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Pune MCA Entrance Test
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We are happy to present a comprehensive analysis of this year's Pune MCA entrance test. It has been recreated with the help of PT faculty and PT students from across the nation.

The entrance test for Pune MCA had change in its pattern as compared to the last year. This year there were three sections and sectional cut off (40%) was also there. This year the weightage of the Logical Reasoning Increased tremendously. Also the number of questions increased. There were 150 questions to be solved in 3 hours. The broad classification of the questions was as follows :

Sections	No. of Questions
Higher Mathematics	45
Logical Reasoning	75
English Usage	30

A bird's eye view :

Total Number of Questions	:	150
Total Time	:	180 minutes
Marking pattern	:	Negative marking was there.
		Sectional cut off (40%) was there.

Disclaimer: All these questions have been memorised by PT students. We are merely reproducing a few of them here in fragments to ensure that the huge community of students eagerly waiting to see an objective comparison of their performance gets the right picture.

Section I
Higher Mathematics

DIRECTIONS: *For the following questions choose the correct option.*

1. $\int_0^{\pi/2} \frac{1}{1+\sqrt{\tan x}}\,dx =$

(1) π (2) $\frac{\pi}{2}$ (3) $\pi/4$ (4) 2π

(5) none of these.

Sol. Standard form $\int_0^{\pi/2} \frac{1}{1+\sqrt{\tan x}} = \frac{\pi}{4}$. **Ans.(3)**

2. $\int_0^{\pi/2} \frac{\sin x}{\sin x + \cos x}\,dx$

(1) 2π (2) π (3) $\pi/2$ (4) $\pi/4$
(5) 0

Sol. Standard form. **Ans.(4)**

3. The sum of the series whose n^{th} term is given by $t_n = \frac{n^3}{n!}$ is :

(1) 3e (2) 5e (3) 5e – 2 (4) 11e
(5) 11e – 6

Sol. $t_n = \frac{n^3}{n!} = \frac{n^2}{(n-1)!} = \frac{n+1}{(n-2)!} + \frac{1}{(n-1)!} = \frac{1}{(n-3)!} + \frac{3}{(n-2)!} + \frac{1}{(n-1)!}$

$\therefore \quad \Sigma t_n = 5e$. **Ans.(2)**

4. In the expansion of $(1 + x + x^2)\left(x + \frac{1}{x^2}\right)^6$, the coefficient of term independent of x is :

(1) 6 (2) 12 (3) 15 (4) 21
(5) no such term exist

Sol. To find the term independent of x in the given expression, we need to find coefficients of independent term, term containing x^{-1} and x^{-2} in $\left(x + \frac{1}{x^2}\right)^6$.

Term independent of x : $r = \frac{np-s}{p+q} = \frac{6-0}{3} = 2$, i.e. 3^{rd} term

Term containing $x^{-1} = \frac{6+1}{3} \notin I$, $x^{-2} = \frac{6+2}{3} \notin I$

$T_3 = {}^6C_2 \left((x)^4 \left(\frac{1}{x^2}\right)^2\right) = 15$. **Ans.(3)**

5. The minimum value of x for which the inequality $\left[\frac{x}{5}\right] + \left[\frac{x}{10}\right] + \left[\frac{x}{15}\right] \geq 3$, where [x] is greatest integer less than or equal to x, holds good :

(1) 5 (2) 30 (3) 10 (4) 15

(5) None of these

Sol. Working from option we see that x = 10 satisfies it. **Ans.(3)**

6. If two attitudes of a triangle are 5 and 4, then the minimum length of third altitude is :

(1) $\frac{20}{9}$ (2) $\frac{2}{\sqrt{3}}$ (3) 3 (4) can't be calculated

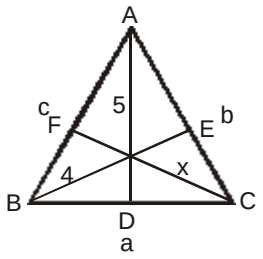
(5) None of these

Sol. Let ABC be the triangle AD, BE and CF be altitudes with length 5.4 and x respectively

Area of triangle $\Delta = \frac{1}{2}\,5a = \frac{1}{2}\,4b = \frac{1}{2}\,cx$ ...(1)

Also, we know that sum of two sides of a triangle is always greater than the third side

$\Rightarrow$ a + b > c ...(2)



From (1) and (2)

$$\frac{2\Delta}{x} < \frac{2\Delta}{4} + \frac{2\Delta}{5}$$

$$\frac{1}{x} < \frac{9}{20} \text{ or } x > \frac{20}{9}\text{. Ans.(1)}$$

7. $\lim_{n\to\infty} \frac{1}{n}\left[\frac{n^2}{n^2+1^2} + \frac{n^2}{n^2+2^2} + \frac{n^2}{n^2+3^2} + \ldots\right] =$

(1) log 2 (2) $\pi/4$ (3) 2 (4) 0

(5) does not exist

Sol. $S = \lim_{n\to\infty} \sum_{r=1}^{n} \frac{n}{n^2+r^2} = \lim_{n\to\infty} \frac{1}{n} \sum \frac{1}{1+(r/n)^2} = \int_0^1 \frac{1}{1+x^2}\,dx$

$= \frac{\pi}{4}$. **Ans.(2)**

8. If the letters of the word LETTER be arranged according to dictionary order then it will be of the form :

(1) LETTER (2) LEERTT (3) EELRTT (4) EERLTT

(5) EELTTR

Sol. **Ans.(3)**

Section II

Logical Reasoning

The break-up for the 75 questions is as follows :

Topics	No of questions
Data interpretation	7 questions
Pie graph	7 questions
Data sufficiency	8 questions
Visual Reasoning	18 questions
Symbolic code	6 questions
Miscellaneous	29 questions

Section III

English Usage (30 questions)

Topic	No. of questions
Unseen passage (2)	Each with 10 questions
Fill in the blanks (Antonyms, synonyms, complete the sentence)	10 questions

Expected Cut off : This year the question from higher mathematics part were lengthy. Moreover the Logical Reasoning part had good weightage (50%). A sincere student who has been through PT material (Folders + LR Book) must score well. Expected Sectional Cut off is as follows :

Section I : 60% (± 5%) [minimum 25 questions correct]

Section II : 70% (± 5%) [minimum 50 questions correct]

Section III : 65% (± 5%) [minimum 20 questions correct]