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J – 2770

Reg. No. :

Name :

Second Semester B.A./B.Sc./B.Com. Degree Examination, May 2020

Career Related First Degree Programme under CBCSS

Malayalam Language

Language Course IV – Additional Language

ML 1211.3 : ഭൂശൃകലാസാഹിത്യം

(2018 admission onwards)

Time : 3 Hours

Max. Marks : 80

- I. ഒരു വാക്കിലോ രണ്ടു വാക്യത്തിലോ ഉത്തരം എഴുതുക.
1. കല്യാണസൗഗന്ധികം ഏത് വിഭാഗത്തിൽപ്പെടുന്ന തുള്ളലാണ് ?
2. രാമനാട്ടത്തിന്റെ ഉപജ്ഞാതാവാര്യം ?
3. ഓരോരോ കാലത്തിലും എന്ന നാടകമെഴുതിയതാര്യം ?
4. മലയാള നാടക സാഹിത്യ ചരിത്രം എഴുതിയതാര്യം ?
5. നളോപാഖ്യാനം മഹാഭാരതം ഏത് പർവ്വത്തിൽ ഉൾപ്പെട്ടതാണ് ?
6. “വേണ്ടും ബലം നിനക്കുണ്ടെന്നു നിർണ്ണയം” - ആരുടെ ബലത്തെപ്പറ്റിയാണ് ഇവിടെ പറയുന്നത്?

P.T.O.

7. പെരുവഴിയമ്പലം എന്ന ചലച്ചിത്രത്തിന്റെ സംവിധായകൻ ആര്?
8. മലയാളത്തിലെ ഇണ്ണൺ എന്നറിയപ്പെടുന്നതാരാണ്?
9. ചതുർവിധാഭിനയങ്ങൾ ഏതെല്ലാം?
10. മലയാളത്തിലെ ആദ്യ സാമൂഹിക നാടകം ഏത്?

(10 × 1 = 10 Marks)

II. ഒരു ഖണ്ഡികയിൽ കവിയാതെ എട്ടു ചോദ്യത്തിന് ഉത്തരം എഴുതുക.

11. “മുദിതം മാനസം മേ ഭഗദംഗ ദർശനേന

മുഴുതിങ്കളുദയേന കുമുദമെന്നതുപോലെ”

- വ്യാഖ്യാനിക്കുക.

12. “കുല കന്യകമാരാൽ ഹൃദി

ഗുഹനീയം വന്ധു പറയാമോ?”

- വക്താവിന്റെ സ്വഭാവം ഈ വരികളിൽ എത്രത്തോളം നിഴലിക്കുന്നു?

13. കമനി! രത്നകനകങ്ങളുടെ

ഘടനയേ ഘടന നിങ്ങളുടെ

വിഷ്ണു രമയ്ക്ക്, നിശ്ചയ ശശാങ്ക-

നുമയ്ക്ക് ഹരൻ നളനോർക്കുകിൽ നിനക്കും

- വ്യാഖ്യാനിക്കുക.

14. “ജനിച്ചു വീഴുന്ന ഒരു കുഞ്ഞിന്റെ ആദ്യ ശബ്ദം, അതുപോലൊരു സംഗീതം വേറെയില്ല” -

സന്ദർഭം എഴുതി വിശദീകരിക്കുക.

15. “ഇതാണ് ശരിക്കും ഊരാക്കുടുക്ക് - മാധത്തിന് ഇതൊന്ന് ഒഴിവാക്കാമായിരുന്നു” - സന്ദർഭം

എഴുതി ആശയം വ്യക്തമാക്കുക.

- 28. ഭഗവതഗീതയിലെ മാനസഭാസൂത്രത്തിന്റെ അർത്ഥം എന്താണ്?
- 27. കർമ്മയോഗത്തിന്റെ അർത്ഥം എന്താണ്?
- 26. തിരക്കഥാ രചനയിൽ ഏതു ഘട്ടം ഏറ്റവും പ്രധാനമാണ്?
- 25. ഭക്തിയുടെ അർത്ഥം എന്താണ്?
- 24. ഭക്തിയുടെ അർത്ഥം എന്താണ്?
- 23. ഭക്തിയുടെ അർത്ഥം എന്താണ്?
- III. 120 വാക്യങ്ങളിൽ നിന്ന് 10 വാക്യങ്ങൾ തിരഞ്ഞെടുത്ത് എഴുതുക.

(8 x 2 = 16 Marks)

- 22. ഭഗവതഗീതയിലെ മാനസഭാസൂത്രത്തിന്റെ അർത്ഥം എന്താണ്?
- 21. കർമ്മയോഗത്തിന്റെ അർത്ഥം എന്താണ്?
- 20. "ജന്മമരണാശയം കർമ്മബന്ധം" എന്ന വാക്യത്തിന്റെ അർത്ഥം എന്താണ്?
- 19. ഭക്തിയുടെ അർത്ഥം എന്താണ്?
- 18. ഭക്തിയുടെ അർത്ഥം എന്താണ്?
- 17. "മനസ്സിനെ നിയന്ത്രിക്കുക" എന്ന വാക്യത്തിന്റെ അർത്ഥം എന്താണ്?
- 16. "പ്രാണായാമം" എന്ന വാക്യത്തിന്റെ അർത്ഥം എന്താണ്?

29. വേരുകളില്ലാത്ത നായകന്റെ ധർമ്മസങ്കടങ്ങളും രതിയുടെ അനിവാര്യതയും ഒരിടത്തൊരു ഫയൽവാനിൽ കാണാം - വിശദീകരിക്കുക.
30. ആട്ടക്കഥാ സാഹിത്യചരിത്രത്തിൽ നളചരിതത്തിനുള്ള സ്ഥാനമെന്ത്?
31. ഒരു ജനകീയകവി എന്ന നിലയിൽ കുഞ്ചൻ നമ്പ്യാരെ പരിചയപ്പെടുത്തുക.

