

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Degree Examination, November 2025

MPH1C01 - Classical Mechanics

(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

PART A (Short answer questions)*Answer all questions. Each question carries a weight of 1*

1. Write a note on Holonomic and Non-Holonomic constraints with example of each type.
2. State and explain Virial theorem.
3. What are normal coordinates and normal frequencies related to the theory of small oscillations?
4. Show that the phase trajectory for a linear harmonic oscillator is an ellipse.
5. What are fictitious forces? What are the effects of Coriolis force due to earth's rotation?
6. What is variational principle?. Obtain Hamilton's equation from variational principle
7. Show that finite rotations or angular displacements cannot be represented as vector quantities.
8. Comment on the statement, 'Hamilton Jacobi equation is the shortest wavelength limit of Schrodinger equation'.

(8x1=8)

PART B (Essay Question)*Answer any two. Each question carries weight of 5*

9. Solve the problem of the linear harmonic oscillator using action-angle variables. Cite the circumstances where Hamilton Jacobi theory is more useful.
10. State and prove Hamilton's Principle. Derive the Lagrangian for a charged particle moving in an electromagnetic field
11. Discuss the free vibrations of a carbon di oxide molecule and obtain the normal modes and normal frequencies.
12. Discuss the force free motion of a symmetrical top for which $I_1=I_2$. Obtain an expression of frequency of precession about the axis of symmet

(2x5=10)

PART C (Problem questions)

Answer any four. Each question carries weight of 3

13. For what value of α and β ,
 $Q = q^\alpha \cos \beta p$ and $P = q^\alpha \sin \beta p$ equations represent a canonical transformation. Also find the generator of the transformation
14. Discuss the scattering of α -particles under a central force field and hence obtain the expression for Rutherford scattering cross section.
15. Find the path on which an object in the absence of friction, will slide from one given point to another in the shortest possible time under the effect of gravity
16. A simple pendulum that is free to swing the entire solid angle is called a spherical pendulum. Find the differential equation of motion of a spherical pendulum using Lagrange's method. Also show that the angular momentum about a vertical axis through the point of support is a constant of motion.
17. A particle describes a circular orbit given by $r = 2a \cos \theta$ under the influence of an attractive central force directed towards a point on the circle. Show that the force varies as the inverse fifth power of the distance.
18. The Lagrangian of a system is given below. Find the eigen frequencies and eigen vectors of the system using the theory of small oscillation.

$$L = \frac{1}{2} m (\dot{x}_1^2 + \dot{x}_2^2) - \frac{1}{2} [(k + k_1)x_1^2 + (k + k_1)x_2^2] + k_1 x_1 x_2$$

19. Discuss the iteration of logistic equation $x_{n+1} = ax_n(1 - x_n)$, where $0 \leq x_n \leq 1$ and $1 \leq a \leq 4$, find the fixed point attractors and onset of chaos through period doubling.

(4x3=12)

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(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester Integrated M.Sc Geology Degree Examination, November 2025

BEN1A01 – Litmosphere : The world of Literature

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

Part A**I Answer the following questions in two or three sentences each (2 marks each)**

1. What image of himself does Flaubert present in Memoirs to his readers?
2. Who are the three passengers in the tram who were chosen as her characters by Agatha Christie?
3. What is the purpose of Dalit literature according to Sharankumar Limbale?
4. What was the fate of the customer who complained about a cockroach in his salad?
5. How did Josiah Amberley distract the investigation?
6. How does Limbale define Dalit literature?
7. Why does Louis MacNeice call the birds of posterity “wingless birds”?
8. How does the poem *The Thought Fox* end?
9. How was Purl received by the other members in the firm on her first day?
10. What piece of advice does Mahfouz's father offer him when he hesitated to join school?
11. What does the bride refuse in the poem *The Sleeping Fool*?
12. Who are the people really interested in poetry according to Marianne Moore?

(Ceiling 20 marks)

Part B

II Answer the following questions in a paragraph: Each question carries 5 marks

13. Limbale's concept of Dalit aesthetics.
14. Feminist identity in the movie *Purl*.
15. How is Flaubert planning to write a book?
16. How does Holmes arrive at the conclusion that Amberley was the murderer?
17. How does Ted Hughes establish the connection between the process of creative writing and the image of a fox moving in a dense jungle?
18. How does the story *Half a Day* present the themes of transience of life and passage of time?
19. What are the feminist aspects discussed in the poem *The Sleeping Fool*?

(Ceiling 30 marks)

Part C

III Write an essay on one of the following in about 200 words

20. How does Justice Ameer portray the agony of the transgender in the poem *Body Without the "d"*
21. *The Cockroach* is a satire on democracy. Discuss.

