SEMESTER- 1

DEVA MATHA COLLEGE KURAVILANGAD

B Sc. Degree C.B.C.S Examination,

Semester-I: Complementary Course for Physics and Chemistry

MM1CMT01 : Partial Differentiation, Matrices, Trigonometry & Numerical Methods

Time: 1.5 hrs Maximum marks: 40

Part A

Each question carries 5 marks

1. Illustrate the Mixed Derivative theorem with an example **(Apply CO1)**
2. Determine f_{xx} and f_{yy} for the function $f(x, y) = x^{y}$. **(Apply CO1)**
3. Solve the system of equations $x_1 - 2x_2 + 3x_3 = 0,\quad 2x_1 + 5x_2 + 6x_3 = 0$ **(Apply CO2)**
4. Give an illustration for Cayley Hamilton theorem. **(Apply CO2)**
5. Establish the identity $\cos(4\theta) = \cos^4\theta - 6\cos^2\theta\sin^2\theta + \sin^4\theta$ **(Apply CO3)**
6. Compute the sum of infinite series

   $1 + c\cos(\alpha) + c\cos^2(2\alpha) + c\cos^3(3\alpha) + \ldots$ **(Apply CO3)**
7. Explain Netwon- Raphson method. **(Apply CO4)**
8. Use bisection method to obtain a root correct to the three decimal places of the equation $x^3 - 5x + 3 = 0$. **(Apply CO4)**

(5x8=40)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

COURSE CODE & NAME OF THE COURSE:PH1CRT01- METHODOLOGY AND PERSPECTIVES OF PHYSICS

SEMESTER:1

1. What are the contributions of Indian scientists to Physics. Substantiate with examples of two Indian Scientists?- 10 Marks (CO1)
2. Describe the life and contributions of your favorite scientist (seminar) - 5 Marks (CO1)
3. Perform Binary addition on the following numbers a) 0010 0011+ 0011 0110 and b) 00010100 + 10000010 - 5 Marks (CO2)
4. Convert the following numbers into binary and octal numbers a) 47 b) 16.47 - 5 Marks (CO2)
5. Calculate the orbital angular momentum of a body of mass 10 kg moving with a velocity v=6x-2y-8z about the origin at 4x+2y-4z -5 Marks (CO3)
6. Find the volume of a parallelopiped whose edges are 2x-3y+4z, x+2y-z and 3x-y+2z - 5Marks (CO3)
7. A physical quantity P is related to four observables a,b,c and d as follows. $P=a^3b^2/(cd)^2$. The percentage errors in a, b,c,d are 1%, 3%, 4% and 2% respectively. Find the percentage error in the quantity P -5 Marks (CO4)
8. Classify the different types of errors encountered while taking measurements? - 10 Marks (CO4)

DEPARTMENT OF MALAYALAM, DEVAMATHA COLLEGE KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASURMENT

B.A. MALAYALAM

ML1CCTO1- കഥാസാഹിത്യം.

SEMESTER I

Time: 3 Hours Max.marks:120

1.മലയാളത്തിലെ ആദ്യകാലകഥകൾ പരിചയപ്പെടുത്തുക.5 Marks (CO1)

2.മലയാളത്തിലെ ആദ്യകാലകഥകളുടെ സവിശേഷതകൾ വിവരിക്കുക.5Marks (CO1)

3.ഇന്ദുലേഖ എന്ന നോവലിനെ പരിചയപ്പെടുത്തുക.5 Marks (CO2)

4.കഥ നോവൽ എന്നീ രണ്ട് സാഹിത്യരൂപങ്ങൾ തമ്മിലുള്ള വ്യതാസങ്ങൾ വിശദീകരിക്കുക.5 Marks (CO2)

5.പ്രധാന പരിസ്ഥിതികഥകൾ പരിചയപ്പെടുത്തുക.5 Marks (CO3)

6.സാറാ ജോസഫ്, സിതാര എസ്, ഇന്ദുമേനോൻ എന്നിവരുടെ കഥകളിലെ സാമ്യവ്യത്യാസങ്ങൾ വിവരിക്കുക.5 Marks (CO3)

7.ആടുജീവിതം എന്ന നോവലിലെ ആശയം വിശദീകരിക്കുക. 5 Marks (CO4)

8.തിരുത്ത് എന്ന കഥയുടെ പ്രത്യേകതകൾ വിവരിക്കുക. 5 Marks (CO4)

9.`വിശപ്പിന്റെ അടയാളപ്പെടുത്തലാണ് ബിരിയാണി' ഈ അഭിപ്രായത്തോട് നിങ്ങൾ യോജിക്കുന്നുണ്ടോ? സ്വാഭിപ്രായം ക്രോഡീകരിക്കുക. 5 Marks (CO5)

10. മോദസ്ഥിരനായങ്ങ് വസിപ്പൂ മലപോലെ എന്ന കഥയുടെ സാമൂഹികപ്രാധാന്യം വിശദീകരിക്കുക. 5 Marks (CO5)

DEVAMATHA COLLEGE KURAVILANGAD

ADDITIONAL LANGUAGE HINDI I B.A/BSC SEM-I

PROSE &ONE ACT PLAYS CODE : HN 1CCTO1

OBE OUTCOME MEASUREMENT TIME : 1 ½ HRS MARKS :50

Answer the following questions. All questions are compulsory .

CO1:

1.कफनचोर का बेटा कहानी का कथानक क्या है ?

2.बहू की विदा एकांकी में चित्रित समस्याएँ क्या-क्या हैं ?

CO2 :

3.आईये हम वृक्ष देवता की आराधना करें किसकी रचना है ? किस विधा की रचना है

4.रामकुमार वर्मा के किन्हीं दो एकांकियों के नाम लिखिए।

CO3:

5.सामाजिक एकांकी के रूप में सती एकांकी की प्रासंगिकता क्या है?

6..कथाकार के रूप में श्रीमती उषाबाला का परिचय कीजिए।

CO4:

7..भय की भावना व्यक्तित्व पर किस प्रकार के प्रभाव डालते हैं ?

8..वृक्षों की पूजा, रक्षा करना मानव का कर्तव्य है। क्यों ?

CO5:

9..जान से प्यारे एकांकी का सार अपने शब्दों में लिखिए।

10.जब में फेल हुआ एकांकी का सन्देश क्या है ?

(Each carries 5 marks) 10x5=50 mks

DEPARTMENT OF ENGLISH, DEVAMATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.A. ENGLISH LANGUAGE AND LITEARATURE

EN1CCT02 – PEARLS FROM THE DEEP

SEMESTER 1

Marks: 40

1. Discuss the animal imagery in 'Jaguar' 5 marks (CO 3)
2. Analyze the way in which the Franco-Prussian war affects Paris? 5 marks (CO 3)
3. Describe what the knight sees in his dreams at the Elfin Grot?5 marks (CO 1)
4. Discuss the speciality of the pier-glass?5 marks (CO 4)
5. Analyze the loneliness felt by Mrs. Wright.5 marks (CO 2)
6. Explain the significance of the bird in the play 'Trifles'?5 marks (CO 1)
7. Describe the appearance of the refugee children in Achebe's poem?5 marks (CO 4)
8. Explain how the old man sees the sea unlike other rich fishermen?5 marks (CO 2)

Department of English

Deva Matha College, Kuravilangad

Question Paper For Course Outcome Measurement

BA English Language and Literature

EN1CCT01 Fine Tune Your English

Semester 1

Max Marks: 60

1.A. He pulled the string tight. B. She is a nice girl.(Identify the kind of adjectives) 5 Marks (CO 1)

2. Here comes the C.I and a few policemen (Correct the sentence)) 5 Marks (CO 1)

3.How are indefinite articles different from the definite article? 5 marks (CO 2)

4. Frame five exclamatory questions 5 marks (CO 2)

Fill in the blanks using the appropriate form of the verbs given.

