 ft length of steel chain weighing 15 /b/ft is dangling from a pulley. How much work is required to wind the chain onto the pulley ?

31. A plate in the form of an isosceles triangle with base 10 ft and altitude 4 ft is submerged vertically in machine oil. Find the fluid force F against the plate surface if the oil has weight density $\rho = 30$ /b/ft^3.

SECTION – IV

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

32. Let $f(x) = x^3 - 3x^2 + 1$. Determine the intervals on which f is increasing, decreasing, concave up, and concave down. Locate all inflection points of f. Also draw a rough sketch of the graph of f. **15**

33. a) A garden is to be laid out in a rectangular area and protected by a chicken wire fence. What is the largest possible area of the garden if only 100 running feet of chicken wire is avaliable for the fence ? **7**

    b) State and prove mean value theorem. **8**

34. a) A golfer makes a successful chip shot to the green. Suppose that the path of the ball from the moment it is struck to the moment it hits the green is described by $y = 12.54x - 0.41x^2$ where x is the horizontal distance (in yards) from the point where the ball is struck, and y is the vertical distance (in yards) above the fairway. Find the distance the ball travels from the moment it is struck to the moment it hits the green. Assume that the fairway and green are at the same level. 5

b) Find the surface area of the solid generated by revolving the curve $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$ about x-axis. 5

c) Obtain the volume of the solid generated by revolving the curve $x^2(y - x^2) = 3$ between $x = 1$ and $x = 2$ about x-axis. 5

35. a) Derive the work energy relationship. 5

b) Find the center of gravity of the triangular lamina with vertices (0, 0). (0. 1) and (1. 0) and density $\delta = 3$. 5

c) Derive the formula for the circumference of a circle of radius r. 5

Reg. No. : .....

Name : .....

First Semester B.A./B.Sc. Degree Examination, February 2018
First Degree Programme Under CBCSS
Foundation Course – I
EN 1121 : WRITINGS ON CONTEMPORARY ISSUES
(2016 Admission Onwards)

Time : 3 Hours Max. Marks : 80

I. Answer **all** questions, **each in a word** or **sentence** :

1) What is an NGO ?
2) What was the first principle of the Rio Declaration of 1992 ?
3) Who was Roop Kunwar ?
4) Who is the young girl in the story "The Goddess of Revenge" ?
5) What is alcoholism ?
6) How do the words of his mother help the little black boy in the racist world ?
7) What are stimulants ?
8) Who is the narrator in the poem, "Nani" ?
9) What happened to the poet's friend in the poem, "Freedom" ?
10) Name an economic benefit of local food system. **(10×1=10 Marks)**

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

11) What is the theme of the poem, "Freedom" ?
12) What is radical feminism ?
13) Name two instances where PILs helped to keep environmental pollution in check.
14) How does alcohol affect our nervous system ?
15) "The cloud will vanish and we shall hear his voice" – What does the little black boy mean by this ?
16) What is substance abuse ?
17) What led the protagonist of the story, "The Goddess of Revenge" down the path of revenge ?

18) Explain the concept of human dignity in the light of UDHR.

19) Trace the evolution of globalisation over the centuries.

20) What happened to the servant maid in the poem, "Nani" ?

21) What is the need the narrator realises from the rattling of the cup in the poem, "The Alcoholic at Dawn" ?

22) How does smaller-scale production reduce pollution ? **(8×2=16 Marks)**

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

23) What are the main concerns of Part IV of the Indian Constitution ?

24) Write a short note on the use of Christian images in the poem, "The Little Black Boy" by William Blake.

25) What are the benefits of globalisation ?

26) How does the violence against women within the family differ for upper and lower class women ?

27) Attempt a short note on how silences and fallacies bring out to light the truth about Nani in Kamala Das's poem.

28) Write a short note on the patriarchal oppression of Namboodiri women in the light of the story, "The Goddess of Revenge".

29) What is the significance of the Nari Mukti Sangarsh Sammelan of 1988 ?

30) Why does Helena Norberg-Hodge say that we need to abandon the blind pursuit of economic growth ?

31) How did 'Westoxication' make India a garbage dump according to Justice Krishna Iyer ? **(6×4=24 Marks)**

IV. Answer **any two** of the following in **not** less than **300** words :

32) Trace the evolution of women rights movements in India in the light of Gail Omvedt's views on "Violence against Women".

33) What are Justice Krishna Iyer's observations about the human rights scenario in contemporary India ?

34) Discuss the banes of alcoholism in the context of the poems of Balachandran Chullikkad and Jeet Tayil.