(6 × 4 = 24 Marks)

IV. മൂന്നു പുറത്തിൽ കവിയാതെ രണ്ടു ചോദ്യത്തിന് ഉത്തരം എഴുതുക.

32. മലയാള നാടക ചരിത്രത്തിലെ നിർണ്ണായകമായ ഒരു വഴിത്തിരിവാണ് ഭഗവതം. സമർത്ഥിക്കുക.
33. വ്യത്യസ്തമായ പ്രമേയപരിസരം കൊണ്ട് ശ്രദ്ധേയമായ ഒരു നാടകമാണ് ലേബർ റൂം. പരിശോധിക്കുക.
34. മലയാള നാടകത്തിന്റെ വികാസ പരിണാമങ്ങളെപ്പറ്റി ഉപന്യസിക്കുക.
35. നിലവിലുണ്ടായിരുന്ന സിനിമാ സങ്കല്പങ്ങളെ തിരസ്കരിക്കുന്ന ചിത്രമായിരുന്നു ഒരിടത്തൊരു ഫയൽവാൻ. ചർച്ച ചെയ്യുക.

(2 × 15 = 30 Marks)

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J – 2843

Reg. No. :

Name :

Second Semester B.Sc. Degree Examination, May 2020

Career Related First Degree Programme Under CBCSS

Group 2 (a) – Complementary Course II for Physics and Computer Applications

MM 1231.6 – MATHEMATICS – II PARTIAL DIFFERENTIATION, VECTOR DIFFERENTIATION, COMPLEX NUMBERS AND MULTIPLE INTEGRALS

(2019 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – I

All the first ten questions are compulsory. They carry 1 mark each.

1. Find $\frac{\partial^2 f}{\partial x \partial y}$ of the function $f(x, y) = x^2 + y^2 + 4$.
2. Determine whether $(3x + 2) y dx + x(x + 1) dy$ is exact or not.
3. Define gradient of a scalar field.
4. Find the divergence of the vector field.
 $\vec{a} = 2xz^2 \hat{i} - yz\hat{j} + 3xz^3\hat{k}$ at $(1, 1, 1)$.
5. Find the Laplacian of the scalar field $\phi = x^2y - 3y^2z^2$.
6. State de Moivre's theorem.
7. Find $\sinh(ix)$.

P.T.O.

8. Write the real part of e^z .
9. Write the Jacobian of the co-ordinate transformation $x = g(u, v)$, $y = h(u, v)$.
10. Evaluate $\int_0^2 \int_0^{2-x} dy dx$.

SECTION - II

Answer any eight from among the questions 11 to 22. These questions carry 2 marks each.

11. Find the total derivative of the function $f(x, y) = y \exp(x + y)$.
12. Using chain rule find $\frac{df}{dt}$ given $f(x, y) = 4x^2 + 3y^2$, $x(t) = \sin t$, $y(t) = \cos t$.
13. State Taylor's theorem for two variables x and y .
14. Determine the stationary point of the function $f(x, y) = xy - x^2 - y^2 - 2x - 2y + 4$ and describe the nature of the function at those points.
15. The position vector of a particle at time t in Cartesian coordinate is given by $r(t) = 2t^2\hat{i} + (t^2 - 4t)\hat{j} + (3 + -5)\hat{k}$. Find at time $t = 1$ the speed of the particle and component of velocity in the direction $\bar{s} = \hat{i} - 3\hat{j} + 2\hat{k}$.
16. Find the curl of the vector field $\bar{a} = xyz\hat{i} + 3x^2\hat{j} + (xz^2 - y^2z)\hat{k}$ at $(1, 2, -1)$.
17. Prove $\text{curl}(\text{grad } \phi) = 0$.
18. Find the solution of the equation $z^3 = 1$.
19. Express $\cos 3\theta$ and $\sin 3\theta$ in terms of powers of $\cos \theta$ and $\sin \theta$.

20. Evaluate $L_n(-i)$.

21. Find the Jacobian $\frac{d(x, y, z)}{\partial(u, v, w)}$ of the transformation $x = u \cos v$,
 $y = u \sin v$, $z = w$.

22. Evaluate $\int_0^3 \int_0^{\sqrt{9-x^2}} \int_0^{\sqrt{9-x^2}} dz \, dy \, dx$.

SECTION – III

Answer any six questions from among the questions 23 to 31. These questions carry 4 marks each.

23. The temperature of a point (x, y) on a unit circle is given by $T(x, y) = 1 + xy$. By using the method of Lagrange multipliers, find the temperature of the hottest point on the circle.

24. Find the total derivative of the function $f(x, y) = xy^2 + x^2y$ with respect to x given $y = \ln x$.

25. Find the Taylor expansion, up to quadratic terms in x and y of $f(x, y) = \sin 2x + \cos y$ about the point $(0, 0)$.

26. Find the directional derivative of the function $\phi(x, y, z) = 2xy + z^2$ in the direction of the vector $\vec{a} = \hat{i} + 2\hat{j} + 2\hat{k}$ at the point $(1, -1, 3)$.

27. For $\vec{r} = x\hat{i} + y\hat{j} + z\hat{k}$ and $|\vec{r}| = r$. Show that $\nabla f(r) = \frac{1}{r} f'(r) \vec{r}$.

28. Solve the hyperbolic equation $\cosh x - 5 \sinh x - 5 = 0$.

29. Find the closed form expression for the inverse hyperbolic functions $y = \sinh^{-1} x$.

30. Evaluate the double integral $I = \iint_R x^2 y \, dx \, dy$ where R is the triangular area bounded by the lines $x = 0$, $y = 0$ and $x + y = 1$. Also reverse the order of integration and show that same result is obtained.
31. Find the expression for the volume element in spherical polar coordinate.

SECTION – IV

Answer any two questions from among the questions 32 to 35. These questions carry 15 marks each.