5.He ----------the room and ----------down in the chair(cross, sit) 5 marks (CO 3)

6. A bus ------him down as he ------the road. (knock, cross) 5 marks (CO 3)

7.Write an essay stating your views on the stray dog menace. 5 marks (CO 4)

8. Write a letter to a friend describing a recent exciting cricket match in which your side won. 5 marks (CO 4)

9. Frame a telephone conversation between you and a friend of yours about your career interests. 5 marks (CO 5)

10. Frame a conversation between you and your class teacher about conducting a study tour. 5 marks (CO 5)

11. Supply the correct question tags:

a) Let us go for a movie.

b) Neha didn't come to the class. 5 marks (CO 6)

12. Passivize the following sentences:

a) Sini wrote a letter.

b) I have bought a cheap bag. 5 marks (CO 6)

DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

NAME OF THE PROGRAMME: B.Sc CHEMISTRY

COMPLEMENTARY COURSE

SEMESTER I

CH1CMT01 - BASIC THEORETICAL AND ANALYTICAL CHEMISTRY

1. Define the principles behind the various quantitative chemical analysis like gravimetric analysis and volumetric analysis (CO1-Remember)5 marks

2. Define the principle of redox titration and acid alkali titration (CO1-Remember)5 marks

3. Explain the principle and types of different chromatographic techniques.(CO2-understand) 5marks

4. Explain the applications of different chromatographic techniques (CO2-understand)5marks

5. Explain the various concentration terms (CO3-understand) 10 marks

6. Explain the terms atomic mass, molecular mass, molar volume and mole concept (CO3-understand) 10 marks

7. Explain the formation of Ionic bond and Covalent bond with suitable examples (C04-Apply)5marks

8. How VB theory gives a theoretical explanation for covalent bond formation (C04-Apply)5marks

SEMESTER- II

DEVA MATHA COLLEGE KURAVILANGAD

CBCS Degree Examination

Semester II **Complementary Course- Mathematics (for Physics and Chemistry)**

MM2CMT01: Integral Calculus and Differential Equations

Time: 1.5 hrs Maximum marks: 40

Each question carries **5** marks.

1. Sketch the region bounded the curve $y = x^2 + 1$ and straight line $y = -x + 3$. Find the volume of the solid generated by revolving about x-axis. **(Apply CO1)**
2. Determine the solid of revolution obtained by rotating the region bounded between the curve $x^2 + y^2 = a^2$, x axis and lines $x = -a$ and $x = a$ if axis of revolution is x-axis. **(Apply CO1)**
3. Evaluate the integral $\int_0^1 \int_2^3 x + 2y + 4\, dy\, dx$. **(Analyse CO2)**
4. Evaluate the integral $\int_0^1 \int_2^3 \int_1^2 xyz\, dz\, dy\, dx$. **(Analyse CO2)**
5. Solve the exact differential equation $\left(x^2 - 4xy - 2y^2\right) dx + \left(y^2 - 4xy - 2x^2\right) dy = 0$**(Understand CO3)**
6. Give examples for variable linear and Bernoulli's differential equations. **(Understand CO3)**
7. Solve the PDE $\left(\frac{y^2}{x}\right) p + xzq = y^2$. **(Create CO4)**
8. Develop a partial differential equation by eliminating the constants a and b from the $z = (x + a)(x + b)$. **(Create CO4)**

(5x8=40)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH2CRT02- MECHANICS AND PROPERTIES OF MATTER

SEMESTER:2

1. A progressive harmonic wave is set up in a string and is givn by y=10 sin (0.1 x-4.0 t) where x and y are expressed in cm and time t in seconds. Calculate the 1) amplitude 2) frequency and 3) velocity of waves- 5 Marks (CO1)
2. Obtain the equation for a plane progressive wave - 5 Marks (CO1)
3. Set up the equation for a damped harmonic oscillator and solve it. 10 Marks (CO2)
4. At what displacement the kinetic energy is equal to $1/4^{th}$ of the potential energy of a particle- 5 Marks (CO2)
5. A person can distinguish a raw egg and hardboiled egg by spinning each on the table. Explain 5 Marks (CO3)
6. Calculate the moment of Inertia of a copper sphere of radius 10 cm, about a tangent on the plane. The density of copper is 8.9 g/cm^3 -5Marks (CO3)
7. Obtain the relation between various elastic constants -10 Marks (CO4)
8. Write down the expression for the time period of a torsion pendulum. - 10 Marks (CO4)
9. Why are tiny drops spherical in shape- 5 Marks (CO5)
10. Explain a method to experimentally obtain the value of the coefficient of viscosity.-10 Marks(CO5)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH2CRP01-Practicals

MECHANICS AND PROPERTIES OF MATTER

1. Explain the procedure to use Vernier Calipers/Screwguage and spherometer to measure the given specimen – 5 Marks (CO1)
2. Find the least count of the device used and tabulate the outcome of the measurement- 5 Marks (CO1)
3. Calculate the radius of capillary tube using travelling microscope-5 Marks (CO2)
4. Determine the viscosity/ surface tension of the given liquid -5 Marks (CO2)
5. Determine Youngs Moduli of the given bar using uniform/non uniform bending method – 5 Marks (CO3)
6. Repeat the experiment for different conditions and compare the results- 5 Marks (CO3)
7. Calculate quantities such as acceleration due to gravity/ Moment of Inertia - 5 Marks (CO4)
8. Repeat the experiment compare the results- 5 Marks (CO4)
9. Determine Rigidity Moduli and MI using torsion method – 5 Marks (CO5)
10. Repeat for different initial conditions-5 Marks (CO6)
11. Determine the MI of a fly wheel- 5 Marks (CO6)
12. Repeat for different initial conditions-5 Marks (CO6)

DEPARTMENT OF MALAYALAM, DEVAMATHA COLLEGE KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASURMENT

B.A. MALAYALAM

ML2CCTO2- കവിത

SEMESTER II

Time: 3 Hours **Max.marks:120**

1.മലയാളകവിതയുടെ വികാസപരിണാമങ്ങൾ വിവരിക്കുക.5 Marks (CO1)

2.കുരുക്ഷേത്രം എന്ന കവിതയ്ക്ക് മലയാളകവിതയിലുള്ള പ്രാധാന്യം വിവരിക്കുക.5 Marks (CO1)

3.ആധുനിക കവിതകളുടെ സവിശേഷതകൾ വിശദീകരിക്കുക.5 Marks (CO2)

4.മലയാളത്തിലെ ഉത്തരാധുനിക പ്രസ്ഥാനത്തെ സ്വാധീനിച്ച സാഹചര്യങ്ങൾ വ്യക്തമാക്കുക.5 Marks (CO2)

5.മലയാള കവിതയിലെ ലിംഗസമത്വംഎന്ന വിഷയത്തിൽ ഉപന്യസിക്കുക. 5 Marks (CO3)

6.ഉത്തരാധുനിക കവിതകൾ പെണ്ണനുഭവങ്ങളെ എപ്രകാരം അടയാളപ്പെടുത്തുന്നുവെന്ന് വിവരിക്കുക.5 Marks (CO3)

7.കാലഘട്ടത്തിന്റെ പൊതുപ്രവണതകൾ കവിതകളിൽ പ്രകടമാകുന്നതെപ്രകാരമെന്ന് വിവരിക്കുക. 5 Marks (CO4)

8.സമകാലിക സാഹചര്യങ്ങൾ കവിതകൾക്ക് വിഷയമാകാറുണ്ടോ ?വിമർശനാത്മകമായി വിലയിരുത്തുക.5 Marks (CO4)

9.വൈലോപ്പിള്ളിയുടെ മാമ്പഴം എന്ന കവിതയുടെ സവിശേഷതകൾ വിവരിക്കുക.5 Marks (CO5)

10.കവിതയും സമൂഹവും എന്ന വിഷയം വിലയിരുത്തുക.5 Marks (CO5)

DEVAMATHA COLLEGE KURAVILANGAD

ADDITIONAL LANGUAGE HINDI I B.A/BSC SEM-II

SHORT STORIES & NOVEL CODE : HN 2CCTO2

OBE OUTCOME MEASUREMENT TIME : 1 ½ HRS MARKS :50

Answer the following questions. All questions are compulsory .

