

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester BAMC/ BSc CS Degree Examination, March/April 2021

BHN2A08(3) – Poetry and Short Stories

(2020 Admission onwards)

Time: 2 ½ hours

Max. Marks: 80

PART A

निम्नलिखित प्रश्नों में से किन्हीं प्रश्नों के उत्तर लिखिए। प्रत्येक प्रश्न का अंक 2 है। आपको अधिकतम 25 अंक मिल सकते हैं। (25 Marks)

1. कबीर भक्तिकाल की किस धारा के कवि थे?
2. रहीम के अन्नदाता राजा कौन थे? उन्होंने रहीम को कौन-सी उपाधि दी थी ?
3. मीराबाई के पति कौन थे?
4. प्रसाद के दो नाटकों के नाम लिखिए।
5. अकाल के बारे में पिता क्या कहते हैं?
6. सर्वेश्वर दयाल सक्सेना किस सप्तक के कवि थे? उनके किसी एक काव्य-संग्रह का नाम लिखिए।
7. कवि स्त्री से कैसा व्यवहार करना चाहते हैं?
8. प्यासे कुँएँ को अपनी प्यास बुझाने के लिए क्या मिला था ?
9. अपने मन में झाँक कर देखते समय कबीर क्या पाए?
10. प्रेमचंद के दो उपन्यासों के नाम लिखिए।
11. शामनाथ की पत्नी माँ को कहाँ छिपाने का उपदेश देती है?
12. 'सिनी आशा' कैसी संस्था है?
13. आनंदी किस कहानी का पात्र है? उसके पति का नाम क्या है ?
14. आयाकी राय में आदमी के बच्चे कैसे मरते हैं?
15. पिंकी को घुंघरूवाली क्यों कहते हैं?

PART B

II. निम्नलिखित प्रश्नों में से किन्हीं प्रश्नों के उत्तर लिखिए। प्रत्येक प्रश्न का अंक 5 है। आपको अर्थात् 35 अंक मिल सकते हैं। (35 Marks)

16. "तरुवर फल नहीं खात है, सरवर पियत न पान।
कहि रहीम परकाज हित, सम्पति-संचही सुजान ॥" - व्याख्या कीजिए।
17. मीरा के पद का भावार्थ लिखिए।
18. 'अरुण यह मधुमय देश हमारा' कविता का सारांश लिखिए।
19. चिडिया को बाहर से ज़्यादा पिंजड़े में कौन-सी सुविधाएँ हैं?
20. श्रीकंठ और लाल बिहारी के चरित्रों की तुलना कीजिए।
21. 'आदमी का बच्चा' कहानी में अभिव्यक्त यथार्थ का परिचय दीजिए।
22. चीफ शामनाथ की पत्नी से कैसा व्यवहार करते हैं? क्यों?
23. श्यामलीदी की चारित्रिक विशेषताओं की समीक्षा कीजिए।

PART C

III. निम्नलिखित प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर लिखिए। प्रत्येक प्रश्न का अंक 10 है। (20 Marks)

24. 'मुक्ति की आकांक्षा' कविता में चित्रित यथार्थ पर विचार कीजिए।
25. 'नयी नारी' में अभिव्यक्त स्त्री-चिंतन का परिचय दीजिए।
26. 'आदमी का बच्चा' कहानी की समीक्षा कीजिए।
27. 'चीफ की दावत' कहानी में छिपे व्यंग्य को समझाइए।

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester B.Sc Degree Examination, March/April 2021

BMT2C02 – Mathematics – 2

(2020 Admission onwards)

Time: 2 hours

Max. Marks : 60

PART A

Answer all questions. Each question carries 2 marks.

Maximum marks from this section is 20.

1. Convert the polar coordinate $(4, -\pi)$ into cartesian coordinate.
2. Differentiate $\cosh^{-1} x^2$
3. Consider the curve $x = 3 \cos t, y = \sin t$. Find the points where the tangent is horizontal.
4. Find $\lim_{n \rightarrow \infty} \frac{3n^2+1}{n^2+n}$
5. Evaluate $\int_0^{\frac{\pi}{2}} \cos x \, dx$ by using Trapezoidal rule with $n = 4$.
6. Show that the series $\sum_{i=1}^{\infty} 1 + \frac{1}{2^i}$ diverges.
7. Test the convergence of $\sum_{n=1}^{\infty} \frac{3^n}{n^2}$.
8. Give an example of a vector space. Explain your answer
9. Check whether the set of vectors $(3,5), (2,10)$ are linearly independent or not.
10. Find the inverse of the matrix $\begin{bmatrix} 1 & 3 \\ 4 & 10 \end{bmatrix}$
11. Verify that the matrix $A = \begin{bmatrix} \cos t & \sin t \\ -\sin t & \cos t \end{bmatrix}$ is orthogonal.
12. Evaluate the determinant of the matrix $A = \begin{bmatrix} 6 & 5 & 0 \\ -1 & 8 & -7 \\ -2 & 4 & 0 \end{bmatrix}$.