(1x10=10 marks)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Degree Examination, November 2025

MPH1C02 - Mathematical Physics – 1

(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

Section A(Answer *all* questions. Each carries weightage of 1)

1. What is meant by of curvilinear co-ordinate system ? Obtain the scale factors in spherical polar coordinates
2. Define Dirac delta function and give its properties
3. With suitable examples, differentiate between Pseudo tensors and dual tensors.
4. What is meant by eigen values and eigen functions of a differential equation. Obtain the eigen function of simple harmonic system
5. Explain the convolution theorem of Fourier transform.
6. State Dirichlet's conditions for the existence of a Fourier series
7. Define Levi-Civita symbol. List out its properties
8. What is the Poisson distribution? Give an example of its application in physics

(8x1=8)

Section B(Answer *any two* questions. Each carries weightage of 5)

9. Explain Frobenius method to solve second order homogenous differential equation. Find out the solution of linear oscillator equation using this method.
10. Derive expression for differential operators in general curvilinear co-ordinate system. Hence deduce them in cylindrical co-ordinate system.
11. Write down the generating function for Bessel functions of first kind and obtain their orthogonality relations
12. List out the properties of Fourier transforms. How are they related to Laplace transforms?

(2x5=10)

Section C

(Answer any four questions. Each carries weightage of 3)

13. Evaluate $\Gamma(\frac{5}{2})$
14. Write down the probability density function of a continuous random variable.
Explain with one example.
15. Find the Fourier series of the function $f(x) = x^3$ in the interval $-\pi < x < \pi$
16. Using Rodrigue's formula, evaluate $P_2(x), P_3(x)$
17. Using Laplace transform, solve the differential equation $\frac{dy}{dx} + 3y = x, y(0) = 0$
18. Verify the Recurrence relation, $J_{n-1}(x) + J_{n+1}(x) = \frac{2n}{x} J_n(x)$
19. Diagonalize the given matrix:

$$A = \begin{bmatrix} 4 & -3 & 0 \\ 2 & -1 & 0 \\ 1 & -1 & 1 \end{bmatrix}$$

(4x3=12)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester Integrated M.Sc Geology Degree Examination, November 2025

BEN1A02 – Functional Grammar and Communication in English
(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

Section A**Do as directed (2 marks each)**

- Rearrange the words into meaningful sentences.
crew / the / Irfana/a/story / told
- Choose the correct subject-verb combination in the sentence below.
Here (is/are) the chocolates.
- Which of the following is an imperative sentence?
a) Are you going abroad? b) How well she sings!
c) I love reading books. d) Do your homework.
- Combine the following pair of simple sentences into a complex sentence:
You will succeed. You must work hard.
- Identify the missing prepositions.
a) She has a great passion __ music. (for/of)
b) Please divide the sweets __ all the children. (between/among)
- Fill in the blank with the correct future tense form:
This time next week, I _____ (relax) on a beach in Goa.
- That was the most useful _____ of advice I have ever received. (Choose the correct collocation)
a) bunch b) bar
c) piece d) slice
- He hopes to join (a/an) university soon.
(Identify the correct article)
- Convert to indirect speech:
"Where did you leave the keys?" my mother asked me.
- Transform the following positive sentence into a negative.
He always takes the bus to work.
- Choose the appropriate connectives:
a) I like both tea (and/or) coffee.
b) We waited (since/until) the bus finally arrived.

12. Identify the missing prepositions.

a) She has lived in Mumbai _____ 2010. (for/ since/ from/ by)

b) The conference will start _____ 9:00 AM. (for/ in/ on/ at)

(Ceiling – 20 Marks)

Section B

Answer the following (5 marks)

13. Punctuate the following sentences.

a. can you help me

b. my favourite colours are blue green and red

c. marys sister is a doctor

d. help i am falling

e. the teacher asked are you listening

14. Define 'sentence' and prepare a short note on the four types of sentences.

15. How is formal communication different from informal communication?

16. You are the Manager of "QuickBite Cafe." Write a memo to all staff announcing a change in the weekly holiday from Sunday to Monday, starting from the next month.

17. Write a review of a comedy movie you saw recently. Was the humor effective and consistent throughout the film? Discuss the comedic timing of the lead actors and whether the jokes felt fresh or repetitive.

18. You are a second-year B.A. Arabic student at Farook College. Write an email to the faculty coordinator of the newsletter, *Oasis*, expressing your interest in contributing an article or poem for the next edition

19. You want to apply for an MSc in Clinical Psychology at the University of Edinburgh. Write an SOP discussing your academic preparation, your understanding of the field, and your reasons for wanting to study in the UK.