35) What are the advantages of 'going local' according to Helena Norberg-Hodge ? **(15×2=30 Marks)**

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Reg. No. : .....

Name : .....

First Semester B.A./B.Sc. Degree Examination, November 2018
First Degree Programme under CBCSS
Foundation Course – I
EN 1121 : WRITINGS ON CONTEMPORARY ISSUES
(2016 Admission Onwards)

Time : 3 Hours Max. Marks : 80

I. Answer **all** questions, **each** in a **word** or **sentence**.

1) What is NHRC ?
2) What are the two rays of hope regarding human rights in India ?
3) What, according to Dr. Madhava Menon, is the greatest threat to human dignity ?
4) In which poetic collection of William Blake does the poem 'The Little Black Boy' appear ?
5) Comment on the significance of the title 'The Goddess of Revenge'.
6) Which is the case cited by Gail Omvedt to show the link between violence and sexuality ?
7) What does the term 'comic dance' in Kamala Das' poem 'Nani' stand for ?
8) What, according to Joseph Stiglitz, is the role of the Less Economically Developed Countries in the world market ?
9) Why is localisation a process of decentralisation ?
10) What is pre-alcoholic phase ? **(10×1=10 Marks)**

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

11) Why does India in 1999 seem a garbage dump to Justice Krishna Iyer ?
12) How, according to Dr. Madhava Menon, does globalisation open up new inequalities ?
13) How does the mother console the little black boy ?
14) How does the family become the greatest source of violence against an upper class woman ?

P.T.O.

15) Why does the narrator in 'The Goddess of Revenge' think that writing stories is not a pleasant task for women ?

16) How does the child register the death of the maid Nani ?

17) Examine the status of women in the context of globalisation.

18) What are the advantages of diversification in local markets ?

19) What are the questions regarding freedom that the disciple and the master discuss in Chullikkad's poem ?

20) What is 'binge-drinking' and what are the dangers associated with the same ?

21) How are the commonly misused drugs classified ?

22) What picture of the alcoholic does Jeet Thayil paint in 'The Alcoholic at Dawn ?' **(8×2=16 Marks)**

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

23) What, according to V.R.Krishna Iyer, is the significance of PILs in our society ?

24) What picture do you get of the black boy's relationship with his white counterpart, from Blake's poem ?

25) What, according to Gail Omvedt, is the connection between violence and economic exploitation of women ?

26) What did the woman in 'Goddess of Revenge' do when she learnt that her husband was moving away from her ?

27) What is the underlying theme of the poem 'Nani' ?

28) Why does Stiglitz say that globalisation is a stark reality ?

29) What are the environmental and economic benefits of localisation ?

30) How is alcohol abuse different from alcohol dependence ?

31) How do stimulant drugs affect the brain ? **(6×4=24 Marks)**

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

32) Dr. N.R. Madhava Menon insists that human rights issues are closely linked to socio-economic rights. Discuss.

33) Describe how a chaste and innocent woman became the goddess of revenge.

34) Discuss the philosophical content of the poem 'Freedom'.

35) What, according to Dr. Adithi, are the detrimental effects of alcoholism ?

(2×15=30 Marks)

(Pages : 4) **F – 1889**

Reg. No. : .....

Name : .....

First Semester B.Sc. Degree Examination, November 2018
First Degree Programme under CBCSS
Complementary Course for Mathematics
ST 1131.1 – DESCRIPTIVE STATISTICS
(2018 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. Define census.
2. State the two methods of sampling.
3. Define arithmetic mean.
4. What is the empirical relationship between mean, median and mode ?
5. What is an inter quartile range ?
6. Express the 4^{th} central moment in terms of raw moments.
7. What is the moment measure of kurtosis ?
8. Write the relationship between regression coefficient and correlation coefficient.
9. What is the use of a regression equation ?
10. What is correlation. **(10×1=10 Marks)**

SECTION – B

Answer **any 8** questions. **Each** question carries **2** marks.

11. Define simple random sampling with and without replacement.
12. Define stratified random sampling.

13. How will you construct a frequency polygon ?

14. How do you distinguish a symmetrical distribution from a non-symmetrical distribution ?

15. Define coefficient of range.

16. Explain Karl Pearsons measure of skewness.

17. Distinguish between absolute and relative measure of dispersion.

18. The values of mode and median for a moderately skewed distribution are 64.2 and 68.6 respectively. Find the value of the mean.

19. Write the normal equation for fitting a curve of the form $y = ax^b$.

20. What do you mean by curve fitting ?

21. What is meant by perfect correlation ?

22. Distinguish coefficient of correlation from coefficient of variation. **(8×2=16 Marks)**

SECTION – C

Answer **any 6** questions. **Each** question carries **4** marks.