CO1-

1.कहानी लिखते समय किन-किन तत्वों पर ध्यान देना है ?

2.कहानी ओर उपन्यास के मुख्य अन्तर क्या-क्या है ?

CO2-

3.प्रेमचन्द का परिचय कीजिए

4.कथाकार के रूप में कुमार अम्बुज का परिचय कीजिए।

CO 3-

5.छुट्टी का दिन कहानी का सार लिखिए।

6.अन्तिम साक्ष्य उपन्यास का कथानक किस बिन्दू पर आधारित है ?

CO4-

7.मीना मौसी का परिचय कीजिए।

8.बालक हामिद का चरित्रगत विशेषताएँ लिखिए।

CO5-

9.अन्तिम साक्ष्य उपन्यास में चित्रित समस्याएँ क्या-क्या है ?

10.माँ रसोई में रहती है, कहानी में स्त्री-जीवन की सूक्ष्म संवेदनाओं की अभिव्यक्ति मिलती है। विचार कीजिए।

(Each carries 5 marks) 10x5=50 mks

DEPARTMENT OF ENGLISH, DEVAMATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.A. ENGLISH LANGUAGE AND LITEARATURE

EN2CCT04 – SAVOURING THE CLASSICS

SEMESTER 2

Max marks: 40

1. Explain the peculiarities of John Vincent Moon? 5 marks (CO 3)

2.Discuss the animal symbolism in Canto I of *Inferno*.5 marks(CO 3)

3. Analyze the title of the poem 'On His Blindness'?5 marks (CO 2)

4. Discuss the surgeon's thoughts about the lady in the black veil?5 marks(CO 4)

5.Comment on the friendship between Bingley and Darcy.5 marks(CO 2)

6. Briefly describe the two adventures of Don Quixote.5 marks (CO 1)

7. Discuss Telemachus' reunion with his father. 5 marks (CO 4)

8. "Lovely is youth, but quickly is it flown." Explain. 5 marks(CO 1)

Department of English

Deva Matha College, Kuravilangad

Question Paper For Course Outcome Measurement

BA English Language and Literature

EN2CCT03 Issues That Matter

Semester 2

Max Marks: 40

1.Which three important areas of the value of biodiversity has Leakey identified? 5 Marks (CO 1)

2. What did the mysterious bird reveal to Hagar? 5 Marks (CO 1)

3.What distinction does the narrator draw between 'war' and 'hostility'? 5 marks (CO 2)

4. How has the tree grown to its present status? 5 marks (CO 2)

5.Narrate the experience of Zitkala-sa on her trip to her home in the reservation. 5 marks (CO 3)

6. Elaborate on 'the old prison' as a metaphor for human suffering 5 marks (CO 3)

7.Describe how Sentila become a pot maker against the expectations of her mother. 5 marks (CO 4)

8. Bring out the satire in the story 'The Censors' by drawing examples from the situations in the story. 5 marks (CO 4)

DEPARTMENT OF CHEMISTRY , DEVAMATHACOLLEGE,KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

NAME OF THE PROGRAMME: B.Sc Chemistry

COURSE CODE & NAME OF THE COURSE: CH2CMT02 - BASIC ORGANIC CHEMISTRY

SEMESTER: II

1. Explain different types of structural isomerism. (CO1: Understand) 10 marks
2. Write a note on reaction intermediates and reaction types (CO1: Understand) 10 marks
3. Explain geometrical isomerism with examples. (CO2: Understand) 10 marks
4. Discuss the conformational isomerism in butane (CO2: Understand) 10 marks
5. Write mechanisms of S_N1 and S_N2 reactions of alkyl halide. (CO3: Understand)10 marks
6. Explain mesomerism and hyperconjugation (CO3: Understand)10 marks
7. Why do we need biopolymers? (CO4: Analyze)10 marks
8. Compare and contrast LDPE and HDPE. (CO4: Analyze)10 marks

DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

NAME OF THE PROGRAMME: B.Sc CHEMISTRY

COMPLEMENTARY COURSE CH2CMP01 - VOLUMETRIC ANALYSIS

SEMESTER I & II

1. Describe the various fundamental concepts in volumetric analysis (CO1-remember) 10 marks

2, Describe the meaning of titrant, titrand, titration, titre value, end point and equivalence point (CO1-remember) 10 marks

3. Describe the method of selection of indicators in volumetric analysis (CO2-understand) 5marks

4. How the end point is detected using indicators in acid alkali titration (CO2-understand) 5marks

5. Explain the various types of volumetric techniques (CO3-understand) 10marks

6. Explain the procedure for the estimation of ferrous ion is volumetrically (CO3- understand) 10 marks

7. Estimate the mass of hydrochloric acid in the whole of the given solution. You are supplied with approximately 0.1M sodium hydroxide and pure crystals of oxalic acid (CO4-Analyze) 5marks

8. Calculate the mass of oxalic acid required to prepare 100 ml of 0.1 m solution(CO4-Analyze) 5marks

SEMESTER- III

DEVA MATHA COLLEGE KURAVILANGAD

CBCS Degree Examination

Semester III-Complementary Course for B. Sc Physics and Chemistry
MM3CMT01 :Vector Calculus, Analytic Geometry and Abstract Algebra

Time: 1.5hrs Maximum marks: 50

PART A

Each question carries 5 marks.

1. Find the curve's unit tangent vector $\bar{r}(t) = 2\cos cos\, t\ i + 2\sin sin\, t\ j + \sqrt{5}\, t\, k$. **(Understand CO1)**
2. Explain tangential and normal components of acceleration. **(Understand CO1)**
3. Evaluate $\int_C (x + y)ds$ where C is the straight line segment x = t, y = 1- t, z = 0 joining (0,1,1) to (1,0,1) **(Evaluate CO2)**
4. Prove that $y\, dx + x\, dy$ is exact and evaluate the integral. **(Evaluate CO2)**
5. Differentiate between Normal and Tangential form of Green's theorem. **(Apply CO3)**
6. Integrate $G(x, y, z) = x^2$ over the cone $z = \sqrt{x^2 + y^2}$, . **(Apply CO3)**
7. Find the polar representation of the point (2,3,). **(Apply CO4)**
8. Find the polar co-ordinates corresponding to the Cartesian co-ordinate (-3,$\sqrt{3}$). **(Apply CO4)**
9. Give examples for abelian group, non abelian group and cyclic group. **(Understand CO5)**
10. Explain group homomorphism with an example. **(Understand CO5)**