(Ceiling – 30 Marks)

Section C

Answer any *one* of the following. (10 marks)

20. Organize a Group Discussion and report on the topic: "AI: A Job Creator or a Job Destroyer?"

21. Mathrubhumi is looking for a journalist trainee for their online portal. Draft a detailed CV and a covering letter.

(1X10=10 marks)

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Degree Examination, November 2025

MPH1C03 - Electrodynamics & Plasma Physics

(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

Section A

Answer all questions, each question carry weightage 1.

1. What are the boundary conditions at the interface between a dielectric and a perfect conductor?
2. What is complex permittivity? What is its physical significance?
3. A current carrying conductor which is neutral in a rest frame S, carries a net negative charge in a frame which is moving with a velocity v with respect to rest frame. Explain?
4. How can you produce a positive circularly polarized electromagnetic wave?
5. What is Larmor Radius?
6. What are plasma oscillations? Get an expression for plasma frequency?
7. What are cavity resonators? Define the quality factor of a cavity resonator.
8. A waveguide exhibits the property of a high pass filter. Explain?

(8X1=8 weightage)

Section B

Answer any two questions, each carry weightage 5

9. Derive Boltzmann and Vlasov equations. Also get the moments of Boltzmann equation.
10. What are four potentials? Write down the relation between field tensor and four potential and hence obtain the De Alembertian equation. Also show that De Alembertian equations are relativistic form of non-homogenous wave equations.
11. Discuss the reflection and transmission of EM waves with parallel polarization at oblique incidence at a plane dielectric boundary.
12. Derive the time harmonic transmission line equations for a general lossy medium? Write the corresponding solutions.

(2X5=10 weightage)

Section C
Answer any Four questions, each carry weightage 3

13. Get the solutions of wave non homogenous wave equation for scalar and vector potentials.
14. Get the multipole expansion of V in powers of $1/r$.
15. Show that $\mathbf{E}^2 - c^2 \mathbf{B}^2$ is relativistically invariant.
16. Prove that the symmetry of a tensor is preserved by Lorentz transformation.
17. With the help of Poynting vector, find the instantaneous and average power density in a propagating wave.
18. A rectangular wave guide has breadth 10 cm. Find the wavelength for a signal of frequency 2.5 GHz for a dominant mode.
19. The dispersion relation for a low-density plasma is given $\omega^2 = \omega_0^2 + c^2 k^2$, where k is the wave vector and ω_0 the plasma frequency. Obtain a relation between group velocity and phase velocity of the plasma.

(4X3= 12 weightage)

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Degree Examination, November 2025

MPH1C04 – Electronics

(2022 Admission onwards)

Time: 3 hours

Max. Weightage : 30

Section A**(Answer all questions, each carry weightage 1)**

1. Define pinch-off voltage in a JFET.
2. How does a JFET act as a voltage-variable resistor?
3. What is the basic principle of operation of a tunnel diode?
4. Define fill factor (FF) for a solar cell.
5. Define open-loop gain.
6. What is the purpose of lead compensation?
7. What is the main purpose of a notch filter?
8. How many bits can a 4-bit shift register store?

(1x8 =8 weightage)**Section B****(Answer ANY TWO questions, each carry weightage 5)**

9. Explain the construction and operation of a JFET (Junction Field Effect Transistor).
10. Compare the working principles of a photoconductor (LDR) and a photodiode. Explain the operation of a p-n junction solar cell, and define short-circuit current, fill factor, and efficiency.
11. Explain the need for frequency compensation in op-amps. Discuss the concept of a dominant pole and its role in stabilizing the amplifier.
12. Compare active filters and passive filters implemented with OPAMPs in terms of gain, selectivity, and practical limitations.

(2x5 =10 weightage)

Section C
(Answer ANY FOUR questions, each carry weightage 3)

13. A MOSFET has a drain-circuit resistance R_d of 100 K and operates at 20kHz. Calculate the voltage gain of this device as a single stage, and then as the first transistor in a cascade amplifier consisting of two identical stages. The MOSFET parameters are $g_m = 1.6 \text{ mA/V}$, $r_d = 44 \text{ K}$, $C_{gs} = 3.0 \text{ pF}$, $C_{ds} = 1.0 \text{ pF}$, and $C_{gd} = 2.8 \text{ pF}$.
14. (a) Sketch the cross-section of a p-channel enhancement MOSFET
(b) Show two circuit symbols of this MOSFET.
15. A tunnel diode has a peak current $I_p = 20 \text{ mA}$ at a voltage $V_p = 0.07 \text{ V}$, and a valley current $I_v = 4 \text{ mA}$ at $V_v = 0.35 \text{ V}$.
(a) Calculate the negative differential resistance R_N between the peak and valley points.
(b) Explain briefly how this negative resistance region enables oscillation or amplification in a circuit.
16. A silicon solar cell under illumination provides, Open-circuit voltage $V_{oc} = 0.6 \text{ V}$, Short-circuit current $I_{sc} = 40 \text{ mA}$, Maximum power point $V_m = 0.45 \text{ V}$, $I_m = 35 \text{ mA}$.
If the incident light power is 100 mW/cm^2 , calculate:
(a) The fill factor (FF)
(b) The efficiency (η) of the solar cell.
17. Design a low-pass filter at a cutoff frequency of 1 kHz with a passband gain of 2.
18. For a monostable multivibrator with $R = 100 \text{ k}\Omega$ and $C = 10 \text{ }\mu\text{F}$, calculate the pulse width.
19. Draw the truth table of a JK flip-flop and explain the toggle condition.

