MANONMANIAM SUNDARANAR UNIVERSITY

DIRECTORATE OF DISTANCE AND CONTINUING EDUCATION

INTERNAL ASSIGNMENT FOR MAY 2024 EXAMINAITONS

B.Sc. Mathematics – First Semester

பொதுத்தமிழ் - தாள் - 1

தமிழ் இலக்கிய வரலாறு

Sub-Code: J1TL11

1.) (அ) தமிழில் தோன்றிய இலக்கண நூல்கள் மற்றும் அதனுடைய வரலாற்று அறிமுகத்தை தொகுத்து எழுதுக.

(அல்லது)

(ஆ) சங்க இலக்கியங்கள் என்று கூறப்படும் நூல்கள் மற்றும் அதனுடைய சிறப்புகளை சான்றுடன் விவரி.

2.) (அ) அற இலக்கியம் மற்றும் காப்பிய இலக்கியம் குறித்து கட்டுரை வரைக.

(அல்லது)

(ஆ) பக்தி இலக்கியம் மற்றும் பகுத்தறிவு இலக்கியம் கூறும் வாழ்வியல் கருத்துக்களை விரிவாக விளக்குக.

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B.Sc. Mathematics – First Semester

General English - I (Part II English)

Sub-Code: J2EN11

1.)   **(A)**   Examine the role of patriarchal structures within pashtun society and
Malaya yousafzails family in shaping her perspectives of freedom to challenge the
Boundaries.

(OR)

(B)   How does Tagore envision a society free from constraints and limitations
in his poem "Where the Mind is without fear"?

2.)   **(A)**   Write the critical appreciation of the poem "Nine Gold Medals."

(OR)

(B)   Discuss the significance of the title of the poem "The things that Haven't
Been Done Before."

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B.Sc. Mathematics – First Semester

General Chemistry ICCI

Sub-Code: JMMA11

JMMA11 Algebra & Trigonometry

1) a) Solve the equation $6x^5 - x^4 - 43x^3 + 43x^2 + x - 6 = 0$.

(or)

b) Sum of the Series

$$1 + \frac{1+3}{2!} + \frac{1+3+3^2}{3!} + \frac{1+3+3^2+3^3}{4!} + \cdots \infty.$$

2) a) Find the inverse of the Matrix

$$\begin{bmatrix} 1 & 2 & -1 \\ 3 & 8 & 2 \\ 4 & 9 & -1 \end{bmatrix}$$

(or)

b) If $\log \sin(\theta + i\varphi) = L + i\beta$, prove that

$$2e^{2L} = \cosh 2\varphi - \cos 2\theta.$$

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B.Sc. Mathematics – First Semester

Differential Calculus

JMMA12 Differential Calculus

1) a) Find y_n, where $y = \dfrac{x^2}{(x-1)^2(x+2)}$.

(or)

b) Illustrate the theorem that $\dfrac{\partial^2 u}{\partial x \partial y} = \dfrac{\partial^2 u}{\partial y \partial x}$, when u is equal to $\log \dfrac{x^2+y^2}{xy}$.

2) a) Find the envelope of the family of curves $x^2+y^2 - 2ax\cos\theta - 2ay\sin\theta = c^2$.

(or)