32. (a) Show that the function $f(x, y) = x^3 \exp(-x^2 - y^2)$ has a maximum at the point $\left(\frac{\sqrt{3}}{2}, 0\right)$ a minimum at $\left(-\frac{\sqrt{3}}{2}, 0\right)$ and a stationary point at the origin.
- (b) Find the stationary point of $f(x, y, z) = x^2 - 2y - z^2$ subject to constraints $g(x, y, z) = 2x - y = 0$ and $h(x, y, z) = y + z = 0$.
33. Show that $(\nabla\phi \times \nabla\psi)$.
- (a) $\nabla \cdot = 0$ where ϕ and ψ are scalar fields.
- (b) $\nabla \times (\phi \bar{a}) = \nabla\phi \times \bar{a} + \phi \nabla \times \bar{a}$ where ϕ scalar field.
34. (a) Draw the graph of $\cosh x$, $\sec x$.
- (b) Use de Moivre's theorem to prove that $\cos 4\theta = \cos^4 \theta - 6 \cos^2 \theta \sin^2 \theta + \sin^4 \theta$.
35. (a) Find the volume integral of $x^2 y$ over the tetrahedral volume bounded by the planes $x = 0$, $y = 0$, $z = 0$ and $x + y + z = 1$.
- (b) Find the area of the region R enclosed by the parabola $y = x^2$ and the line $y = x + 2$.

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J – 2499

Reg. No. :

Name :

Second Semester B.A./B.Sc./B.Com. Degree Examination, May 2020

First Degree Programme Under CBCSS

Language Course – English

**Common For B.A./B.Sc. (EN 1212.1), B.Com (EN 1211.2) and
Career Related 2(a) (EN 1211.3)**

MODERN ENGLISH GRAMMAR AND USAGE

(2013 Admission to 2018 Admission)

Time : 3 Hours

Max. Marks : 80

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

1. Choose the correct form of the verb:

We _____ (Packed/is packing) for our trip to Europe.

2. Choose the correct form of the verb:

She _____ (woke/ Wakes) up early on her trip last week.

3. Identify the preposition phrase:

Is she really going out with that tall, gorgeous guy?

4. Identify the noun clause in the sentence:

Whoever thought of the idea is a genius.

P.T.O.

5. Add the correct question tag:

You haven't seen this film, _____

6. Correct the sentence:

Gas in Alaska is the most cheapest gas in all the world.

7. Change the voice: He had written three books before 1867.

8. Correct the sentence:

We're not sure he is enough experienced for the position.

9. Choose the correct option and complete the sentence:

The customer was extremely upset. _____

- (a) He demanded refunding his money.
- (b) He demanded that we refunded his money.
- (c) He demanded we refund his money.

10. Identify the adjective in the sentence:

The organisation invested in a lot of state-of-the-art technology.

(10 × 1 = 10 Marks)

- II. Answer **any eight** questions, **each** in a short paragraph exceeding **50** words:

11. Combine and rewrite the sentences, beginning with **As**

- (a) Sarath couldn't write the exam. He was taken ill.
- (b) I am a copy editor. I correct many mistakes.

12. Rewrite the sentences, beginning each new sentence as instructed:

- (a) We got lost in the jungle because we didn't have a map. (If we had...)
- (b) The plane had hardly left the airport when the accident happened (No sooner...)

13. Rearrange the words to form meaningful sentences:

- (a) effect / we / in/ did/ much/ sales/ last/ not/ year/ improvement.
- (b) should/ you/ have/ coming/seen/ this.

14. Correct the sentences:

- (a) "Can we prepone the meeting to 2 pm? I need to leave a little early".
- (b) "Which year did you pass out from college?"

15. Read the answers and frame appropriate questions:

- (a) You will be treated as a friend.
- (b) They will stay with their relatives when they go to Delhi.

16. Change the following sentences into affirmatives.

- (a) They need not know what this is for.
- (b) No other poet is as great as Wordsworth.

17. Provide appropriate question tags

- (a) They live in Mumbai.
- (b) Reenu must stay.

18. Identify the complement in the given sentences:
- (a) My uniform is torn and dirty.
 - (b) We find them very pleasant.
19. Identify the adverbial phrase in the given sentences:
- (a) The great horse raced like the wind.
 - (b) The tenor sang with great feeling.
20. Fill in the blanks with the correct article
- (a) I want _____ apple from the basket.
 - (b) _____ village by the sea is my dream retirement spot.
21. Supply the correct modals.
- (a) You _____ have informed the insurance company immediately after the accident. Now it's too late.
 - (b) You _____ have driven if you had been drinking!
22. Change into indirect speech:
- (a) Ibrahim : James works from home.
 - (b) Vandana : I've got to go, I am getting late.

(8 × 2 = 16 Marks)

III. Answer any six of the following as directed.

23. Complete the sentences with a suitable word from the list given below:

(who, what, how, which, whom, where)

- (a) Sushmita is the one _____ is taking over my job next month.
- (b) I couldn't imagine _____ I would be able to find the courage to leave.
- (c) I've got a week to finish this _____ is just about enough time.
- (d) He really can't work out _____ he has to go to get the information he needs.

24. Insert the correct articles wherever appropriate in the following sentences. If there is no article put a (X) sign.

- (a) Are you coming to party next Saturday?
- (b) I bought new TV set yesterday.
- (c) I am crazy about reading history books.
- (d) Do you want to go to restaurant where we first met?

25. Correct the following sentences.

- (a) If we will be late, they will be angry.
- (b) My father is thinking that I should stop smoking.
- (c) I fell asleep while I watched TV.
- (d) I have lived in Canada since 10 months.

26. Fill in the blanks with the correct prepositions.

- (a) Don't waste so much money _____ new clothes.
- (b) I have to hurry. I want to be _____ time for the new presentation.
- (c) All trains arriving from London are _____ time.
- (d) The guard told us to keep _____ the lawn. It has been freshly cut.