(4x3 = 12 weightage)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester Integrated M.Sc Geology Degree Examination, November 2025

BHN1A07(3) – Prose & One Act Plays

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

Part A

1. निम्न लिखित प्रश्नों में से किन्हीं प्रश्नों के उत्तर लिखिए। प्रत्येक प्रश्न का अंक 2 है। आपको अधिकतम 25 अंक मिल सकते हैं।

- 1 विष्णु प्रभाकर जी की किन्हीं दो रचनाओं के नाम लिखिए।
- 2 “विदाई तभी होगी जब पाँच हजार रुपये नकद इस हाथ पर रख दोगे।” कौन किससे कहते हैं?
- 3 चकोरी झुँझलाकर घुँघरू उतारकर क्यों फेंक देती है?
- 4 प्रोफेसर पांडुरंग किस एकांकी का पात्र है?
- 5 डॉ.कौशिक भावनानगर क्यों जाते हैं?
- 6 सुभानखाँ को संसार में सबसे प्यारी चीजें क्या थीं?
- 7 शरशय्या में भीष्म को तकिया कैसे मिली?
- 8 ‘जान से प्यारे’ एकांकी का संदेश क्या है?
- 9 किसान कौन-सी समस्या लेकर परमानंद के पास आता है?
- 10 जीवनलाल ने बहु की विदा करने को क्यों इनकार कर दिया?
- 11 दूध माँगनेवाले बच्चे को द्रोणाचार्य की पत्नी ने कैसे फुसलाया था?
- 12 चकोरी किस प्रकार चाय बनाती थी?
- 13 मृतकों को ज़िन्दा करने की दवा का आविष्कार कैसे किया गया?
- 14 त्रिशंकु को इन्द्र ने क्यों ठुकरा दिया?
- 15 वैद्यजी ने अपने अध्यापन पर क्या दावा किया था?

(Ceiling: 25 Marks)

Part B

II निम्न लिखित प्रश्नों में से किन्हीं प्रश्नों के उत्तर लिखिए। प्रत्येक प्रश्न का अंक 5 है।
आपको अधिकतम 35 अंक मिल सकते हैं।

- 16 जीवनलाल का चरित्र-चित्रण कीजिए।
- 17 "इसके बदले में आपसे कौड़ी भी न लूँगा। इसकी कामयाबी ही इसकी कीमत है।"
(सप्रसंग व्याख्या कीजिए)
- 18 'त्रिशंकु बेचारा' में अभिव्यक्त व्यंग्य समझाइए।
- 19 "देखिए आपके लड़के को कोई बीमारी नहीं है आप परमानंद की बातों में मत आइए।"
(सप्रसंग व्याख्या कीजिए)
- 20 "बड़ी भोली हैं आप! शास्त्रों में लिखा है कि पत्नी को पति की आज्ञा का पालन करना चाहिए।" (संदर्भ सहित भाव व्यक्त कीजिए)
- 21 "धरती पर अबाध गति से शरीर की ऐनोटोमी की परीक्षा होती है। गांधी की यह गतिमय प्रतिमा, सब कुछ को मौन देखती रहती है।" (व्याख्या कीजिए)
- 22 प्रमोद का चरित्र-चित्रण कीजिए।
- 23 कलकत्ता नगर को आन्दोलनों का नगर क्यों कहा गया है?