(5x10=50)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH4CRP02-Practicals

OPTICS AND SEMICONDUCTOR PHYSICS

13. Explain the procedure to obtain interference and diffraction patterns and use it to find parameters such as thickness, wavelength of source etc – 5 Marks (CO1)
14. Tabulate the observations and calculate the parameters- 5 Marks (CO1)
15. Construct rectifiers using diodes-5 Marks (CO2)
16. Find ripple factor and compare with theoretical value -5 Marks (CO2)
17. Study the characteristics of diodes, transistors and FET – 5 Marks (CO3)
18. Compare the observations with theoretical curves- 5 Marks (CO3)
19. Design and construct electronic circuits such as amplifiers, oscillators clippers, adders etc - 5 Marks (CO4)
20. Repeat the experiment compare the results- 5 Marks (CO4)
21. Determine refractive index of the given liquid – 5 Marks (CO5)
22. Compare with theoretical values-5 Marks (CO5)
23. Determine the optical constants of the given lens- 5 Marks (CO6)
24. Repeat for different initial conditions-5 Marks (CO6)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH3CRT03- OPTICS LASER AND FIBER OPTICS

SEMESTER:3

11. Write down the principle of superposition- 5 Marks (CO1)
12. Obtain the Discuss Fraunhofer diffraction at a single slit -10 Marks (CO1)
13. Find the radius of the 25^{th} Newtons ring if the wavelength is 750 nm and radius of the 10^{th} ring is 0.25 cm Marks 5 Marks (CO2)
14. Find the minimum thickness of a quarter wave plate of quartz for light of wavelength 589.3 nm. Given n0=1.544 and ne=1.553- 5 Marks (CO2)
15. Explain the working of a ruby laser -10 Marks (CO3)
16. Describe the different pumping mechanisms in lasers – 5 Marks (CO3)
17. A step index fiber has core refractive index 1.55 and cladding refractive index 1.50. Calculate the NA and acceptance angle of the fiber -5Marks (CO4)
18. With a block diagram describe the working of optical fiber communication system -10 Marks (CO4)

DEPARTMENT OF MALAYALAM

DEVA MATHA COLLEGE KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.A MALAYALAM

M L 3 CCT03 – ദൃശ്യകലാസാഹിത്യം

SEMESTER III

Time : 3 Hours

Max.Marks : 150

1.ഭാരതത്തിന്റെ നാടകപാരമ്പര്യത്തെക്കുറിച്ച് വിവരിക്കുക 5 Marks (CO 1)

2. മലയാളത്തിലെ സംസ്കൃതനാടകവിവർത്തനങ്ങളെക്കുറിച്ച് എഴുതുക 5 Marks (CO 1)

3.നളചരിതം ആട്ടക്കഥയുടെ ഭാഷാപരവും സാഹിത്യപരവുമായ സവിശേഷതകൾ ചർച്ച ചെയ്യുക. 5 Marks (CO 2)

4.കല്യാണസൌഗന്ധകത്തെ മുൻനിർത്തി കുഞ്ചൻനമ്പ്യാരുടെ തുള്ളലുകളുടെ സവിശേഷതകൾ ചർച്ച ചെയ്യുക. 5 Marks (CO 2)

5.മലയാളനാടകവേദിക്ക് സി.ജെ തോമസ് നൽകിയ സംഭാവനകൾ വിവരിക്കുക 5 Marks (CO 3)

6.നിലനിൽക്കുന്ന നിയമവ്യവസ്ഥയെ ക്രൈം നാടകം പ്രശ്നവത്കരിക്കുന്നുണ്ടോയെന്ന് വിലയിരുത്തുക 5 Marks (CO 3)

7. അൻവറിന്റെ ഉസ്താദ് ഹോട്ടലിൽ രുചിയുടെ രാഷ്ട്രീയമുണ്ടോയെന്ന് പരിശോധിക്കുക. 5 Marks (CO 4)

8. മലയാളത്തിലെ സ്വതന്ത്രസിനിമകളെക്കുറിച്ച് ചർച്ച ചെയ്യുക. 20 Marks (CO 4)

9.

DEVA MATHA COLLEGE KURAVILANGAD

വടക്കൻപാട്ടുസിനിമകളുടെവസാംസ്കാരികരാഷ്ട്രീയംനെ തിരിച്ചറിയുക 5 Marks (CO 5)

10. മലയാളത്തിലെ പഴശ്ശിരാജസിനിമകളെക്കുറിച്ച് വിവരിക്കുക 5 Marks (CO 5)

DEVAMATHA COLLEGE KURAVILANGAD

ADDITIONAL LANGUAGE HINDI II B.A/BSC SEM-III

POETRY,GRAMMAR & TRANSLATION CODE : HN 3CCTO3

OBE OUTCOME MEASUREMENT TIME : 1 ½ HRS MARKS :50

Answer the following questions. All questions are compulsory .

CO1-

1.हिन्दी में मुक्त छन्द का आविष्कार किसने किया था ? उनका पूरा नाम लिखिए।

2.आधुनिक युग की मीरा नाम से प्रसिद्ध कवयित्री कौन है ? उनका परिचय कीजिए।

CO2-

3.सबूत शीर्षक कविता समकालीन जीवन में चित्रित अन्याय, अत्याचार आदि का सबूत पेश करती है। विचार कीजिए।

4.जंगल के उजाड़ में चित्रित समस्या क्या है ?

CO3-

5.कारक क्या है ? सोदाहरण स्पष्ट कीजिए।

6.सर्वनाम की परिभाषा लिखकर उसके भदे बताइए।

CO4-

7.शुद्ध कीजिए- राम ने पुस्तक पढा ।
लडकों ने पढे।

8.स्त्रीलिंग शब्दों की पहचान के कुछ मुख्य नियम बताईए।

CO5-

9.अनुवाद कीजिए- अंग्रेज़ी हिन्दी

10. अनुवाद कीजिए- हिन्दी – अंग्रेज़ी

(Each carries 5 marks)

10x5=50 mks

DEPARTMENT OF ENGLISH, DEVAMATHA COLLEGE, KURAVILANGAD
QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT
B.A. ENGLISH LANGUAGE AND LITEARATURE
EN3CCT05– LITERATURE AND/AS IDENTITY
SEMESTER 3
Marks:40

1. Analyze the theme of the novel *The Dark Holds No Terrors?* 5 marks (CO 3)
2. Describe the power of language according to Amy Tan? 5 marks(CO 3)
3. Analyze the poem 'At the Lahore Karhai' in the light of geographical and cultural dislocation. 5 marks (CO 4)
4. Discuss the specialty of Mussoorie as described by the protagonist? 5 marks (CO 4)
5. Describe the entry of Goddess Kali. 5 marks (CO 2)
6. Comment on why Dadima reprimands the narrator for troubling a peacock that landed on their terrace? 5 marks (CO 1)
7. Explain what the author learns about motherhood from others? 5 marks (CO 2)
8. List the signs that foretold the black moments of Kamur? 5 marks (CO 1)

DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOMEMEASUREMENT

NAME OF THE PROGRAMME: B.Sc CHEMISTRY

CH3CMT03 - PHYSICAL CHEMISTRY – I

SEMESTER-III

1. Discuss the various types of intermolecular forces in liquids. (CO1-Understand) 10 marks

2. State and explain Henry's Law. Discuss its applications. (CO1-Understand) 10 marks

3. Do all gases obey gas laws? Discuss some experimental results to explain deviation and point out the causes which accounts for this behaviour. (CO2-Understand) 10 marks

4. Derive the kinetic gas equation for an ideal gas. (CO2-Understand) 10 marks

5. Derive Bragg's equation and discuss its applications. (CO3-Understand) 10 marks

6. Explain how the crystal structure of NaCl can be deduced from X-ray diffraction studies.(CO3-Understand) 10 marks

7. Discuss the phase diagram of water system. (CO4-Understand) 10 marks

8. What are the phases that co-exist at equilibrium at the eutectic point of the lead-silversystem? Calculate the variance of the system at that point. (CO4-Understand) 10 marks

SEMESTER- IV

DEVA MATHA COLLEGE KURAVILANGAD

CBCS Degree Examination

Semester IV Complementary Course: Mathematics for B. Sc. Physics & Chemistry

MM4CMT01 :Fourier Series, Laplace Transform and Complex Analysis

Time: 1.5 hrs Maximum marks: 40

PART A

Each question carries 5 marks.