23. Distinguish between primary and secondary data.

24. Distinguish between probability and non-probability sampling.

25. Explain the different steps in the construction of frequency table for a given set of observations.

26. Calculate the range and semi-inter quartile range of wages :

Wages (Rs.) :	30 – 32	32 – 34	34 – 36	36 – 38	38 – 40	40 – 42	42 – 44
Labourers :	12	18	16	14	12	8	6

Also calculate the quartile coefficient of dispersion.

27. The arithmetic mean and standard deviation of a series of 20 items were calculated by a student as 20 cm and 3 cm respectively. But while calculating them an item 13 was misread as 30. Find the correct standard deviation.

28. Show that mean deviation about median is a minimum.

29. Show that correlation coefficient is independent of change of origin and scale.

30. Explain the principle of least squares. Describe how an exponential curve of the form $y = ab^x$ can be fitted.

31. You are given the following data :

	X	Y
Arithmetic mean	36	85
Standard deviation	11	8

Correlation coefficient between X and Y is 0.66

a) Find the two regression equations and

b) Estimate the value of X, when Y = 75. **(6×4=24 Marks)**

SECTION – D

Answer **any 2** questions. **Each** question carries **15** marks.

32. The following data give the weekly wages of 100 workers in a factory :

Weekly wages	20 – 24	25 – 29	30 – 34	35 – 39	40 – 44	45 – 49	50 – 54	55 – 59	60 – 64
No. of workers	4	5	12	23	31	10	8	5	2

Draw less than ogive and hence find the value of median. Also verify your answer by median formula.

33. The table below gives the distribution by size (no. of works employed) of 40 different companies.

No. of workers	1 – 50	51 – 100	101 – 150	151 – 200	201 – 250	251 – 300	301 – 350
No. of companies	13	9	0	7	4	5	2

Calculate :

a) The total number of persons employed in these 40 companies.

b) The standard deviation.

c) Coefficient of variation.

34. Find Karl Pearsons coefficient of correlation from the following data :

Wages :	100	101	102	102	100	99	97	98	96	95
Cost of living :	98	99	99	97	95	92	95	94	90	91

35. Given the two equations for the regression lines

$8x - 10y + 66 = 0$

$40x - 18y - 214 = 0$

i) Identify the regression lines of Y on X and X on Y.

ii) Obtain the regression coefficients and the correlation coefficient.

iii) Find the mean of X and the mean of Y.

iv) Given the standard deviation of X = 4, find the standard deviation of Y.

(2×15=30)

(Pages : 4) **F – 1800**

Reg. No. : .....

Name : .....

First Semester B.A./B.Sc./B.Com. Degree Examination, November 2018
First Degree Programme under CBCSS
Language Course – 1
EN 1111.1/EN 1111.2/EN1111.3 : LISTENING, SPEAKING AND READING
(Common for B.A./B.Sc. EN 1111.1, B.Com. EN 1111.2 and Career Related 2(a) EN 1111.3)
(2016 Admission onwards)

Time : 3 Hours Max. Marks : 80

I. Answer **all** questions, **each** in **a** word or **sentence**.

1) How many syllables are there in the word 'teacher' ?
2) Write down two common expressions for polite request.
3) What is a voiced sound ?
4) Write a word where /l/ is silent.
5) Write the pronunciation of 'cc' in the word 'occasion'.
6) Write a word where /a:/ occurs initially.
7) Write the syllabic structure of the word 'cat'.
8) Write the phonetic symbol that stands for the letters 'ay' in the word 'day'.
9) Name the Queen's ladies-in-waiting in "Under Fire".
10) Who is Abel Merryweather going to marry ? **(10×1=10 Marks)**

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

11) What are the advantages of reading ?
12) What is phonics ?
13) What is scanning ? Give two examples.
14) You are seeking information about a tourist centre. Write a dialogue between you and the information officer.
15) You are in a theatre to watch a movie. You meet one of your old schoolmates there. Construct a dialogue between you and your schoolmate.

P.T.O.

16) Write polite requests for the following situations :
    1) Open the door
    2) Observe silence.
17) Transcribe the following words :
    1) Sound
    2) Mother.
18) What is Received Pronunciation ?
19) What is the difference between listening and hearing ?
20) Why does Macready want to go back to England ?
21) How do Gaultier and Marion respond when Jean and Pierre beg for food ?
22) What advice does the Chief Inspector of Police give to the royal couple ?