(Ceiling : 35 Marks)

Part C

III निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लिखिए। प्रत्येक प्रश्न का अंक 10 है।

- 24 'भीष्म को क्षमा नहीं किया गया'-इस पाठ के मुख्य विचारों पर प्रकाश डालिए।
- 25 'बहु की विदा' का सारांश लिखकर उसमें चित्रित सामाजिक मुद्दों पर अपना विचार स्पष्ट कीजिए।
- 26 'जान से प्यारे' एकांकी मानवीय संवेदन शून्यता पर तीखा प्रहार है -सारांश लिखकर इस कथन का विश्लेषण कीजिए।
- 27 'सुआनखाँ' कहानी का सारांश लिखकर उसकी विशेषताओं पर प्रकाश डालिए।

(2 x 10 = 20 Marks)

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(Pages : 3)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Integrated Geology Degree Examination, November 2025

BML1A07(3) - Malayala Bashayum Sahithyavum - 1

(2022 Admission onwards)

Time : 2 ½ hours

Max. Marks : 80

Section A

രണ്ടോമൂന്നോവാക്യത്തിൽ ഉത്തരമെഴുതുക.രണ്ടുമാർക്കുവീതം, പരമാവധി 25 മാർക്ക്)

1. “എല്ലാം നിസ്സാരമായികാണുന്നവർക്ക് ഇതും ഒരു തമാശയായിത്തീരാനാം”- ഏത് കാര്യത്തെക്കുറിച്ചാണ് ഇവിടെസൂചിപ്പിക്കുന്നത്?
2. “ഞങ്ങളുടെരീതികൾ നിങ്ങളുടേതിൽനിന്നുംവ്യത്യസ്തമാണ്.” സിയാറ്റിൻ മൂപ്പൻ സൂചിപ്പിക്കുന്നതെന്ത്?
3. വെളുത്ത മനുഷ്യരും ചുവന്ന മനുഷ്യരും തമ്മിലുള്ള വ്യത്യാസത്തെക്കുറിച്ച് സിയാറ്റിൻ മൂപ്പന്റെ നിരീക്ഷണമെന്ത്?
4. “ഭൂമി മനുഷ്യന്റേതല്ല; മനുഷ്യൻ ഭൂമിയുടേതാണ്.” ഈ വാക്കുകൾ എന്ത് സന്ദേശമാണ് നൽകുന്നത്?
5. “അസുഖകരമായ വാർത്തകൾ കൂടുതൽ കേട്ടേക്കുമെന്ന ഭീതിയിൽ മകൻ വടക്കുവശത്തെ ജനവാതിൽ വലിച്ചടച്ചു.” സാഹചര്യമെന്ത്?
6. “അച്ഛനെ മനസ്സിലാക്കാൻ ഡോക്ടർക്ക് കഴിഞ്ഞിരിക്കുന്നു.” മകൻ ഇങ്ങനെ കരുതാൻ കാരണമെന്ത്?
7. “ഒരു പെണ്ണിനു വേണ്ടി മതം മാറുന്നത് അടിമത്തത്തിന് വഴിവെക്കുകയാവും എന്ന വിഡ്ഢിത്തം എനിക്ക്തോന്നിയിരുന്നു.” സൂചിതമെന്ത്?
8. “ഏതായാലും ഇമ്മാതിരി കഴുതകൾ മരിക്കുന്നതാണ് നല്ലത്.” സന്ദർഭംഎഴുതുക.
9. അമ്മയെ കാണാതെ നടാലിമഠത്തിലേക്ക് മടങ്ങാൻ കാരണമെന്ത്?
10. “നമുക്കൊന്നുകൂടി തട്ടാനെക്കൊണ്ട് കൂത്തിക്കാം.” സന്ദർഭമേത് ?
11. “ഇതുവരെ ഞാൻ കുടിച്ച വിഷമതിലമൃതാകാ-
നൊരു നീലക്കഴൽകാത്തു പുളയുവോളം.” - കവിത പങ്കുവെയ്ക്കുന്ന ആശയതലം ചർച്ച ചെയ്യുക.

12. എസ്.കെ.യുടെ പാസ്‌പോർട്ട് കണ്ട ഇംഗ്ലീഷുകാരന്റെ പ്രതികരണം എന്തായിരുന്നു?
13. “ചരിതാർത്ഥനായ ധ്യാനനിരതനായ വാഴ്കയാ-
മിരുപതു നൂറ്റാണ്ടായ്മുനിയിവിടെ.”
ആരെക്കുറിച്ചാണ് ഈ വരികളിൽ സൂചിപ്പിക്കുന്നത്?
14. “ജനിച്ചിട്ടേയില്ലാത്തതിന് തുല്യം
അവരുടെജന്മം.” - പൊരുളെന്ത് ?
- 15 'പല പോസിലുള്ള ഫോട്ടോകൾ' എന്ന കവിതയുടെ പ്രമേയം സംഗ്രഹിച്ചെഴുതുക

Section B

നൂറുവാക്കിൽ കവിയാതെ ഉത്തരമെഴുതുക. 5 രണ്ടുമാർക്കുപിതം , പരമാവധി 35 മാർക്ക്)

