KCET 2026 April 24 Mathematics

Question Paper (Memory-Based) PDF

Conducted by KEA

General Instructions

(i) **Duration:** The total duration of the examination is 80 minutes.

(ii) **Total Marks:** The complete paper carries a maximum of 60 marks.

(iii) **Compulsory Questions:** All 60 questions are compulsory.

(iv) Each question has four options. Only **one** option is correct.

(v) **Correct Answer:** +1 marks.

(vi) **Incorrect Answer:** There is no Negative marking for incorrect answers.

1.

$$\int \frac{dx}{x(x^{10}+1)} =$$

(a) $\frac{1}{10}\log\left(\frac{x^{10}}{x^{10}+1}\right)+c$

(b) $\frac{1}{10}\log\left(\frac{x^{10}}{x^{10}-1}\right)+c$

(c) $\log\left(\frac{x^{10}}{x^{10}+1}\right)+c$

(d) None

2.

$$\int \frac{1}{(x-3)(x-7)}\,dx = ?$$

(a) $\frac{1}{4}\log\left(\frac{x+7}{x+3}\right)+c$

(b) $\frac{1}{4}\log\left(\frac{x-7}{x+3}\right)+c$

(c) $\frac{1}{4}\log\left(\frac{x-7}{x-3}\right)+c$

(d) None

3.

$$\int_0^{\pi/4}(\tan^8 x+\tan^6 x)\,dx=?$$

(a) $\frac{1}{3}$

(b) $\frac{1}{2}$

(c) $\frac{1}{5}$

(d) $\frac{1}{7}$

4.

$$\int e^x\left(\log x+\frac{1}{x^2}\right)dx=?$$

(a) $e^x\left\{\log x-\frac{1}{x}\right\}+c$

(b) $e^x\left(\log x+\frac{1}{x}\right)+c$

(c) $e^x\{\log x\}+c$

(d) None

5.

$$\int e^x(\tan x+\sec^2 x)\,dx=?$$

(a) $e^x\sec x+c$

(b) $e^x\tan x+c$

(c) $e^x\cot x+c$

(d) $e^x\tan^2 x+c$

6.

$$\int_{-\pi/4}^{\pi/4} \sin^{103} x \cos^{101} x \, dx = ?$$

(a) $\left(\frac{\pi}{4}\right)^{103}$

(b) $\left(\frac{\pi}{4}\right)^{101}$

(c) 2

(d) 0

7.

$$\lim_{x \to 0} \frac{1 - \cos x}{x^2} =$$

(a) $\frac{1}{3}$

(b) $\frac{1}{2}$

(c) 3

(d) 2

8.

$$\lim_{x \to \infty} \left[\frac{1^x + 2^x + 3^x + \cdots + n^x}{n} \right]^{1/x} =$$

(a) $(n!)n$

(b) $(n!)^{1/n}$

(c) n

(d) $\ln(n!)$

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9. Let $A = \{x : x \in R;\ x$ is not a positive integer$\}$. Define $f : A \to R$ as $f(x) = \frac{2x}{x-1}$, then f is :

(A) Injective but not surjective

(B) Surjective but not injective

(C) Bijective

(D) Neither injective nor surjective

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10. The number of bijective functions from set A to itself when A contains 97 elements, is:

(A) 97

(B) $(97)^2$

(C) 97!

(D) 2^{97}

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11. Domain of $\cos^{-1}[x]$ is, where $[.]$ denotes greatest integer function

(a) $(-1, 2]$

(b) $[-1, 2]$

(c) $(-1, 2)$

(d) $[-1, 2)$

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12. Given $0 \leq x \leq \frac{1}{2}$ then the value of $\tan\left[\sin^{-1}\left\{\frac{x}{\sqrt{2}} + \frac{\sqrt{1-x^2}}{\sqrt{2}}\right\} - \sin^{-1} x\right]$ is

(a) 1

(b) $\sqrt{3}$

(c) -1

(d) $\frac{1}{\sqrt{3}}$

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13. If A and B are two events such that $P(A) = \frac{1}{2}$, $P(B) = \frac{1}{3}$ and $P(A \mid B) = \frac{1}{4}$ then $P(A' \cap B')$ is

(a) $\frac{1}{4}$

(b) $\frac{1}{12}$

(c) $\frac{3}{16}$

(d) $\frac{1}{8}$

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14. Meera visits only one of the two temples A and B in her locality. Probability that she visits temple A is $\frac{2}{5}$. If she visits temple A, $\frac{1}{3}$ is the probability that she meets her friend, whereas it is $\frac{2}{7}$ if she visits temple B. Meera met her friend at one of the two temples. The probability that she met her friend at temple B is:

(1) $\frac{7}{16}$
(2) $\frac{5}{16}$
(3) $\frac{3}{16}$
(4) $\frac{9}{16}$

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15. Which of the following functions is not invertible?

(a) $f : R \to R, f(x) = 3x + 1$
(b) $f : R \to [0, \infty), f(x) = x^2$
(c) $f : R^+ \to R^+, f(x) = \frac{1}{x^3}$
(d) None of these