(8×2=16 Marks)

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

23) Illustrate the greed of two sisters in "The Dear Departed".
24) What is the difference between intensive reading and extensive reading ?
25) Transcribe the following words : tour, break, woman, sugar, doctor, colour, earth, journey.
26) Complete the conversation given below :

Rohit : Hello, Benny ! How are you ?

Benny : I am fine, thank you. How about you ?

Rohit : _____

Benny : Oh, I've been busy _____ next week ?

Rohit : _____ ?

Benny : We're going to attend an inter-school competition there.

Rohit : _____ ?

Benny : It is a national chess competition.

Rohit : _____ ?

Benny : Three of us, _____

Rohit : _____ ?

Benny : We're leaving on Friday evening.

Rohit : _____ ? By air ?

Benny : No. _____

Rohit : When is the tournament ?

Benny : _____

Rohit : _____ ?

Benny : We'll be back on Thursday.

Rohit : All the best ! Hope you win the tournament.

27) You are Neeraja. You are an official at a Railway Station. A traveller has come to enquire about the departure of a train. Construct a dialogue between you and the customer.

28) What are the barriers to listening ?

29) Imagine the following roles viz. those of a Customer and Bank Official and do as directed.

Customer	Bank Official
Enters the Bank, meets the bank official	Greet the customer, welcomes him into his cabin and offers him a seat
States the purpose of his visit; he needs a vehicle loan	Makes enquires about income proof, ID proof, security etc., gives him the application form
Collects the papers	Asks the customer to come with all the relevant documents soon
Expresses gratitude	Closes conversation

30) Scan the following poem and find answer to the following questions.

"Nature" is what we see –

The Hill – the Afternoon –

Squirrel – Eclipse – the Bumble bee –

Nay – Nature is Heaven –

Nature is what we hear –

The Bobolink – the Sea –

Thunder – the Cricket –

Nay – Nature is Harmony –

Nature is what we know –

Yet have no art to say –

So impotent Our Wisdom is

To her Simplicity.

1) Discuss the theme of the poem.
2) Give an appropriate title to the poem.
3) Comment on the use of punctuation marks in the poem.
4) Comment on the last two lines of the poem.

31) Read the passage intensively and answer the following questions.

A beaver family makes its own pond by building a dam. First the beavers use their teeth to chop down the trees. They take bites from the trunk until the tree falls over. Then the beavers drag branches and small logs to the spot where they want to make their dam. They pile them up. The dam slows the stream's flow. The backed-up stream becomes a pond. The beavers make their home, called a lodge, in the middle of the pond. Inside their lodge, beavers build a floor above the water. The busy beavers can rest at home – safe, warm and dry. The entrance to the beavers' lodge is underwater. Beavers are expert swimmers. They dive and swim to get inside.

1) What is the passage about ?
2) What is a lodge ?
3) How do beavers make their own pond ?
4) How do beavers get inside their home ? **(6×4=24 Marks)**

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

32) What is reading ? What are the sub-skills of reading ?

33) Write an appropriation to the poem "Greater Love" by Wilfred Owen.

34) Transcribe the following words : happy, length, language, phonetics, remember, crash, tooth, brother, room, teacher, river, wing, machine, chemical, finger.

35) You are a parent. You are asked to meet the class teacher of your child. You visit the school. You see the peon and ask about the location of the staffroom. You are meeting the class teacher and talk about your child. The teacher is mentioning about the special talents of your child in clay modeling. You are advised to meet the art teacher. You meet the teacher and talk with her. Construct three sets of dialogues. **(15×2=30 Marks)**

F – 1802

Reg. No. : .....

Name : .....

First Semester B.A./B.Sc. Degree Examination, November 2018
First Degree Programme under CBCSS
Language Course (Additional Language – I) : HINDI
HN 1111.1 : Prose and One Act Plays
(2017 Admission Onwards)

Time : 3 Hours Max. Marks : 80

I. **निर्देश** : प्रत्येक का **एक** शब्द या **एक** वाक्य में उत्तर लिखिए । **(10×1=10 Marks)**

1) 'जीवन-निर्माता अध्यापक' शीर्षक संस्मरण का लेखक कौन हैं ?

2) 'शिष्टाचार' गद्य की किस विधा की रचना है ?

3) गाँधीजी की आत्मकथा का नाम क्या है ?

4) कैलाश के पिता कौन् हैं ?

5) 'माधवी' किनका नाटक है ?

6) 'वीना' किस एकांकी का पात्र है ?

7) 'महाभारत की एक साँझ' शीर्षक एकांकी के रचयिता कौन हैं ?

8) 'कोणार्क' किसकी रचना है ?