16. കിഴക്കേ അമേരിക്കയിലെ ഇന്ത്യൻജീവിതങ്ങളെ എസ്കെ അടയാളപ്പെടുത്തുന്നതെങ്ങനെ?
17. “മറ്റുള്ളവരുടെ വേദന എന്തെന്ന് നീ അറിഞ്ഞിട്ടുണ്ടോ ?” അച്ഛൻ ഇങ്ങനെ ചോദിക്കാൻ കാരണമെന്ത്?
18. നടാലിയ കന്യാസ്ത്രീമഠത്തിൽ നിന്ന് പോരാനുള്ള കാരണമെന്ത്?
19. “ഞാനും ആ വിഡ്ഢിത്തം കാട്ടുമെന്നാണ് എനിക്കു തോന്നുന്നത്.” ഇങ്ങനെ പറഞ്ഞതാര് ? സൂചിതമെന്ത് ?
20. “ഞാൻ പറയുന്നതെല്ലാം ഒരു പ്രേരണയാകുമെന്നു വിചാരിച്ചാണ് അത്രയൊന്നും വലുതല്ലെങ്കിലും എന്റെ ജീവിതകഥ പറയാനൊരുങ്ങിയത്” - പൊക്കുടന്റെ ജീവിതം നമുക്കു നൽകുന്ന സന്ദേശമെന്ത്?
21. “ഒന്നിനെത്തന്നെ നോക്കിയിരിക്കുമ്പോൾ
അനേകരായ പൊട്ടിപ്പിരിയുന്നു.”
-വരികളുടെ അർത്ഥവും സന്ദർഭവും വ്യക്തമാക്കുക.
22. “ഇടയുള്ളോർവാദിപ്പിൻ മാർഗ്ഗവും ലക്ഷ്യവും-
മിടറിയോ ഞാനെന്നു തലചായ്ക്കട്ടെ!”
സന്ദർഭവും ആശയവും വിവരിക്കുക.

23. “തരികെന്റെ ചിലങ്കകൾ
മുഖപടം മാറ്റി ഞാനാ -
ത്തെരുവിലേക്കിറങ്ങട്ടെ
വെയിലിനൊപ്പം.”-ആശയം വ്യക്തമാക്കുക.

Section C

രണ്ടു ചോദ്യത്തിന് 300 വാക്കിൽ കവിയാതെ ഉത്തരം എഴുതുക. (10x2 = 20 മാർക്ക്)

24. കേരളത്തിന്റെ സവിശേഷ സാഹചര്യത്തിൽ അതിജീവനത്തിന്റെ പ്രസക്തിയെക്കുറിച്ച് ഉപന്യസിക്കുക.
25. പൗരോഹിത്യവും മതബോധങ്ങളും വ്യക്തി ജീവിതത്തിൽ ഇടപെടുന്നതിനെക്കുറിച്ച് ‘കക്കുകളി’ എന്ന കഥ വിലയിരുത്തുന്നതെങ്ങനെ?
26. “ലോക ജീവിതത്തിന്റെ സഞ്ചാരവഴികളെ മലയാളികൾ പരിചയപ്പെടുന്നത് എസ്.കെ പൊറ്റെക്കാട്ടിലൂടെയാണ്.” ഈ പ്രസ്താവനയെ മുൻനിർത്തി കാപ്പിരികളുടെ നാട്ടിൽ എന്ന കൃതിയെ വിലയിരുത്തുക.
27. “മനുഷ്യനിലുള്ള വിശ്വാസവും ജീവിതത്തോടുള്ള അഭിനിവേശവും കുടിയാണ് ഇടശ്ശേരിയെ ശക്തിയുടെ കവിയാക്കുന്നത്” ‘ബുദ്ധനും ഞാനും നരിയും’ എന്ന കവിതയെ മുൻനിർത്തി വിശകലനം ചെയ്യുക.

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Integrated Geology Degree Examination, November 2025

CHE11C01 – General Chemistry

(2023 Admission onwards)

Time: 2 hours

Max. Marks : 60

Section A (Short answers)

(Answer questions up to 20 marks. Each question carries 2 marks)

1. What is primary standard in volumetric analysis. Give one example.
2. How many molecules are present in 11 g of CO_2 ?
3. Write any two advantages of double burette method
4. Explain Hund's rule of maximum multiplicity with an example.
5. Write the de Broglie equation and mention what each term represents.
6. Predict the shape of NH_4^+ on the basis of VSEPR theory?
7. Why are fusion reactions are called thermonuclear reactions?
8. What is meant by the n/p ratio?
9. Define radiotherapy.
10. Name two Zinc containing enzymes.
11. Name a vitamin known to contain metal. What is the metal?
12. What are referred to as trace metal ions in biochemistry. Give two examples.