1. Differentiate between the Fourier series of even and odd functions. **(Understand CO1)**
2. Express the function $5x^3 + 7x^2 + 2$ in terms of the Legendre polynomials. **(Understand CO1)**
3. Find the Laplace Transform of e^{ax} **(Analyse CO2)**
4. Solve the differential equation $y'' + 4y = 0,\ y(0) = 2,\ y'(0) = -8$ using Laplace Tranforms **(Analyse CO2)**
5. Discuss the analyticity of the function $f(z) = \bar{z}$. **(Understand CO3)**
6. Show that $f(z) = z^2 +$ satifies Cauchy Riemann equations **(Understand CO3)**
7. Evaluate $\int_C z^2 dz$ where C is the unit circle centred at the origin. **(Analyse CO4)**
8. Compare the values of the $\int_C \frac{z}{z-2}\, dz$ where (i) C:$|z| = 1$ (ii) C: $|z| = 3$**(Analyse CO4)**

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

PH4CRT04 – Semiconductor Physics (Core – Sem 4)

1. What is PIV value of a diode in Centre Tap Full wave Rectifier? - 1 Mark **(CO 1)**
2. Mention the factors on which the width of a depletion layer depend on - 1 Mark **(CO 1)**
3. Why should the emitter region be heavily doped? – 1 Marks **(CO-3)**
4. Define closed loop gain of a feedback amplifier - 1 Marks **(CO-3)**
5. What do you mean by CMRR? – 1 Marks **(CO-6)**
6. Two voltages +0.6 V and -1.4 V are applied to the two input resistors of a summing amplifier. The respective input resistors are 400 kΩ and 100 kΩ and feedback resistor is 200 kΩ. Determine the output voltage. -5 Marks **(CO-6)**
7. Crystal diode having internal resistance r_f=20 Ω is used for half wave rectification. If the applied voltage v =100 sin (wt) and load resistance R_L= 500 Ω, find (a) I_m, I_{dc} , I_{rms} (b) dc output voltage (d) rectifier efficiency - 5 Marks **(CO-2)**
8. Discuss the theory of a Centre tap bridge rectifier. Obtain an expression for ripple factor and rectifier efficiency. What are the advantages of Centre Tap Bridge Rectifier over Halfwave rectifier? - 10 Marks **(CO-2)**
9. A transistor is biased in the 'voltage divider' method with resistors R_1=56KΩ, R_2=10KΩ, R_C = 4.7 KΩ and R_E=1 KΩ. If Vcc=12V and V_{BE}=0.7V, calculate (i) voltage across R_2 and I_C, (ii) its Q-point, (iii) the saturation value of I_C and (iv) the optimum position of its Q-point. - 5 Marks **(CO-4)**
10. With a diagram, explain the working of a common emitter transistor amplifier. How does phase reversal occur in the output? - 10 Marks **(CO-4)**
11. With a neat circuit diagram, explain how Barkhausen criteria are satisfied in an RC phase shift oscillator? - 5 Marks **(CO-5)**
12. Two voltages +0.6 V and -1.4 V are applied to the two input resistors of a summing amplifier. The respective input resistors are 400 kΩ and 100 kΩ and feedback resistor is 200 kΩ. Determine the output voltage - 5 Marks **(CO-5)**
13. A radio receiver delivers an output power of 3.6 W. (i) What would be the decibel gain if the power output is increased to 7.2 W? (ii) What power output would be required to produce a power gain of 10 dB - 5 Marks **(CO-7)**
14. Explain modulation index and band width of AM signals. Discuss the nature of power distribution among the carrier frequency and sidebands. - 10 Marks **(CO-7)**

DEPARTMENT OF MALAYALAM, DEVAMATHA COLLEGE KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASURMENT

B.A. MALAYALAM

Commoncourse II

ML4CCT04- മലയാളഗദ്യരചനകൾ

SEMESTER 4

Time: 3 Hours Max.marks:50

1. അടുക്കള വീണ്ടെടുക്കപ്പെടേണ്ട ലോകമാണെന്ന നിഗമനത്തിന്റെ സാംഗത്യമെന്ത്? വിവരിക്കുക. 5 Marks (CO1)
2. അരിസ്റ്റോട്ടിലിന്റെ ദൃഷ്ടിയിൽ ഏറ്റവും ഉന്നതമായ കല ഏത് ? വിശദമാക്കുക. 5 Marks (CO1)
3. കോളേജ് വിദ്യാഭ്യാസ കാലഘട്ടം എം.ടി.വാസുദേവൻ നായർ പ്രഭാഷണത്തിൽ ഓർമ്മിച്ചെടുക്കുന്ന തെങ്ങനെ? വിവരിക്കുക. 5 Marks (CO2)
4. മനുഷ്യപുരികങ്ങളുടെ പ്രധാന ധർമ്മങ്ങൾ പരിചയപ്പെടുത്തുക. 5 Marks (CO2)
5. കാരൂർ കഥകളിലെ ഹാസ്യരസത്തെക്കുറിച്ച് എം.എസ് കുമാരൻ നായർ അഭിപ്രായം വിലയിരുത്തുക. 5 Marks (CO3)
6. സംസ്കൃത ഭാഷയുമായി മൊഹാക് ഭാഷയ്ക്കുള്ള സാമ്യങ്ങൾ പരിശോധിക്കുക. 5 Marks (CO3)
7. സിയാറ്റിൽ മൂപ്പന്റെ പ്രസംഗത്തിൽ നിറഞ്ഞുനിൽക്കുന്ന പാരിസ്ഥിതിക ദർശനം

വിമർശനാത്മകമായി വിലയിരുത്തുക. 5 Marks (CO4)

8. കാരൂർക്കഥകളുടെ രുചിഭേദങ്ങളെപ്പറ്റി ബി.സരസ്വതി പ്രകടിപ്പിക്കുന്ന അഭിപ്രായങ്ങൾ ക്രോഡീകരിക്കുക. 5 Marks (CO4)
9. ഇരട്ടമൊഴിത്തം എന്നാലെന്തെന്ന് മലയാളഭാഷയെ മുൻനിർത്തി പരിശോധിക്കുക. 5 Marks (CO5)
10. മലയാള പ്രസാധന ചരിത്രത്തിൽ ഈശ്വരപിള്ള വിചാരിപ്പുകാർക്കുള്ള സ്ഥാനം നിർണ്ണയിക്കപ്പെടുന്നത് എപ്രകാരമെന്ന് വിശദമാക്കുക.5 Marks (CO5)

DEVAMATHA COLLEGE KURAVILANGAD

ADDITIONAL LANGUAGE HINDI II B.A/BSC SEM-IV

DRAMA & LONG POEM CODE : HN 4CCTO4

OBE OUTCOME MEASUREMENT TIME : 1 ½ HRS MARKS :50

Answer the following questions. All questions are compulsory .

CO1-

1.नाटक केलिए आवश्यक तत्व क्या-क्या है ?

2.लम्बी कविता से क्या तात्पर्य है ?

CO2-

3. कवि अग्निशेखर का परिचय कीजिए।

4. उतनी दूर मत ब्याहना बाबा, किसकी रचना हे ? किस विधा की रचना है?

CO3-

5.शहंशाह की नीदं कविता में चित्रित समस्या क्या है ?

6.ढाबा कविता किस बिन्दु पर आधारित है ?