b) Show that the radius of curvature of the curve $r^n = a^n \cos n\theta$ is $\dfrac{a^n r^{-n+1}}{n+1}$.
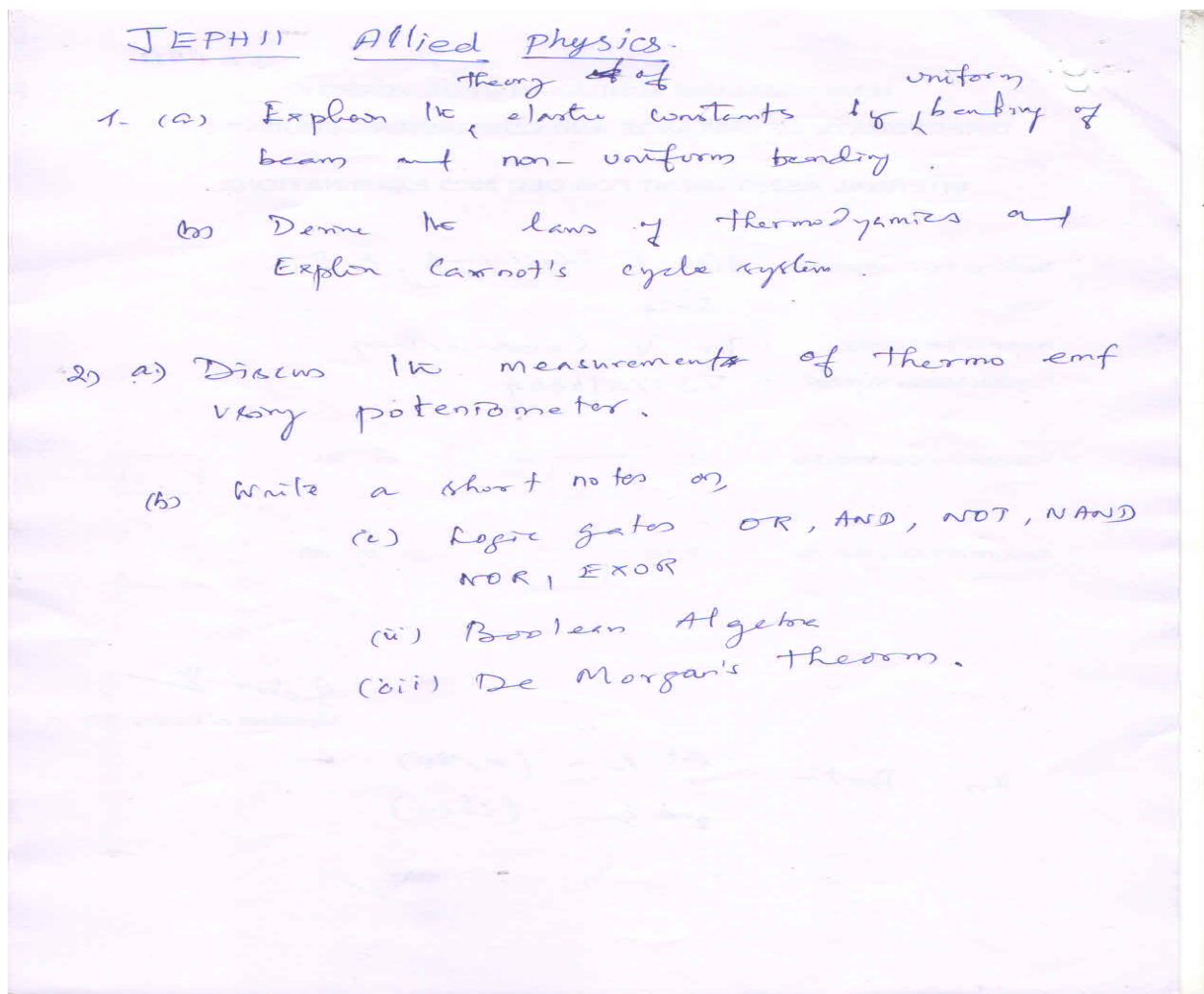
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B.Sc. Mathematics – First Semester

Allied Physics

Sub-Code: JEPH11

JEPH11 Allied Physics.

1. (a) Explain the elastic constants by theory of uniform bending of beam and non-uniform bending.

(b) Derive the laws of thermodynamics and Explain Carnot's cycle system.

2. a) Discuss the measurements of thermo emf using potentiometer.

(b) Write a short notes on,
(i) Logic gates OR, AND, NOT, NAND NOR, EXOR
(ii) Boolean Algebra
(iii) De Morgan's theorem.

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B.Sc. Mathematics – First Semester

Mathematics for Competitive Examination I

Sub-Code: JSMA11

JSMA11 Mathematics for competitive Examination I

1) a)(i) A bag contains $20p$, $25p$ and $10p$ coins in the ratio $5:9:4$ amounting to Rs. 206. Find the number of coins of each type.

(ii) Find the fourth proportional to $4, 9, 12$.

(or)

b)(i) If 50% of $(x-y) = 30\% (x+y)$ then what percent of x is y?

(ii) When the price of a product was decreased by 10%, the number sold increased by 30%. What was the effect on the total revenue?

2) a) A man buys an article for Rs. 27.50 and sells it for Rs. 28.60. Find his gain percent?

(or)

b) The difference of two numbers is 11 and one-fifth of their sum is 9. Find the numbers.

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B.Sc. Mathematics – First Semester

Bridge Mathematics

Sub code : JFMA11

JFMA11   Bridge Mathematics.

1) a) State and prove Binomial theorem.

(or)

b) (i) Prove that if a, b, c are in H.P

iff $\dfrac{a}{c} = \dfrac{a-b}{b-c}$.

(ii) If the 5th and 9th terms of H.P are $\dfrac{1}{19}$ and $\dfrac{1}{35}$, find the 12th of the sequence.

2) a) Prove that $\sin(60-A) \sin A \sin(60+A) = \dfrac{1}{4}\sin 3A$.

(or)

b) If $y = \tan^{-1}\left(\dfrac{1+x}{1-x}\right)$, find y'.