27. Rewrite the sentences in the correct order.

- (a) society / is / discipline / of/ foundation / the very
- (b) great importance / one of the / essentials of life / it is/ in all spheres/ and is of/ of life
- (c) it life/ become / without / miserable / at home / will
- (d) for/ is / our / progress / it / a must / country's

28. Use the correct forms of verbs and fill in the blanks.

- (a) The police _____ (leave) no stone unturned to trace the culprits.
- (b) The terrified people _____ (flee) to the mountains.
- (c) I _____ (visit) the Taj Mahal last month.
- (d) Your friends _____ (wait) for you for over an hour.

29. Use reflexive pronouns to complete the sentences.

- (a) Aneesh decided to reward _____ with a dinner out.
- (b) Seema pours a cup of tea for _____ every morning.
- (c) Eighty year old Indira made her supper _____
- (d) We _____ were forced to pilot the boat to safety.

30. Rewrite the passage correcting all the errors.

Damu starts his job at a carpet-weaving factory. He had made new friends there and enjoying their company. Carpet-weaving intrigue him, yet when he started on the job he finds it very difficult. For weeks he was struggling with the job. He felt that he have made a mistake when he chose to work there. If he was determined to learn the art of carpet-weaving.

31. Identify the parts of speech in the underlined parts:

(noun of gender, pre-modifier, transitive verb, uncountable noun)

- (a) There has been a lot of research into the causes of the spread of the Corona Virus.
- (b) France is popular with her neighbours at the moment.
- (c) Lee bought dozens of cakes from the bakery to gift his wife.
- (d) We have enjoyed some extremely varied and consistently excellent performances at this theatre.

(6 × 4 = 24 Marks)

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

32. Expand the proverb "Simple Living, High Thinking" in about two to three pages.
33. Write a short essay on "Friendship and Social Media" in about two to three pages.
34. Write a précis of the following passage:

In a big modern factory each worker contributes so little to the finished article that he does not think of it as the fruit of his own labours. Workers who repeat the same operation day after day can take no ire or pride in their work. Their chief pleasure in life is outside the factory. Their work is dull and they spend their time with one eye on the clock. In spite of various attempts to brighten the lives of the workers, the average man in a factory is rather to be pitied than envied. The dullness of his life is one of the drawbacks of mass production.

Some people believe that man is becoming the slave of the machine. Certainly machines are playing an ever-increasing part in our lives. Let us hope that they will never become more important than the men they were intended to serve. Charlie Chaplin, in his film "Modern Times", drew attention to this danger. In the film he got a job in a factory that employed mass production method. He had to stand by a machine with a spanner in his hand. An endless belt passed in front of him carrying slowly an endless line of articles. As each one passed he tightened one nut on one bolt with his spanner. His work was one with one turn of the wrist repeated throughout the day. Very soon his mind became affected and the film shows the amusing things which he did as a result of his mental disorder. Although it is very funny, the film had a serious side. It showed that the kind of work which many people do, far from giving them pride and pleasure, is more likely to fit them for the lunatic asylum.

We must all hope that means will be found to retain the advantages arising out of mass production, while at the same time giving the worker some of the pride and pleasure of the old craftsman.

35. Arrange the sentences in the proper order. Sentence one and ten are in their correct order.

Though largely forgotten now, African presence in India, in itself, was not unusual. In the 1230s, queen Raziya of the Delhi Sultanate was accused of being closer than acceptable to Yakut, an African confidant. There existed for

decades in the 15th century a near-sovereign state in Jaunpur (U.P.) founded by an African. Their reputations were so fierce that "let there be but one of them on a ship and it will be avoided by ... pirates". It was a pretext used to justify her murder. Harems in the Deccan featured *habshi* women – so called after their origins in Abyssinia – and at least two sultans had black begums as consorts. This fact is unknown, perhaps, to many present-day residents of Uttar Pradesh. In the 14th century, the traveller Ibn Batuta recorded how they were "guarantors of safety" for ships that plied the Arabian Sea. Even in Bengal, a coup in 1487 by a group of warriors like Malik Ambar led to a short-lived ruling dynasty. Ambar, however, remains the greatest of the *habshis* who made history in India.

(2 × 15 = 30 Marks)

(Pages : 4)

J – 2817

Ph

Reg. No. :

Name :

Second Semester B.Sc. Degree Examination, May 2020

Career related First Degree Programme Under CBCSS

Mathematics

Group 2(a) – Complementary Course II for Physics and Computer Applications

MM 1231.6 – ANALYTIC GEOMETRY, INTEGRATION, DIFFERENTIAL EQUATIONS AND MATRICES

(2013 – 2018 Admissions)

Time : 3 Hours

Max. Marks : 80

SECTION – I

Answer all questions. Each question carries 1 mark.

Answer in one word to a maximum of two sentences

1. Find the new coordinates of the point (2, 4) if the coordinate axes are rotated through an angle of $\theta=30^\circ$.
2. Find the parametric equations of the rectangular hyperbola $xy=c^2$.
3. Find the average value of $f(x)=4x^3$ over [1, 3].
4. Evaluate $\int \frac{\sec^2 x}{1+\tan x} dx$.
5. Suppose that a particle moves so that its velocity at time t is $v(t)=\cos \pi t$ along a coordinate line. Find its position function $s(t)$, assuming that $s = 4$ at time $t=0$.

P.T.O.

6. Solve $\sqrt{1-y^2} dx + \sqrt{1-x^2} dy = 0$.
7. Solve $y'' - 7y' + 12y = 0$.
8. Find the particular integral of $y'' + 9y = \cos 2x$.

9. Find the rank of the matrix $\begin{bmatrix} 2 & 0 & 0 \\ 1 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$.

10. Check whether the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$ is singular or not.

SECTION - II

Answer any eight questions (11-22). Each question carries 2 marks.