9) भूखे आदमी की मौत के बारे में संसद में मंत्री ने क्या कहा ?

10) रमेश की पत्नी का नाम क्या है ?

II. **निर्देश** : किन्हीं **आठ** पश्नों के लघु उत्तर करीब **पचास** शब्दों में लिखिए : **(8×2=16 Marks)**

11) आत्मकथा एवं जीवनी में कौन-सा अन्तर है ?

12) ''प्रेमचन्द आज भी हमारे लिए प्रासंगिक और समकालीन हैं ।'' स्पष्ट कीजिए ।

13) युधिष्ठर ने दुर्योधन को कैसे ललकारा ?

14) बहू और बेटी के संबन्ध में जीवनलाल का विचार क्या है ?

15) ''मैं नर्क से बोल रहा हूँ'' शीर्षक व्यंग्य में भगवान अब कुत्ते-ही-कुत्ते निर्माण करने का विचार क्यों करते हैं ?

P.T.O.

16) हेतू ने क्यों छुट्टी की माँग की ?

17) गांधीजी के प्रायश्चित का पिताजी पर कौन-सा प्रभाव पड़ा ?

18) "मेरी चोट का इलाज बेटी की ससुरालवालों ने दूसरी चोट से कर दिया है।" जीवनलाल ऐसा क्यों कहता है ?

19) दुर्योधन द्वैतवन के सरोवर में क्यों छिपकर बैठता है ?

20) 'मंत्र' कहानी का उद्देश्य क्या है ?

21) 'शिष्टाचार' रचना में भीष्मसाहनी ने किस भावना को दर्शाया है ?

22) 'बहू की विदा' एकांकी के प्रमुख पात्रों के नाम लिखिए।

III. **निर्देश** : किन्हीं **छह** प्रश्नों के लघु उत्तर करीब **पचास** शब्दों में लिखिए। **(6×4=24 Marks**

23) झा साहब की कटु आलोचना में टंडन क्यों अग्रसर रहते ?

24) गाँधीजी ने बचपन में आत्महत्या करने का विचार क्यों किया ? उसका परिणाम क्या था ?

25) प्रेमचन्द की कहानियों का परिचय दीजिए।

26) 'बहू की विदा' के शीर्षक की सार्थकथा पर प्रकाश डालिए।

27) 'मैं नर्क से बोल रहा हूँ' शीर्षक व्यंग्य लेख का सन्देश लिखिए।

28) दुर्योधन के अन्तिम समय में युधिष्ठिर उसके पास क्यों गये थे ?

29) "उसकी सज्जनता ने मुझे ऐसा आदर्श दिखा दिया है, जो अब से जीवन पर्यन्त मेरे सामने रहेगा।" यह कौन किससे कब कहता है ?

30) "दोनों मरे, एक साथ मरे फर्क इतना कि वह खाकर मरा और मैंने बिना खाये" सन्दर्भ सहित व्याख्या कीजिए।

31) राजेश्वरी के चरित्र पर प्रकाश डालिए।

IV. **निर्देश** : किन्हीं **दो** प्रश्नों के लघु उत्तर करीब **250** शब्दों में लिखिए। **(2×15=30 Marks)**

32) 'अंडे के छिलके' एकांकी में पारिवारिक ढाँचे में नये जीवन मूल्यों के प्रवेश को दिखाया है। स्पष्ट कीजिए।

33) जीवन निर्माता अध्यापक के रूप में झा साहब के व्यक्तित्व का उल्लेख कीजिए।

34) 'मैं नरक से बोल रहा हूँ' में मनुष्य की अकर्मण्यता और खोखले आदर्शों पर व्यंग्य किया है' - इस कथन की पुष्टि कीजिए।

35) 'शिष्टाचार' कहानी का सारांश लिखिए।

(Pages : 3) **F – 1815**

Reg. No. : .....

Name : .....

First Semester B.A./B.Sc. Degree Examination, November 2018
First Degree Programme Under CBCSS
MALAYALAM LANGUAGE
Language Course – II-Additional Language – I
ML 1111.1 : മലയാളകവിത
(2018 Admission)

Time : 3 Hours Max. Marks : 80

I. **ഒരു** വാക്കിലോ വാക്യത്തിലോ ഉത്തരമെഴുതുക.

1) 'ചണ്ഡാലഭിക്ഷുകി'യിലെ പ്രധാന കഥാപാത്രങ്ങൾ ?

2) മലയാളകവിതാ സാഹിത്യചരിത്രം എന്ന ഗ്രന്ഥത്തിന്റെ രചിയിതാവ് ?