CO4-

7.विशु का चरित्रचित्रण कीजिए

8. धर्मपद के क्रांतिकारी व्यक्तित्व पर प्रकाश डालिए।

CO5

9. अग्निशेखर की कविता आतंक का जीवंत अनुभव है।यह कथन कहाँ तक सार्थक है?

10.शहंशाह कविता का सन्देश क्या है ?

(Each carries 5 marks) 10x5=50 mks

DEPARTMENT OF ENGLISH, DEVAMATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.A. ENGLISH LANGUAGE AND LITEARATURE

EN2CCT04 – SAVOURING THE CLASSICS

SEMESTER 2

Max marks: 40

1. Explain the peculiarities of John Vincent Moon? 5 marks (CO 3)

2.Discuss the animal symbolism in Canto I of *Inferno*.5 marks(CO 3)

3. Analyze the title of the poem 'On His Blindness'?5 marks (CO 2)

4. Discuss the surgeon's thoughts about the lady in the black veil?5 marks(CO 4)

5.Comment on the friendship between Bingley and Darcy.5 marks(CO 2)

6. Briefly describe the two adventures of Don Quixote.5 marks (CO 1)

7. Discuss Telemachus' reunion with his father. 5 marks (CO 4)

8. "Lovely is youth, but quickly is it flown." Explain. 5 marks(CO 1)

DEPARTMENT OF CHEMISTRY, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

NAME OF THE PROGRAMME: B.Sc Chemistry

COURSE CODE & NAME OF THE COURSE: CH4CMT05- PHYSICALCHEMISTRY – II

SEMESTER: IV

1. Discuss the characteristics of second order reactions (CO1: Understand) 10 marks
2. Draw and explain Jablonski diagram (CO1: Understand) 10 marks
3. What are the applications of conductometric titrations? (CO2: Understand) 10 marks
4. Write a note on different types of reference electrodes? (CO2: Understand) 10 marks
5. Derive the expression for rotational term. (CO3: Understand) 10 marks
6. State an explain Beer-Lambert law (CO3: Understand) 10 marks
7. Write a note on different methods to synthesize nanomaterials. (CO4: Analyse) 10 marks
8. What are the applications of fullerenes and carbon nanotubes? (CO4: Analyse) 10 marks

DEPARTMENT OF CHEMISTRY, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

NAME OF THE PROGRAMME: B.Sc Chemistry

CH4CMP02 - PHYSICAL CHEMISTRY PRACTICALS
SEMESTER IV

1. Describe the principle of potentiometric titrations (**CO1**-Remember) 10 marks
2. Describe the principle behind conductometric titrations (**CO1**-Remember) 10 marks
3. Find the molecular mass of the given solute by Rast's method. You are provided with a solvent of known mass and K_f= -----(**CO2-**Apply) 10 marks
4. Determine the transition temperature of the given salt hydrate. (**CO2-**Apply) 10 marks
5. Why does the conductivity of the solution rise quickly after the equivalence point in conductometric titrations? (**CO3-**Apply) 10 marks
6.Why is the EMF rises steeply soon after the equivalence point during potentiometric titrations (**CO3-**Apply) 10 marks
7. How can you find the molecular mass of a given solute by Rast's method? (**CO4-**Analyze) 10 marks
8. How can you determine the concentration of Fe^{2+} in the whole of the given solution using potentiometric titrations? (**CO4-**Analyze) 10 marks

SEMESTER- V

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

COURSE CODE & NAME OF THE COURSE: PH5OP T01- OPEN COURSE: Our Universe

SEMESTER:V

1. Explain Copernicus model of universe – 5 Marks (CO1)
2. Describe Ptolemy's model of universe – 5 Marks (CO1)
3. State and explain Hubble's law – 5 Marks (CO2)
4. Explain the birth and death of a star – 10 Marks (CO2)
5. Describe equatorial coordinate system. Also determine the Dec and RA of Sun during equinoxes and solstices – 5 Marks (CO3)
6. Explain the various numbers that describes the features of a telescope. What is the significance of each? – 10 Marks (CO3)
7. Describe the various members of solar system –10 marks (CO4)
8. Describe the structure of Sun –10 Marks (CO4)
9. "Your birth star decides your future" – defend science against this statement.—5 Marks (CO5)
10. "Don't drink water during a solar eclipse" – defend science against this superstition—5 Marks (CO5)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH6CRP05-Practicals

Thermal Physics, Spectroscopy and C++ Programming

25. Describe the theory to find the temperature coefficient of resistance- 10 Marks (CO1)
26. Find the temperature coefficient of resistance using a thermistor- 10 Marks (CO1)
27. Explain the theory to find the dispersive/resolving power of optical elements - 10 Marks (CO2)
28. Execute the experiment and find the values of dispersive and resolving power of the given optical elements – 10 Marks (CO2)
29. Write algorithm of simple physics problems such as projectile motion, quadratic equation, temperature conversion, matrix multiplication etc.- 10 Marks (CO3)
30. Write and execute the C++ program to solve problems such as projectile motion, quadratic equation, temperature conversion, matrix multiplication etc – 10 Marks (CO3)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH6CRP03-Practicals

Digital Electronics

1. Illustrate using circuit diagrams how different logic gates can be realized - 10 Marks (CO1)
2. Execute their circuit in lab to verify the truth tables – 10 Marks (CO1)
3. Illustrate using circuit diagrams how different flip flops can be realized - 10 Marks (CO2)
4. Execute their circuit in lab to verify the truth tables – 10 Marks (CO2)
5. Illustrate using circuit diagrams how multivibrators/D/A convertors can be realized - 10 Marks (CO3)
6. Execute their circuit in lab to verify the truth tables – 10 Marks (CO3)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH6CRP03-Practicals

Electricity, magnetism & Laser

1. Execute electrical circuits with the aid of circuit diagram- 10 Marks (CO1)
2. Calibrate or convert the given measuring instrument using the theory studied – 10 Marks (CO1)
3. Study the magnetic field along the axis of coil- 10 Marks(CO2)
4. Verify the circuit theorems-5 Marks (CO2)
5. Explain how diffraction can be used to obtain parameters such as wavelength and slit width-10 Marks (CO3)
6. Determine parameters such as wavelength and slit width using laser source-10 Marks (CO3)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH6CRP06-Practicals

Acoustics, Photonics & Advanced Semiconductor Physics

1. Describe the theory to find the frequency of a given source using vibrations of string- 10 Marks (CO1)
2. Experimentally find the frequency of a given source using vibrations of string- 10 Marks (CO1)
3. Explain the characteristics of photonic devices such as LED - 10 Marks (CO2)
4. Execute the experiment and study the characteristics of photonic devices – 10 Marks (CO2)
5. With circuit diagram explain the design of voltage regulators, multipliers and modulators.- 10 Marks (CO3)
6. Study the wave outputs of wave shaping circuits, voltage regulators and modulators – 10 Marks (CO3)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

PH5CRT07 – Digital Electronics and Programming (Core – Sem 5)