11. Describe the graph of the equation $x^2 - y^2 - 4x + 8y - 21 = 0$.
12. Find the equation of the hyperbola with vertices $(0, \pm 8)$ and asymptotes $y = \pm 4x/3$.
13. Write down the condition for the general second degree equation $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ to represent a pair of lines.
14. Find the displacement and distance travelled during the time interval $0 \leq t \leq 3$ if the velocity function is $v(t) = t^2 - 2t$.
15. Find the area of the region enclosed by $y = x^2$ and the line $y = 2x + 3$.
16. Evaluate $\int \sqrt{\tan x} \sec^4 x dx$.
17. Solve $x \frac{dy}{dx} + y \tan x = \cos x$.
18. Solve $x \frac{dy}{dx} + y = x^3 y^8$.

19. Solve $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} - 4y = x^2$.

20. Define the eigen values and eigen vectors associated with a square matrix.

21. When do we say that a matrix is in row reduced echelon form?

22. Find the eigen values of the matrix $\begin{bmatrix} 2 & 0 & 0 \\ 1 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$.

SECTION - III

Answer any six questions (23-31). Each question carries 4 marks.

23. Consider the equation $x^2 - 3xy + y^2 + 10x - 10y + 21 = 0$. Identify the conic. Locate its centre and sketch the conic.

24. Identify and sketch the curve $xy = 1$.

25. Change the order of integration and hence evaluate $\int_0^1 \int_x^{2-x} xy \, dy \, dx$.

26. Find the entire length of the curve $x^{2/3} + y^{2/3} = a^{2/3}$.

27. Orthogonal trajectories of the family of co-axial circles $x^2 + y^2 + 2\lambda x + c = 0$ where λ is the parameter

28. Solve $2xy \, dy/dx - y^2 + x^2 = 0$.

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

30. Solve the system of equations:

$$x_1 + 2x_2 - x_3 = 3$$

$$3x_1 - x_2 + 2x_3 = 1$$

$$2x_1 - 2x_2 + 3x_3 = 2$$

$$x_1 - x_2 + x_3 = -1$$

31. Find the row reduced echelon form of the matrix $\begin{bmatrix} 1 & 2 & -1 & 4 \\ 2 & 4 & 3 & 5 \\ -1 & -2 & 6 & -7 \end{bmatrix}$ and hence find its rank.

SECTION – IV

Answer any two questions (32-35). Each question carries 15 marks.

32. (a) Find the asymptotes of the curve $x^2y + xy^2 + xy + y^2 + 3x = 0$.
- (b) Find the equation of the curve $2x^2 + xy + 2y^2 - 1 = 0$ in $x'y'$ coordinate system obtained by rotating the xy -coordinate system through an angle of 45° .
33. (a) Sketch the region enclosed by the curves $y = x^2$ and $y = x + 6$ and find the area.
- (b) Find area of the surface that is generated by revolving the portion of the curve $y^2 = x$ from origin to the point where $x = 2$ about the x -axis.
34. (a) During the first 40s of a rocket flight, the rocket is propelled straight up so that in t seconds it reaches a height of $s = 0.3t^3$ ft.
- (i) How high does the rocket travel in 40s?
- (ii) What is the average velocity of the rocket during the first 40s?
- (b) Solve $x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} + y = \cos(\log x)$.

35. Diagonalise the matrix $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 3 & -1 \\ 0 & -1 & 3 \end{bmatrix}$.

(Pages : 4)

J – 2770

Reg. No. :

Name :

Second Semester B.A./B.Sc./B.Com. Degree Examination, May 2020

Career Related First Degree Programme under CBCSS

Malayalam Language

Language Course IV – Additional Language

ML 1211.3 : ഭൃശ്യകലാസാഹിത്യം

(2018-admission onwards)

Time : 3 Hours

Max. Marks : 80

- I. ഒരു വാക്കിലോ രണ്ടു വാക്യത്തിലോ ഉത്തരം എഴുതുക.
1. കല്യാണസൗഗന്ധികം ഏത് വിഭാഗത്തിൽപ്പെടുന്ന തുള്ളലാണ് ?
2. രാമനാട്ടത്തിന്റെ ഉപജ്ഞാതാവാര്യം ?
3. ഓരോരോ കാലത്തിലും എന്ന നാടകമെഴുതിയതാര്യം ?
4. മലയാള നാടക സാഹിത്യ ചരിത്രം എഴുതിയതാര്യം ?
5. നളോപാഖ്യാനം മഹാഭാരതം ഏത് പർവ്വത്തിൽ ഉൾപ്പെട്ടതാണ് ?
6. “വേണ്ടും ബലം നിനക്കുണ്ടെന്നു നിർണ്ണയം” - ആരുടെ ബലത്തെപ്പറ്റിയാണ് ഇവിടെ പറയുന്നത്?

P.T.O.

7. പെരുവഴിയമ്പലം എന്ന ചലച്ചിത്രത്തിന്റെ സംവിധായകൻ ആര്?
8. മലയാളത്തിലെ ഇണ്ണൺ എന്നറിയപ്പെടുന്നതാര്?
9. ചതുർവിധാഭിനയങ്ങൾ ഏതെല്ലാം?
10. മലയാളത്തിലെ ആദ്യ സാമൂഹിക നാടകം ഏത്?

(10 × 1 = 10 Marks)

II. ഒരു ഖണ്ഡികയിൽ കവിയാതെ എട്ടു ചോദ്യത്തിന് ഉത്തരം എഴുതുക.

11. “മുദിതം മാനസം മേ ഗേദംഗ ദർശനേന

മുഴുതിങ്കളുദയേന കുമുദമെന്നതുപോലെ”

- വ്യാഖ്യാനിക്കുക.

12. “കുല കന്യകമാരാൽ ഹൃദി

ഗൃഹനീയം വസ്തു പറയാമോ?”

- വക്താവിന്റെ സ്വഭാവം ഈ വരികളിൽ എത്രത്തോളം നിഴലിക്കുന്നു?