3) കാച്ചിക്കുറുക്കിയ കവിതകളെന്നു വൈലോപ്പിള്ളിക്കവിതകളെ വിശേഷിപ്പിച്ചതാര് ?

4) 2007-ലെ ജ്ഞാനപീഠ പുരസ്കാരത്തിനർഹനായ മലയാളകവി ആര് ?

5) ശക്തിയുടെ കവി എന്നറിയപ്പെടുന്നതാര് ?

6) 'വേനലിൽ ഒരു പുഴ' എന്ന കൃതി ആരുടേതാണ് ?

7) ഇടപ്പള്ളിക്കവികൾ എന്നറിയപ്പെടുന്നവർ ആരൊക്കെ ?

8) കടമ്മനിട്ട ഒക്ടോവിയോ പാസിന്റെ 'സൺസ്റ്റോൺ' എന്ന കൃതിക്കു നടത്തിയ മലയാളപരിഭാഷയുടെ പേര് ?

9) ആധുനികമലയാള കവിതയുടെ ആധാരശിലയായി കണക്കാക്കപ്പെടുന്ന അയ്യപ്പപ്പണിക്കരുടെ കവിത.

10) കുറേക്കൂടി നീണ്ട കവിതകൾ എന്ന കാവ്യസമാഹാരം ആരുടേതാണ് ? **(10×1=10 മാർക്ക്)**

P.T.O.

II. **ഒരു** ഖണ്ഡികയിൽ കവിയാതെ **എട്ടു** ചോദ്യങ്ങൾക്ക് ഉത്തരമെഴുതുക.

11) ''ഗോപികേ നീയില്ലെങ്കിൽ
നിൻ വ്രത ഭക്തിയില്ലെങ്കിൽ
ഈ ശ്യാമകൃഷ്ണൻ വെറും കരിക്കട്ട'' – സൂചിതാശയം വ്യക്തമാക്കുക.

12) ''മദാന്ധകാരം മാറീലാ, മിഴിതുറന്നു പൂർണത കണ്ടീലാ'' – കവി ഇങ്ങനെ പറയുന്നതെന്തുകൊണ്ട് ?

13) ''ദയനീയം കർഷകൻ വിളയിച്ച കണ്ടത്തിൽ
നിയമം നടത്തുന്നു കയ്യേറ്റം'' – സൂചിതാശയമെന്ത് ?

14) ആതിര വരുന്നേരം ഒരുമിച്ചു കൈകോർത്ത് എതിരേൽക്കണമെന്ന് സഖിയോട് കവി പറയുന്നതെന്തുകൊണ്ട് ?

15) ''കാറ്റിനാൽക്കുന്തളം ചീകിച്ചിരിച്ചങ്ങു
കാട്ടിലെസ്സുന്ദരി പാഞ്ഞുപോയാൾ'' – സന്ദർഭം വിശദമാക്കുക.

16) ഉണ്ണിയാർച്ചയുടെ മുഖം വാടാൻ കാരണമെന്ത് ?

17) ''ജാതി ചോദിക്കുന്നില്ല ഞാൻ സോദരി!
ചോദിക്കുന്നു നീർ നാവു വരണ്ടഹോ !'' – ആരുടെ വാക്കുകൾ ? സന്ദർഭം വ്യക്തമാക്കുക.

18) 'പിടയുന്ന കാലത്തിൻ ശ്വാസ വേഗങ്ങളിൽ
പിടിവിട്ടുഴലുവോർ നമ്മൾ'' – വിവക്ഷിതം വ്യക്തമാക്കുക.

19) ''നിങ്ങൾക്കിതൊന്നും മനസ്സിലാവുന്നില്ല
നിങ്ങളെലികളൊ മാനുഷരോ ?'' – സൂചിതമെന്ത് ?

20) 'മാരകപ്രണയം പോലെത്തുന്ന മൊബൈൽഫോണിനേ'ക്കുറിച്ചുള്ള കവിയുടെ ചിന്തകൾ എന്തെല്ലാം ?

21) ''നിന്നുടലിന്നംഗമായ് വന്നു ഭൂമിയിൽ
നിന്നെച്ചവിട്ടി വളർന്നു.....'' – സൂചിതാശയം വ്യക്തമാക്കുക.