[Ceiling of marks: 20]

Section B (Paragraph)

(Answer questions up to 30 marks. Each question carries 5 marks)

13. Explain the term micro analysis and explain its advantages.
14. Give a brief account of using potassium permanganate in titrimetry.
15. Explain the shape of SF_6 using hybridization
16. Give the important postulates of Bohr's atomic theory.
17. Briefly outline the role of haemoglobin in the transport of oxygen and carbon dioxide
18. Explain the structure and mechanism of action of Na-K pump.
19. $^{14}\text{C}/^{12}\text{C}$ ratio in a piece of wood is 12% that of atmosphere. Calculate the age of wood.
Half-life of ^{14}C =5760 years.

[Ceiling of marks: 30]

Section C (Essay)

(Answer any one. Each question carries 10 marks)

20. Describe how solubility product principle and common ion effect are applied in qualitative inorganic analysis.
21. Draw the molecular orbital diagram of Nitrogen molecule. Calculate the bond order and magnetic behavior

[1 X 10= 10]

2M1N25296

(Pages : 3)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester Integrated M.Sc Geology Degree Examination, November 2025

BAR1A07(3) – Basic Skills in Arabic

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

Section A

Answer the following Questions

Each Question Carries **Two Marks** Ceiling 25 Marks

أجب حسب الإرشادات

1. أكمل الفراغ:

ا. من منكم اليوم؟

ب. أفضل اللون

ت. إنها نتائج

ث. أريد تحويل هذا

2. املأ الفراغ بالكلمات المناسبة

ا. تعال الشباك المدفوعات (على, من, إلى)

ب. الحافلة ركبتيها تعطلت في الطريق (على, التي, تلك)

ت. رقم حسابك ؟ (هل, كيف, كم)

ث. أصابك ؟ (ماذا, من, كيف)

3. أكمل الفراغ بما يناسب من أسلوب الحوار

ا. ؟ أريد أدوية.

ب. ؟ يكفي هذا.

ج. هل لك حساب في هذا البنك ؟

د. إلى أين تذهب ؟

4. استعمل في الجمل

(أ) اختلف (ب) بالإشارة إلى

5. ترجم الكلمات التالية إلى الإنجليزية

(أ) تنزيلات (ب) مدير المبيعات

6. عرب الكلمات التالية

Yours Sincerely (ب) Keynote Address (أ)

7. اكتب الجمع : (أ) تجربة (ب) دولة

8. اكتب المفرد: (أ) مرضى (ب) اختيارات

9. هات الضد : (أ) قادم (ب) قريب

10. حول إلى المؤنث

(أ) كتب التلميذ التمرينات 2. علم المحاضر الدرس

أجب بجملة أو جملتين

11. أذكر "قلة المال" من نوار العربية؟

12. كم مقلص قميصك؟

13. " لا تياس، وأن تتوقع الخير في مستقبلك. لا تقل إنك لست نابعة." من قال ؟ لمن؟

14. ما هي المتعة في السفر البحري؟

15. ما هي خير وسيلة للنجاح كما ورد في "اصنع حياتك"؟

Section B

Answer the following Questions

Each Question Carries Five Marks Ceiling 35 Marks

16. صل بين العبارات التالية:

Supervisor	(A) عيادة
Injection	(B) تطعيم
Clinic	(C) الكبسولة
Capsule	(D) الحقنة
Vaccination	(E) مشرق

17. أعد إعلانا مناسباً لعقد المسابقات للطلاب في كليتك ؟ أو

أعد أعد بيانات شخصيتك ؟

18. هات أسئلة للأجوبة الآتية

(ج) أريد المستشفى الحكومي

(د) أريد فتح حساب في البنك الدولي.

(أ) تناولت الفطور من بيتي.

(ب) نعم، انتهى امتحان النهائي

19. أكمل الحوار الآتي:

أصابني الحمى

.....

.....

هي غائبة اليوم .

.....

أين الصيدلية ؟

من أين أنت قادم؟

.....

20. كون سؤالا بالآتية

- (أ) من
(ب) أين
(ج) كم
(د) إلى
(هـ) متى

21. رتب الكلمات الآتية

- ا. في الطريق / تعطلت / التي / الحافلة / ركبتنا.
ب. في الكلية / ملئني / توعيتهم / سيعقد / يوم الخميس / للطلاب / القادم / يهدف / بالشؤون القانونية.
ج. الصيدلية / عن / بعيد / المستشفى / هل ؟
د. القانونية / الخدمات / هيئة / المديرية.

22. ترجم إلى العربية

- (أ) Showroom
(ب) Diagnosing
(ج) Samples
(د) Coffee Colour
(هـ) Endoscopy

23. ترجم إلى الإنجليزية

- (أ) عنوان المراسلة
(ب) لا أصلح ما أفصده الله
(ث) جدول أعمال البرنامج
(ث) دفتر الشيكات
(ج) حساب التوفير.