13. കമനി! രത്നകനകങ്ങളുടെ

ഘടനയേ ഘടന നിങ്ങളുടെ

വിഷ്ണു രമയ്ക്ക്, നിശ്ശയ്ക്കു ശശാങ്ക-

നുമയ്ക്കു ഹരൻ നളനോർക്കുകിൽ നിനക്കും

- വ്യാഖ്യാനിക്കുക.

14. “ജനിച്ഛു വീഴുന്ന ഒരു കുഞ്ഞിന്റെ ആദ്യ ശബ്ദം, അതുപോലൊരു സംഗീതം വേറെയില്ല” -

സന്ദർഭം എഴുതി വിശദീകരിക്കുക.

15. “ഇതാണ് ശരിക്കും ഊരാക്കുടുക്ക് - മാധത്തിന് ഇതൊന്ന് ഒഴിവാക്കാമായിരുന്നു” - സന്ദർഭം

എഴുതി ആശയം വ്യക്തമാക്കുക.

16. “പത്മ്യമല്ലെങ്കിൽ പറഞ്ഞതുമില്ല ഞാൻ
ധർമ്മാടവീവാസിയാകുന്ന രാഘവൻ
തന്മാനിനീവാക്കു കേട്ടു മോഹിക്കയാൽ
പൊന്നാനിപ്പെടിപ്പാനായ് പുറപ്പെട്ടു”
- സന്ദർഭം എഴുതി ആശയം വ്യക്തമാക്കുക.
17. “മറ്റേതും ഖണ്ഡിച്ചു മറ്റിൽ മേൽ വീണു
മറ്റും മറ്റും മറ്റും ഭസ്മമായി”
- എപ്പോൾ? വിശദമാക്കുക.
18. കൂടുംബനാഥനായ മാധവൻ നായരുടെ വ്യക്തിത്വത്തിലെ നന്മകൾ എന്തെല്ലാം?
19. ലേബർ റൂമിലെ അവതരണത്തിന്റെ പുതുമകൾ എന്തെല്ലാം?
20. “ജനിക്കാനിരിക്കുന്നവരും മരിച്ചു പോയവരും ജീവിച്ചിരിക്കുന്നവരെക്കാൾ പ്രായം കൂടിയവരാണ്” സന്ദർഭം എഴുതി ആശയം വിശദമാക്കുക.
21. നാരദൻ ദമയന്തിയെപ്പറ്റി നളനോട് പറഞ്ഞതെന്തെല്ലാം?
22. ഗേഭവനം നാടകത്തിലെ രാധയെ പരിചയപ്പെടുത്തുക.

(8 × 2 = 16 Marks)

III. 120 വാക്കിൽ കവിയാതെ ആറു ചോദ്യത്തിന് ഉത്തരം എഴുതുക.

23. കേരളീയ ദൃശ്യകലകളെ പരിചയപ്പെടുത്തുക.
24. കേരളീയത കൂഞ്ചൻ നമ്പ്യാർ കൃതികളിൽ പ്രതിഫലിക്കുന്നതെങ്ങനെ?
25. ഭീമന്റെ വനയാത്രയിലെ കാഴ്ചകൾ ചുരുക്കി എഴുതുക.
26. തിരക്കഥ എന്നാൽ എന്ത്? സാമാന്യമായി പരിചയപ്പെടുത്തുക.
27. കഥകളിയുടെ വളർച്ചയിൽ കോട്ടയത്തു തമ്പുരാന്റെ സംഭാവന എന്ത്? .
28. ഗേഭവനത്തിലെ സുമതിയുടെ ജീവിതത്തിലുണ്ടാകുന്ന മാറ്റങ്ങളെന്തെല്ലാം?

29. വേരുകളില്ലാത്ത നായകന്റെ ധർമ്മസങ്കടങ്ങളും രതിയുടെ അനിവാര്യതയും ഒരിടത്തൊരു ഫയൽവാനിൽ കാണാം - വിശദീകരിക്കുക.

30. ആട്ടക്കഥാ സാഹിത്യചരിത്രത്തിൽ നളചരിതത്തിനുള്ള സ്ഥാനമെന്ത്?

31. ഒരു ജനകീയകവി എന്ന നിലയിൽ കൃഷ്ണൻ നമ്പ്യാരെ പരിചയപ്പെടുത്തുക.

(6 × 4 = 24 Marks)

IV. മൂന്നു പുറത്തിൽ കവിയാതെ രണ്ടു ചോദ്യത്തിന് ഉത്തരം എഴുതുക.

32. മലയാള നാടക ചരിത്രത്തിലെ നിർണ്ണായകമായ ഒരു വഴിത്തിരിവാണു് ഭഗവതം. സമർത്ഥിക്കുക.

33. വ്യത്യസ്തമായ പ്രമേയപരിസരം കൊണ്ട് ശ്രദ്ധേയമായ ഒരു നാടകമാണു് ലേബർ റൂം. പരിശോധിക്കുക.

34. മലയാള നാടകത്തിന്റെ വികാസ പരിണാമങ്ങളെപ്പറ്റി ഉപന്യസിക്കുക.

35. നിലവിലുണ്ടായിരുന്ന സിനിമാ സങ്കല്പങ്ങളെ തിരസ്കരിക്കുന്ന ചിത്രമായിരുന്നു ഒരിടത്തൊരു ഫയൽവാൻ. ചർച്ച ചെയ്യുക.

(2 × 15 = 30 Marks)

Reg. No. :

Name :

Second Semester B.A./B.Sc./B.Com. Degree Examination, May 2020

First Degree Programme under CBCSS

Language Course – English

(Common for B.A./B.Sc. (EN 1212.1), B.Com. (EN 1211.2) and Career Related 2 (a) (EN 1211.3))

ENGLISH GRAMMAR, USAGE AND WRITING

(2019 Admission)

Time : 3 Hours

Max. Marks : 80

I. Answer all questions. Each in a word or sentence.

1. Add the correct question tag:

Kashi is a well behaved boy.