22) ചങ്ങമ്പുഴക്കവിതയുടെ മാന്ത്രിക സൗന്ദര്യത്തിന് അടിസ്ഥാനമായ വസ്തുതകൾ ഏവ ? **(8×2=16 മാർക്ക്)**

III. **120** വാക്കിൽ കവിയാതെ **ആറു** ചോദ്യങ്ങൾക്ക് ഉത്തരമെഴുതുക.

23) പ്രകൃതിയോടുള്ള സ്നേഹവായ്പും കരുതലും ഒത്തുചേരുന്ന കവിതയാണ് 'ഒരു തൈ നടുമ്പോൾ' – സമർത്ഥിക്കുക.

24) 'ചാഞ്ഞുപെയ്യുന്ന മഴ' എന്ന കവിതയ്ക്ക് ഒരാസ്വാദനമെഴുതുക.

25) സർറിയലസ്റ്റിക് സങ്കേതങ്ങളുടെ ഫലപ്രദമായ ഉപയോഗംകൊണ്ട് ശ്രദ്ധേയമായ കവിതയാണ് 'നിനക്ക് ' -- വിശദമാക്കുക.

26) ജന്മിത്തത്തിനെതിരെയുള്ള സംഘടിത കർഷകരുടെ മുഴങ്ങുന്ന ശബ്ദമായി 'പുത്തൻകലവും അരിവാളും' മാറുന്നതെങ്ങനെ ?

27) എല്ലാ വർണവൈവിധ്യങ്ങളും നിറഞ്ഞ സഫലമായ അനുഭൂതിയാണ് ജീവിതം എന്ന പ്രഖ്യാപനമാണ് 'സഫലമീയാത്ര' – സമർത്ഥിക്കുക.

28) പ്രകൃതിക്കുമേൽ മനുഷ്യൻ നേടുന്ന വിജയത്തിന്റെ കഥയാണ് 'ജലസേചനം' എന്ന കവിത – ഈ അഭിപ്രായം പരിശോധിക്കുക.

29) ജാത്യാചാരങ്ങളുടെ അർത്ഥശൂന്യത വെളിവാക്കുന്ന കവിതയെന്ന വിശേഷണം ചണ്ഡാലഭിക്ഷുകിക്ക് എത്രമാത്രം അനുയോജ്യമെന്ന് പരിശോധിക്കുക.

30) മനുഷ്യന്റെ വികലവും ദീർഘദർശനരഹിതവുമായ പ്രവൃത്തികൾ അവനു തന്നെ ഭീഷണിയാകുന്നതിന്റെ ചിത്രമാണ് 'കുഞ്ഞേ മുലപ്പാൽ കുടിക്കരുത്' – വിശദമാക്കുക.

31) കാളിയമർദ്ദനത്തിലെ പ്രമേയം ആത്മശുദ്ധീകരണപരമായ ആത്മീയചിന്തയാണ് – സമർത്ഥിക്കുക. **(6×4=24 മാർക്ക്)**

IV. **മൂന്ന്** പുറത്തിൽ കവിയാതെ **രണ്ടു** ചോദ്യങ്ങൾക്ക് ഉത്തരമെഴുതുക.

32) വിരുദ്ധോക്തികൾ കൊണ്ട് ശക്തമായ സാമൂഹികവിമർശനം നിർവ്വഹിക്കുന്ന കവിതയാണ് 'എലികൾ' – വിശദമാക്കുക.

33) ഗോപികാദണ്ഡകം എന്ന കവിത രാധാ-കൃഷ്ണ പ്രണയസങ്കല്പത്തിനൊപ്പം സ്ത്രീ-പുരുഷ ബന്ധത്തിന്റെയും മനുഷ്യ-പ്രകൃതി ബന്ധത്തിന്റെയും ജൈവിക താളമാണ് പങ്കുവയ്ക്കുന്നത് – സമർത്ഥിക്കുക.

34) ശരീരനിഷ്ഠമായ പ്രേമസങ്കല്പം ഹൃദയ വിശുദ്ധിക്കു മുന്നിൽ പരാജയപ്പെടുന്നതിന്റെ ചിത്രമാണ് 'മനസ്വിനി' എന്ന കവിതയിൽ കാണുന്നത്. – വിശകലനം ചെയ്യുക.

35) മലയാള ഗാനകാവ്യസരണിയിലെ അമൂല്യനിധികളാണ് വടക്കൻപാട്ടുകൾ – വിശദീകരിക്കുക. **(2×15=30 മാർക്ക്)**

(Pages : 3) **F – 1890**

Reg. No. : .....

Name : .....

First Semester B.Sc. Degree Examination, November 2018
(First Degree Programme under CBCSS)
Complementary Course for Mathematics
PY1131.1 : MECHANICS AND PROPERTIES OF MATTER
(2018 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in **one** or **two** sentences. **Each** question carries **one** mark.