PART B

Answer all questions. Each question carries 5 marks

Maximum mark from this section is 30

13. Show that $\sinh^2 x = \frac{\cosh 2x - 1}{2}$
14. Find the length of the curve $f(x) = (x-1)^{\frac{3}{2}} + 2$ on $[1, 2]$.

15. (a) Write Alternating series test.

(b) Show that the series $1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \dots$ converges.

16. Find the Taylor series generated by $f(x) = e^x$ at $x_0 = 0$.

17. Let $B = \{u_1, u_2\}$, where $u_1 = (3, 1)$, $u_2 = (1, 1)$ is a basis for \mathbb{R}^2 . Find an orthogonal basis for \mathbb{R}^2 using the Gram - Schmidt orthonormalization process.

18. Solve the linear system

$$x_1 + 2x_2 - x_3 = 0$$

$$2x_1 + x_2 + 2x_3 = 9$$

$$x_1 - x_2 + x_3 = 3$$

Using Gaussian elimination.

19. Find the rank of the matrix $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 4 \\ 1 & 4 & 1 \end{bmatrix}$

PART C

Answer any ONE question. One question carries 10 marks

20. (a) Graph the polar curve $r = \cos 2\theta$.

(b) Find the area enclosed by the cardioids, $r = 1 + \cos \theta$, $0 \leq \theta \leq 2\pi$.

21. Find the eigen values and corresponding eigen vectors of the matrix $A = \begin{bmatrix} 7 & 3 \\ 3 & 7 \end{bmatrix}$

Also verify Cayley Hamilton theorem.

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(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
 Second Semester B.Sc Degree Examination, March/April 2021
BPH2C02 – Optics , Laser, Electronics & Communication
 (2020 Admission onwards)

Time: 2 hours

Max. Marks : 60

Section A

Answer all questions. Answer in two or three sentences. Each correct answer carries a maximum of two marks.

1. What are coherent sources? Give an example.
2. What are Newton's rings? Give two of its uses.
3. State and explain grating law.
4. Distinguish between Fraunhofer and Fresnel's diffraction.
5. What is a half wave plate? What is its use?
6. Draw the intensity distribution curve of the single slit diffraction pattern
7. Obtain the relation between current amplification factors α and β
8. Draw the diagram of exclusive OR gate. Also draw its truth table.
9. What is negative feedback? What is its need?
10. What is stimulated emission?
11. Distinguish between e rays and o rays.
12. What is specific rotation?

(Ceiling: 20 Marks)

Section B (Paragraph/Problem)

(Answer all questions in a paragraph of about half a page to one page. Each correct answer carries a maximum five marks)

13. What are constructive and destructive interferences? Give the conditions.
14. In Newton's Ring experiment the radius of curvature of the curved side of a plano-convex lens is 100cm. Wavelength of light used is 6×10^{-5} cm. What will be the radius of the 10th bright fringes?
15. If the critical angle of glass air boundary is 42° , calculate the polarising angle for reflection.
16. What are the conditions for brightness and darkness of normal incidence of light on a thin plane film producing interference?
17. Write a short note on Ruby laser.
18. How will you distinguish between planes, elliptically and circularly polarised light?
19. Explain the working of a transistor oscillator.

(Ceiling:30)

Section C (Essay)

Answer anyone in about two pages .Each question carries ten marks)

20. Give the theory of plane diffraction grating and explain how it is used to measure wavelength of light.
21. Describe the principle and working of a full wave rectifier. Obtain the expression for efficiency and ripple factor.

(1x10=10)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Second Semester B.Sc Degree Examination, March/April 2021
BCS2B02 – Problem Solving Using C Language
(2020 Admission onwards)

Time: 2 hours

Max. Marks: 60

PART AQuestions 1 to 12. Each question carries *two* Mark. Ceiling 20 Marks

1. What do you understand by modularization?
2. Illustrate the use of if statement in C?
3. What is a union?
4. What is an array?
5. What is a structure?
6. What is dynamic memory allocation?
7. Why files are required?
8. What are conditional operators?
9. What is syntax of switch statement? Explain.
10. What is meant by life time of a variable?
11. What is meant by call by value and call by reference?
12. Compare *malloc* and *calloc* functions?

PART BQuestions 13 to 19. Each question carries *five* Marks. Ceiling 30 Marks

13. Compare and contrast do-while and while loops.
14. Write a C program to print first n even numbers.
15. What are function pointers? Explain with a suitable example.
16. What are array of structures? How it is useful? Explain.
17. What are command line arguments? Write a program to rename a file using command line argument.
18. What is recursion? Write a program to print the product of n numbers using recursion.
19. What are macros? How they differ from function?

PART CQuestions 20 to 21. Answer any *one*. Each question carries *ten* Marks.

20. Write a program to create a student database and prepare the rank list. Use files.
21. Write notes on the following
 - a) Pointer
 - b) For loop
 - c) Continue statement
 - d) Bit fields
 - e) Nesting of functions.

(1x10=10 Marks)