2. Choose the correct form of the verb:

"It does not do to _____ (dwelt) on dreams Harry, and forget to live in the present"

3. State whether the underlined is the subject or predicate of the sentence:

The defensive tackle of the mid fielder missed the opponent as he ran by him.

4. Rewrite the sentence using : Otherwise

If lectures are boring, students will not want to attend.

5. Change into a declaratory sentence:

The mother told the children, 'Take milk twice a day to improve your health.'
(Use advise)

6. Correct the sentence by adding a missing article.

As Harry squelched along deserted corridor he came across somebody who looked just as preoccupied as he was.

7. Change the voice :

The company requires staff to watch a safety video every year.

8. Correct the sentences.

The train left before he arrived.

9. Reorder the sentence to form a meaningful one.

Before/long/choose/them /our/and/we/we/ joys/sorrows/experience.

10. Fill in the blanks using a suitable verb:

The police _____ (smell) a rat in the witness accounts.

(10 × 1 = 10 Marks)

II. Answer any eight questions, each in short paragraph exceeding 50 words.

11. Convert the sentences into its plural form:

(a) The baby cries; but its mother is missing.

(b) I look up, and a leaf falls from a branch and lands on my forehead.

12. Rearrange the words to form meaningful sentences:

(a) minutes/sofa/past/hiding/I/the/for/the/ten/have/under/been/

(b) here/many/I/room/legs/in/the/from/down/upside/see/can/

13. Rewrite the sentences, beginning each new sentence as instructed taking care not to change the meaning.
- (a) Unless the rain stops, the game will not resume.
(Begin: If..)
 - (b) A lot of people are capable of leading a team.
(Rewrite using "capability")
14. Provide appropriate question tags
- (a) She couldn't let such a good job offer go.
 - (b) He'd better hurry up.
15. Convert into simple sentences
- (a) We believe that he is innocent.
 - (b) I have no money that I can lend you.
16. Change the following negative sentences into affirmative sentences without changing their meaning
- (a) You are not steady.
 - (b) I am not impressed with your project proposal.
17. Read the answers and frame appropriate questions:
- (a) I came home early to watch the match.
 - (b) Gauri decorated the hall.
18. Identify the adverbs in the given sentences:
- (a) She was so frightened, she could hardly speak.
 - (b) I was late for a very important appointment.

19. Fill the blanks with suitable adjectives/adverbs.

- (a) I like reading _____ fiction.
- (b) They _____ worked for their award.

20. Change into comparative degree.

- (a) John is as tall as Mike.
- (b) Hercules was the strongest man in the world.

21. Punctuate the sentences:

- (a) On its twenty fifth anniversary the movie club of our city screened many movies Casablanca Life is Beautiful Schindler's List.
- (b) The teacher asked so tell me, who has read the novel Rebecca by Daphne du Maurier.

22. Convert to indirect speech:

- (a) "I am not buying anything today" Bhuvi told the salesperson.
- (b) "The train is late by an hour" informed Ritam.

(8 × 2 = 16 Marks)

III. Answer any six of the following as directed.

23. Complete the sentences with the correct preposition

- (a) After payment, you'll receive the product _____ 10 business days.
- (b) I have no experience, so I'm _____ a disadvantage when it comes to this job interview.
- (c) My grandparents lived in that same house _____ ages.

- (d) He's Tamilian? For some reason I was _____ the impression that he was a Kannadiga.
- (e) Where's Mashumita? She should have gotten here _____ now.
- (f) We've put a lot of effort _____ this project.
- (g) We drove _____ the coastline of India.
- (h) The scientist made an amazing discovery _____ accident.

24. Insert the correct determiners wherever appropriate.

- (a) Rescue efforts resumed in Beichuan, after entire city was evacuated
- (b) He is an expert on languages, but he knows about mathematics.
- (c) I usually get to work on foot and then come home on bus
- (d) Hari had so going around him that he looked confused and distracted.

25. Fill in the blanks with the suitable modals.

- (a) It's very cloudy today. Do you think it _____ rain later?
- (b) They _____ to have filled the car with petrol before they set off.
- (c) This is impossible, it _____ be a mistake!
- (d) Why are you wasting time? You _____ have finished your work already.

26. Rewrite the jumbled words into meaningful sentences.

- (a) that/ believe/ to/ seem/ people/ many old/ good/ disrupted/ has/ computers/ off/ advert/ the/ habits/ reading/ fashioned.
- (b) statement/ true/ completely/ not/ is/ it/ above/ the/ to/ truth/ same/ be/ may/ there/ while.

(c) actually/ computers/ have/ of/ advert/ the/ people/ to/ accessible/ more/
books/ made.

(d) button/ a/ of/ click/ at/ the/ available/ to/ people/ before/ information/ books/
about /for/ libraries/ visit/ to/ needed/ people/ while.

27. Rewrite the following passage underlining the determinatives, quantifiers and possessives in it:

It was at least two weeks ago that Abhishek and Aditya witnessed the robbery. Most people were at the temple festival. Their houses were thus empty. Several cars were parked nearby. The road was dark, only few lights shone. Abhishek and Aditya were waiting for an auto to take both of them back home. A bike stopped some distance away from them.

28. Fill in the blanks using articles: Write (X) in case of no article:

(a) Young unpublished author couldn't really hope for anything much after being turned down twelve times.

(b) But Sorcerer's Stone hit shelves on July 26, 1997, to immediate success.

(c) Overnight, Rowling was catapulted from her small apartment in Edinburgh to worldwide recognition.

(d) With the success, came fame, which exposed Rowling to new chaos that she hadn't been prepared for.