1. State perpendicular axis theorem.
2. Define the term neutral axis of bending beam.
3. Write an expression for geometrical moment of inertia of a beam with rectangular cross section of breadth b and thickness d.
4. Define Young's modulus.
5. Define surface tension.
6. Write down the expression to find excess pressure inside an air bubble in liquid.
7. What do you mean by viscous force ?
8. Write any two examples of simple harmonic motion.
9. Write an expression to find energy density of progressive wave and explain the terms.
10. Write the general equation of spherical wave. **(10×1=10 Marks)**

P.T.O.

SECTION – B

Answer **any eight** questions **not** exceeding in **a** paragraph. **Each** question carries **two** marks.

11. Why girders are made in the form of letter I ?

12. Draw angle of twist and angle of shear in a twisted cylinder. Obtain the relation between them.

13. Why liquid drops are of spherical shape ?

14. Hot water flow faster than cold water. Why ?

15. What do you mean by radius of gyration ?

16. Obtain differential equation of simple harmonic motion.

17. Briefly explain about torsional pendulum.

18. Obtain an expression for average kinetic energy of particle undergoing simple harmonic motion.

19. Derive an expression to find time period of compound pendulum

20. Briefly explain about intensity of wave and derive an expression for it.

21. What do you mean by torsional rigidity ? Write down the equation to find the torsional rigidity of hollow cylinder of length l outer radius r_2 and inner radius r_1.

22. Explain the variation of potential and kinetic energy with displacement for a particle undergoing simple harmonic motion. **(8×2=16 Marks)**

SECTION – C

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

23. A circular disc of radius 25 cm and mass 1 kg is rotating at the rate of 10 revolutions in a second about an axis right angle to its plane passing through the center. Find the work that must be done to increase the rate of revolution to 20 per second.

24. Find the moment of inertia of uniform circular ring of radius R about diameter.

25. A cantilever of length 50 cm is depressed by 15 mm at the loaded end. Calculate the depression at a distance 30 cm from the fixed end.

SECTION – B

Answer **any eight** questions **not** exceeding in **a** paragraph. **Each** question carries **two** marks.

11. Why girders are made in the form of letter I ?

12. Draw angle of twist and angle of shear in a twisted cylinder. Obtain the relation between them.

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17. Briefly explain about torsional pendulum.

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22. Explain the variation of potential and kinetic energy with displacement for a particle undergoing simple harmonic motion. **(8×2=16 Marks)**

SECTION – C

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

23. A circular disc of radius 25 cm and mass 1 kg is rotating at the rate of 10 revolutions in a second about an axis right angle to its plane passing through the center. Find the work that must be done to increase the rate of revolution to 20 per second.

24. Find the moment of inertia of uniform circular ring of radius R about diameter.

25. A cantilever of length 50 cm is depressed by 15 mm at the loaded end. Calculate the depression at a distance 30 cm from the fixed end.

26. Two cylinders having same length and mass are made up of same material. One is hollow and other is solid. Hollow cylinder has external radius twice that of internal radius. Compare their torsional rigidity.

27. A spherical air bubble is formed in water at depth of 1 m from its surface. The diameter of bubble is 0.5 mm and the surface tension of water is 0.075 N/m. Calculate the pressure inside the bubble. Atmospheric pressure is 101300 N/m^2 and density of water is 1000 kg/m^3.

28. A liquid is flowing through a 25 cm long tube of 1 mm diameter due to a pressure of 10 cm mercury. Calculate the rate of flow of liquid. Coefficient of viscosity of the liquid is 0.05 SI unit.

29. When displacement of SHM is one half of the amplitude, what fraction of total energy will be kinetic energy ?

30. A circular disc of radius 5 cm is suspended from the centre by a vertical wire as a torsional pendulum. Find the couple per unit twist of the wire. If mass of disc is 1 kg and period of oscillation is 3 s.Take π^2 as 10.

31. In a metallic rod of density 7.5×10^3 kg/m^3 and Young's modulus 7.5×10^{10} N/m^2. Fundamental frequency produces is 200 Hz. Find the wavelength of fundamental. **(6×4=24 Marks)**

SECTION – D

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

32. Derive an expression for bending moment. Describe in detail an experiment to determine Young's modulus of the material of the rod using cantilever.

33. Derive an expression for excess pressure on a curved liquid surface. Obtain an expression for it in the case of spherical and cylindrical surface.

34. Derive Poiseuille's equation. What are its limitations ?

35. Briefly explain about longitudinal waves in gas. Obtain Newton's formula to find the velocity of longitudinal wave in gas and discuss about Laplace correction. **(2×15=30 Marks)**