1. State the difference between Analog and digital signals. 1 Mark **(CO-1)**
2. Give the logic symbol, Boolean Expression, and truth table of an ExNOR (XNOR) gate. Why is it calledequality detector? 5 Marks **(CO-1)**
3. Write the other canonical form of F(A,B,C) = $\sum$ (0,3,4,7) 1 Mark **(CO-2)**
4. Simplify the function $Y = \bar{A}\bar{B}C + \bar{A}\,BC + \bar{A}\,B\bar{C} + ABC$ by using a Karnaug map and draw the simplified logic circuit. 5 Marks **(CO-2)**
5. Obtain the compliment of $\boldsymbol{F = ABC^{/} + ABC + A^{/}C}$ by Duality Theorem and confirm the result with Demorgan's Theorem. 1 Mark **(CO-3)**
6. Draw the K-Map for the Boolean function $\bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}B\bar{C}\bar{D} + \bar{A}\bar{B}\bar{C}D + \bar{A}B\bar{C}D + \bar{A}\bar{B}C\bar{D}$.Obtain the simplified expression for F. - 5 Marks **(CO-3)**
7. Draw and explain the logic circuit of a Full Adder. Derive the expressions for both carry and sum outputs from its truth table. 5 Marks **(CO-4)**
8. Describe the working of parallel Binary adder-Subtractor with neat logic diagram. 10 Marks **(CO-4)**
9. Distinguish between combinational and sequential circuit. 1 Mark **(CO-5)**
10. With neat sketches of logic diagram and timing diagram, explain the operation of JK Flipflop. 5 Marks **(CO-5)**
11. Explain D/A Converter using R2R ladder network with its applications. 5 Marks **(CO-5)**
12. Explain data transmission through Multiplexer (MUX) and De-multiplexer(DEMUX) based on 4-1 systems. 10 Marks **(CO-5)**
13. What is the use of 'break' statement in C++. 1 Mark **(CO-6)**
14. Calculate factorial of 8 using C++. 5 Marks **(CO-6)**
15. What are objects? How are they created? Illustrate with example. 5 Marks **(CO-7)**
16. Write a C++ program to add two 3x3 matrices and dispay the resulting matrix. 10 Marks **(CO-7)**

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

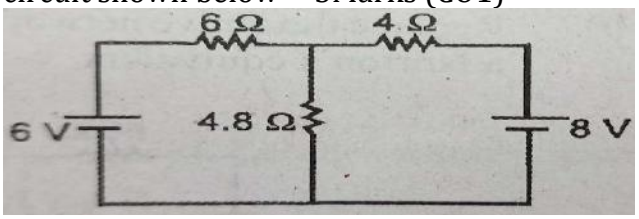
QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

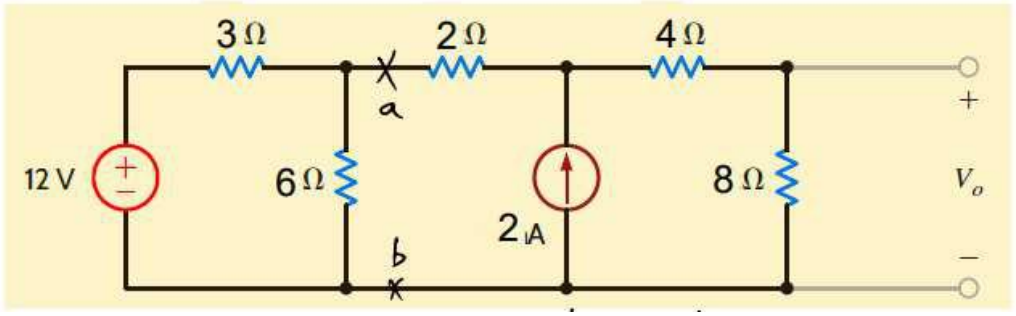
COURSE CODE & NAME OF THE COURSE: PH1CRT01- ELECTRICITY AND ELECTRODYNAMICS

SEMESTER:V

1. Using Norton's theorem, evaluate the current flowing in the 4.8 Ω resistor in the circuit shown below-- 5Marks (CO1)



2. Find Vo using Thevenin's theorem—5 Marks (CO1)



3. Explain (a) Seebeck effect and electron theory of seebeck effect (b) Seebeck series (c)Peltier effect and its coefficient (d) Thomson Effect and its co-efficient 5 Marks (CO2)
4. A thermocouple is constructed of gold and iron whose thermoelectric powers are (2.8+0.01θ) and (17.5 – 0.048θ) microvolts per degree centigrade respectively. What is the neutral temperature and maximum emf obtainable with this thermocouple?—5 Marks (CO2)
5. Find whether the discharge of a capacitor through the circuit consisting of the following elements connected in series is oscillatory or not. C = 0.1 μf; L = 10 Mh; R = 200 Ω. If the circuit is oscillatory determine the frequency –5 Marks (CO3)
6. Discuss the growth of current in an LR circuit. Plot the curve relating the variation of current with time.—10 Marks (CO3)
7. Obtain an expression for magnetic field at point due to a long cylindrical wire carrying a current I using Ampere's Circuital Law.—5 Marks (CO4)
8. Charge Q is distributed uniformly throughout an insulating sphere of radius R. Find the magnitude of the electric field at a point R/2 from the center.—5 Marks (CO4)

9. Derive the expression for energy density of an electromagnetic wave in free space.-5 Marks (CO5)
10. Let an electromagnetic wave propagate along the x direction, the magnetic field oscillates at a frequency of 10^{10} Hz and has an amplitude of 10^{-5}T, acting along the y - direction. Then, compute the wavelength of the wave. Also write down the expression for electric field in this case.5 Marks (CO5)

DEVA MATHA COLLEGE KURAVILANGAD

DEPARTMENT OF PHYSICS

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc. Physics

COURSE CODE & NAME OF THE COURSE – PH5CRT08 – ENVIRONMENTAL PHYSICS AND HUMAN RIGHTS

SEMESTER 5

1. Discuss the major impacts of over-utilization of ground water. – 5 Marks (CO1)
2. Discuss the importance of water harvesting and methods commonly adopted in Kerala for the same. – 10 Marks (CO1)
3. Write a short essay on any three sources of air pollution. 5 Marks (CO2)
4. What is the role of E-waste in environmental pollution? – 5 Marks (CO2)
5. Explain the production and storage of hydrogen as a source of energy. – 10 Marks (CO3)
6. Write a short essay on ocean thermal energy conversion. – 5 marks (CO3)
7. Write an essay on different types of solar water heaters. 10 Marks (CO4)
8. What is the advantage of a solar pond over a flat plate collector?- 1 Mark (CO4)
9. What is the role of UN secretariat in human rights protection? – 5 Marks (CO5)
10. Write a short essay on universality of human rights. – 5 Marks (CO5)

DEVA MATHA COLLEGE KURAVILANGAD

DEPARTMENT OF PHYSICS

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc. Physics

COURSE CODE & NAME OF THE COURSE – PH5CRT06 – CLASSICAL AND QUANTUM MECHANICS

SEMESTER 5

1. Derive Lagrange's equation from Hamilton's principle for a system in which the Lagrangian is not an explicit function of time. – 10 Marks (CO1)
2. Derive the relation between Lagrangian and Hamiltonian for a system in which the Lagrangian is not an explicit function of time. – 5 Marks (CO1)
3. Using Lagrange's equation, show that in planetary motion, angular momentum is conserved. – 5 Marks (CO2)
4. Derive the period of oscillation of a simple pendulum using Lagrange's equation. – 5 Marks (CO2)
5. What are the limitations of classical physics? – 5 Marks (CO3)
6. Derive Planck's radiation law. Discuss its high and low frequency limits. 10 Marks (CO3)
7. Discuss the fundamental postulates in Quantum Mechanics. – 10 Marks (CO4)
8. Prove that the eigen values of a Hermitian operator are real. - 5 Marks (CO4)
9. Obtain the one-dimensional time dependent Schrődinger equation for a particle moving in a potential. – 10 Marks (CO5)
10. Find the expectation value of the position of a particle enclosed in a box of length L. – 5 Marks (CO5)

SEMESTER-VI

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics (2019 Admissions)

PH6PRO01-Project

1. Construct a prototype or synthesise materials and systematically investigate the properties or the process and summarize it - 15 Marks (CO1)
2. Explain the significance of your selected topic 5 Marks (CO1)
3. Justify how you reached at the topic of the project and its uniqueness- 10 Marks (CO2)
4. Explain the physics behind the work- 10 Marks (CO2)