29. Rewrite the passage correcting all the errors.

The city of Teotihuacán, which laid about 50 kilometres northeast of modern-day Mexico City, begun its growth by 200 – 100 B.C. At its height, between about A.D. 150 and 700, it probably has a population of more than 125,000 peoples and covered at least 20 square kilometres. It has over 2,000 apartment complexes, a great market, the large number of industrial workshops, an administrative centre, a number of massive religious edifices, and a regular grid pattern of streets and buildings. Clearly, many planning and central control were involved in the expansion and ordering of this great metropolis. Moreover, the city has economic and perhaps religious contacts with most parts of Mesoamerica.

30. Prepare a questionnaire to assess how students view their college life.
31. Write a dialogue between a professor and a student on how to improve his/her grades in the coming examination.

(6 × 4 = 24 Marks)

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

32. Expand the proverb "Every cloud has a silver lining" in about two to three pages.
33. Write a short essay on "Social Consciousness in an Increasingly Selfish Universe".
34. Write a report on the recently concluded Literary Fest in your college.
35. Based on the outline given below, construct a story:

Travelling by train — crowded — mother and two children — child crying — no place to sit — you ask passengers to give up seat — refuse — find the ticket examiner — people without tickets hurriedly get out — women and children get seat — thank you — you feel proud.

(2 × 15 = 30 Marks)

Reg. No. :

Name :

Second Semester B.Sc. Degree Examination, May 2020

Career Related First Degree Programme under CBCSS

Physics with Computer Applications

Core Course

PC 1241 — ENVIRONMENTAL STUDIES

(2015 Admission onwards)

Time : 3 Hours

Max. Marks : 80

1. Answer all questions (in one or two words or sentences. Each question carries 1 mark.
1. What is geothermal energy?
 2. What are aquifers?
 3. Name two tribal groups of Kerala.
 4. Explain law of 10% in ecological terms.
 5. What is poaching of wildlife?
 6. Pyramid of Biomass.
 7. Define HIV.
 8. Define an ecosystem.
 9. What is overgrazing?
 10. Define a climax community.

(10 × 1 = 10 Marks)

P.T.O.

II. Answer **any eight** questions. Each question carries **2** mark. Answer can be written briefly in **1** or **2** paragraphs.

11. Write a note on 'Human Rights'.
12. Briefly explain the formation of acid rain.
13. Attempt on the consequences of thermal pollution.
14. 'India as a mega diversity nation' – Explain.
15. Briefly discuss the conflicts over water in South India.
16. Differentiate Food Chain with Food Web.
17. List out the producers, consumers and decomposers associated with a grassland ecosystem.
18. Explain endemism citing examples.
19. List out the measures to control soil erosion.
20. Write a note on disaster preparedness related to cyclone.
21. Briefly explain Environment Protection Act.
22. List out the reasons for man-wildlife conflicts.

(8 × 2 = 16 Marks)

III. Answer **any six** questions. Each question carries **4** marks. Answer should be written as short essays.

23. List out the environmental impacts of mining in forest ecosystem.
24. Differentiate genetic, species and ecosystem diversity.
25. Define a watershed. How can they be managed.
26. Add a note on population growth in India.

27. Briefly explain the causes and consequences of global warming.
28. Write a note on the Mineral Resources of Kerala.
29. Write a brief account of land slides and reasons of its formation.
30. What are the environmental issues associated with modern agricultural practices?
31. Briefly explain the values of Biodiversity.

(6 × 4 = 24 Marks)

IV. Answer **any two** questions. **Each** question carries **15** marks. Answer should be attempted as long essays.

32. Write an essay on the energy resources of India. Comment on the scope of renewable energy sources.
33. Explain solid waste management citing various technologies involved.
34. Write an essay on the causes, effects and control measures of air pollution.
35. Write an essay on In situ conservation of Biodiversity.

(2 × 15 = 30 Marks)

(Pages : 3)

J – 2839

Reg. No. :

Name :

Second Semester B.Sc. Degree Examination, May 2020

Career Related First Degree Programme Under CBCSS

Group 2 (a) – Physics with Computer Applications

Foundation Course

PC 1221 – INTRODUCTION TO PROGRAMMING

(2018 Admission onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer all questions in one or two sentences.

1. What is algorithm?
2. Mention the range of the data type 'Unsigned char'.
3. Why do you use modulo division operator?
4. Discuss the use of scanf () function.
5. What is an array?
6. What are escape sequences?
7. Discuss call-by-value.
8. What is the use of indication operator(*) in C programming?

P.T.O.

9. What is the use of free() function in C programming?
10. Define array of pointers.

(10 × 1 = 10 Marks)

SECTION – B

Answer any eight questions not exceeding a paragraph 50 words.

11. What is the use of constants in C language?
12. Explain header files.
13. Discuss top down design approach.
14. Explain the importance of continue statement in C.
15. Discuss unformatted I/O function?
16. Discuss for loops in C programming.
17. Write a short note on return statements.
18. Differentiate actual arguments and formal arguments.
19. Explain the function realloc().
20. What are the possible arithmetic operations with pointers?
21. Describe the syntax of a union.
22. What are binary files?

(8 × 2 = 16 Marks)

SECTION – C

Answer any six questions, in a page of 100 words.

23. Draw a flowchart to find the first N even numbers.
24. Elaborate different sections of a C program.

25. List the rules for naming identifiers.
26. Differentiate getchar() and putchar() functions.
27. List the rules for using recursive functions.
28. Write a C program to display all the elements of an array using pointer.
29. How to declare a structure? Give example.
30. Explain different file operations.
31. What is the use of fseek() function? Explain its syntax.

(6 × 4 = 24 Marks)

SECTION – D

Answer any two questions, not exceeding 4 pages.

32. Discuss in detail different storage classes used in C programming.
33. Explain the relational operators and logical operators in detail. Also give suitable examples of each.
34. What are user defined functions? How will you define a user defined function? Give a sample program to illustrate the use of user defined function.
35. Discuss different string handling functions in detail. Give examples.

(2 × 15 = 30 Marks)