Section C

Answer Any Two of the following Questions
Each Question Carries Ten Marks (2x10 = 20 Marks)

اكتب مقالة في العربية عن اثنين من الآتية

- 24 أعد حوارا يجري بينك وبين موظف الإستقبال في الفندق.
25 أنت تزور كلية الطب بكلكوت أذكر ما هي التسهيلات الطبية الموجودة هناك .
26 أكتب خلاصة اصنع حياتك لأحمد أمين.
27 أكتب حوارا بين طالب وأستاذه.

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Integrated Geology Degree Examination, November 2025

GLO11B01- EARTH AND ENVIRONMENT

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

*(Draw neat sketches, wherever necessary)***PART A**

Answer all questions

Each question carries 2 Marks

Ceiling 20 Marks

1. Define planetesimal hypothesis
2. Distinguish between shape and density of the earth
3. Define varve chronology
4. Describe the concept of plate tectonics
5. What is meant by a mineral
6. Briefly explain about igneous rocks
7. Define a fold and its terminologies
8. What is meant by an outcrop
9. Define natural hazards with suitable examples
10. Describe the prediction of earthquakes
11. What is Strombolian volcanic eruption
12. Define the properties of Primary waves

PART B

Answer all questions

Each question carries 5 Marks

Ceiling 30 Marks

13. Discuss the view on theories of origin of planet.
14. Explain about different radiometric methods in relation to determination of age of earth.
15. Briefly explain the concept of rock cycle.

16. Discuss different physical properties of minerals.
17. Define isostasy and explain the main theories proposed to explain it.
18. Discuss the prediction and mitigation of landslide hazard.
19. Describe different types of faults.

PART C

Answer any one question
Each questions carries 10 Marks

20. Discuss the different hypothesis of views on origin of planets.
21. Explain the classification of volcano based on lava types and styles of eruption.
Describe its products and global distribution

1 × 10 = 10 Marks

1M1N25299

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Integrated Geology Degree Examination, November 2025

PHY1IC01 - Properties of Matter & Thermodynamics

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

Section A — Short Answer type**(Answer all questions in two or three sentences,
each correct answer carries a maximum of 2 marks)**

1. Small insects can walk on water surface. Why?
2. What is flexural rigidity?
3. Differentiate between Isobaric process and Isochoric process.
4. What is a Carnot's refrigerator? Define coefficient of performance.
5. Define entropy. Write its unit.
6. Explain Brownian motion. What is the important result obtained from Brownian motion?
7. What happens to the depression if the radius of the cantilever rod is doubled?
8. Differentiate between bulk modulus and Young's modulus.
9. Derive an expression for the excess pressure inside a spherical drop?
10. How does the length of the wire affect the period of a torsional pendulum?
11. What is the significance of P-V diagram?
12. How is Poisson's ratio defined in elasticity?

(Ceiling -20)

Section B — Paragraph/Problem type
(Answer all questions in a paragraph of about half a page to one page,
each correct answer carries a maximum of 5 marks)

13. An ideal refrigerator takes heat from a cold body and releases it to a hot reservoir at 300 K (room temperature). Calculate the work needed to remove 1 calorie of heat when the cold body is at:
- (a) 280 K (slightly below room temperature)
 - (b) 150 K (much colder than room temperature)
- What does this tell us about how the work required depends on the temperature of the cold body?
14. An air bubble of radius 1 cm is allowed to rise through a long cylindrical column of viscous liquid and travels at a steady rate of 0.21 cm/s. If the density of liquid is 1470 kg m^{-3} , Find the viscosity of the liquid.
15. A rod of rectangular cross section having breadth 2 cm and thickness 1 cm is bent in the form of an arc of radius 10m. Young's Modulus is 10^{11} N/m^2 . Find the stress and strain of the convex surface and Bending moment.
16. A cylindrical steel rod of length 0.8 m and radius 1.2 cm is fixed at one end and a load of 6.0 kg is applied at the free end. The depression observed at the free end is $6.20 \times 10^{-3} \text{ m}$. Determine the Young's modulus of the material.
17. State the first law of thermodynamics. How it is used to derive the Mayer's relation $C_p - C_v = R$.
18. State and prove Carnot's theorem.
19. Calculate the change in entropy when 100 gram of ice at 0 degree Celsius is converted to water at same temperature, Latent heat of ice is 80 Cal/g.

(Ceiling -30)

Section C- Essay type
(Answer any one question, each question carries 10 marks)

20. Illustrate Carnot's cycle and derive expression for efficiency of Carnot's engine.
21. Discuss Poiseuille's method for determining the coefficient of viscosity of a low viscous liquid.

(1 x 10= 10 Marks)