DEVA MATHA COLLEGE KURAVILANGAD

DEPARTMENT OF PHYSICS

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc. Physics

COURSE CODE & NAME OF THE COURSE – PH6CRT12 – SOLID STATE PHYSICS

SEMESTER 6

1. With diagram, describe two-dimensional and three-dimensional lattice types. – 10 Marks (CO1)
2. Distinguish between crystalline and amorphous solids. – 1 Mark (CO1)
3. Calculate the d-spacing for (110) plane in a rock salt crystal of a= 2.814 Å. – 5 Marks (CO2)
4. In the powder method to obtain the crystal structure, an X-ray of wavelength 1.54 Å gives rise to first order reflection by (322) planes at an angle 56^0. Determine the lattice constant of the unit cell. – 5 Marks (CO2)
5. Derive an expression for the binding energy of an ionic crystal and obtain an expression for the Madelung constant. Evaluate the Madelung constant for a linear ionic crystal. – 10 Marks (CO3)
6. Explain the nature of metallic bonding. – 1 Mark(CO3)
7. Explain the origin of diamagnetism in materials. – 5 Marks (CO4)
8. Give an expression for the Fermi energy of an intrinsic semiconductor. – 1 Mark (CO4)
9. Describe Meissner effect. – 5 Marks (CO5)
10. Explain the concept of BCS ground state. – 5 Marks (CO5)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

COURSE CODE & NAME OF THE COURSE: PH6CRT10 - RELATIVITY AND SPECTROSCOPY

SEMESTER: VI

11. State the postulates of Special theory and general theory of relativity – 5 Marks (CO1)
12. Describe Michelson-Morley experiment– 5 Marks (CO1)
13. Derive Lorentz' transformation equations – 10 Marks (CO2)
14. The average lifetime of a π meson in its own frame of reference is 26.0 ns. (This is its proper lifetime.) If the π meson moves with speed 0.95c with respect to the Earth, what is its lifetime as measured by an observer at rest on Earth? What is the average distance it travels before decaying as measured by an observer at rest on Earth? –5 Marks (CO2)
15. Differentiate between LS coupling and jj coupling – 5 Marks (CO3)
16. Discuss the features and quantum numbers in vector atom model? – 10 Marks (CO3)
17. Derive the expression for energy of a diatomic molecule from the theory of a harmonic oscillator –5 marks (CO4)
18. Explain the occurrence of Raman effect based on the Classical theory.–10 Marks (CO4)
19. Explain the principle of NMR and obtain the resonance condition..—5 Marks (CO5)
20. Explain the construction of Microwave and Raman spectroscopes.—10 Marks (CO5)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

PH6CRT09 – Thermal and Statistical Physics (Core – Sem 6)

17. Define molar specific heat capacity at constant volume. – 1 mark **(CO-1)**
18. Apply first law of thermodynamics to derive C_p-C_v =R – 5 marks **(CO-1)**
19. Derive and Discuss the Van der Waal's equation of state of a gas. Mention its defects – 10 marks **(CO-1)**
20. The efficiency of heat engine is always less than unity. Why? – 1 mark **(CO-2)**
21. A certain mass of an ideal gas at 27°C temperature and 8 atmospheric pressure, is expanded suddenly to 4 times of its volume. Find the final pressure and temperature. (γ = 1.5) – 5 marks **(CO-2)**
22. A Carnot refrigerator extracts heat from water at 0°C and rejects it to a room at 33°C. If 2kg of water is to be changed into ice at 0°C, how many calories of heat are rejected into room? Calculate the work done on the refrigerator and its coefficient of performance. – 5 marks **(CO-2)**
23. Explain the working of a Carnot's Engine. Arrive at an expression for the work done in a cycle. – 10 marks **(CO-2)**
24. Explain thermodynamic potentials U, F, H and G. Derive the relationship with state variables. – 5marks **(CO-3)**
25. Derive Maxwell's four thermodynamical relations. Use one of these to obtain Clausius – Clapeyron's latent heat Equation. 10 marks **(CO-3)**
26. Explain the meaning of emissive power and Absorptive power – 1 mark **(CO-4)**
27. State Stephen-Boltmann Law of radiation. Deduce this law on thermodynamic considerations. - 5 marks **(CO-4)**
28.
29. Write down the equation describing the distribution of indistinguishable particles according to Bose-Einstein statistics. – 1 mark **(CO-5)**
30. In how many ways can 2 particles be distributed in 5 quantum states. The particles are indistinguishable following Bose-Einstein statistics? - 5marks **(CO-5)**
31. Two states with energy difference 4.83 x 10^{-21} Joules occur with a relative probability e^2. Calculate the temperature. (Given k=1.38 x 10^{-23} J/K) - 5marks **(CO-6)**
32. Explain in detail the most probable distribution of N distinguishable particles according to M-B statistics. – 10 marks **(CO-6)**

DEVA MATHA COLLEGE KURAVILANGAD

DEPARTMENT OF PHYSICS

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc. Physics

COURSE CODE & NAME OF THE COURSE – PH6CRT09 – NUCLEAR, PARTICLE PHYSICS AND ASTROPHYSICS

SEMESTER 6

1. Explain the stability of a nucleus with binding energy curve. - 5 Marks (CO1)
2. Explain the meson theory of Yukawa. – 10 Marks (CO1)
3. Explain the working of Linear Accelerator. What are the advantages of Linear Accelerator over Van de Graff Generator? – 10 Marks (CO2)
4. Describe how a scintillation counter can be effectively utilized in the study of nuclear radiation. – 10 Marks (CO2)
5. What is alpha decay? Give an example for alpha decay. - 1 Mark (CO3)
6. What are the four radioactive series? Name the parent isotope and the stable end product of all these radioactive series. Write down the Neptunium series from the parent isotope to the end product showing the alpha and beta emissions. – 10 Marks (CO3)
7. One gram of radium is reduced by 2.1 mg in 5 years by alpha decay. Calculate the half-life period of radium. – 5 Marks (CO4)
8. Find the activity of 1 mg of Radon whose atomic mass is 222U and half life period is 3.8 days. – 5 Marks (CO4)
9. Explain the symmetry and conservation laws in particle physics. – 10 Marks (CO5)
10. Distinguish between baryons and hadrons. – 1 Mark (CO5)
11. Define HR diagram. What are the uses? Sketch and explain HR diagram. – 10 Marks (CO6)
12. Describe the stellar evolution. – 10 Marks (CO6)

DEPARTMENT OF PHYSICS, DEVA MATHA COLLEGE, KURAVILANGAD

QUESTION PAPER FOR COURSE OUTCOME MEASUREMENT

B.Sc Physics

COURSE CODE & NAME OF THE COURSE: PH6CBT05 - Astronomy and Astrophysics

SEMESTER: VI

1. Distinguish between Newtonian and Cassagrain model of telescopes – 5 Marks (CO1)
2. Explain the various numbers that describes the features of a telescope. What is the significance of each?– 10 Marks (CO1)
3. Describe equatorial coordinate system. Also determine the Dec and RA of Sun during equinoxes and solstices – 5 Marks (CO2)
4. Sketch path of earth around Sun and with help of these describe origin of seasons in Earth – 5 Marks (CO2)
5. Describe structure of Milky way galaxy – 5 Marks (CO3)
6. Describe the various members of solar system? – 10 Marks (CO3)
7. Explain stellar birth and evolution –10 marks (CO4)
8. Distinguish between neutron stars and black holes –5 Marks (CO4)
9. State and explain Hubble's law.—5 Marks (CO5)
10. Explain big Bang theory. What are the evidences for the theory—10 Marks (CO5)