

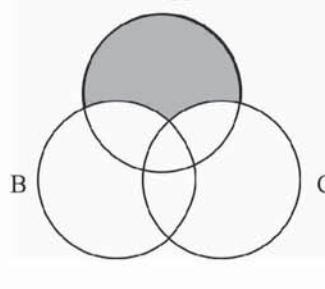
Exam Mate



Mock Test Paper for Std X, XII CBSE Board, IIT - JEE Main & Advanced.

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1. The shaded region in the figure is:



- (A) $A \cap (B \cup C)$ (B) $A \cup (B \cap C)$
 (C) $A \cap (B - C)$ (D) $A - (B \cup C)$

2. If
- α, β
- are the roots of equation
- $u^2 - 2u + 2 = 0$
- and if
- $\cot\theta = x + 1$

then $\left[\frac{(x+\alpha)^n - (x+\beta)^n}{(\alpha-\beta)} \right]$ is equal to

- (A) $\frac{\sin n\theta}{\sin^n \theta}$ (B) $\frac{\cos n\theta}{\cos^n \theta}$
 (C) $\frac{\sin n\theta}{\cos^n \theta}$ (D) $\frac{\cos n\theta}{\sin^n \theta}$

3. If
- α
- and
- β
- are roots of equation
- $x^2 - 7x - 1 = 0$
- then the value of
- $\frac{(\alpha^{10} - \beta^{10}) - (\alpha^8 - \beta^8)}{\alpha^{(\alpha+\beta+2)} - \beta^{(\alpha+\beta+2)}}$
- is equal to

- (A) 1 (B) 0
 (C) 7 (D) 1/7

4. For a matrix
- $A = \begin{bmatrix} 1 & 2r-1 \\ 0 & 1 \end{bmatrix}$
- , the value of

 $\prod_{t=1}^{50} \begin{bmatrix} 1 & 2r-1 \\ 0 & 1 \end{bmatrix}$ is equal to

- (A) $\begin{bmatrix} 1 & 100 \\ 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 4950 \\ 0 & 1 \end{bmatrix}$
 (C) $\begin{bmatrix} 1 & 5050 \\ 0 & 1 \end{bmatrix}$ (D) $\begin{bmatrix} 1 & 2500 \\ 0 & 1 \end{bmatrix}$

5. The value of the determinant

$$\begin{vmatrix} x & x+a & x+2a \\ x+1 & x+2a & x+4a \\ x+2 & x+3a & x+6a \end{vmatrix}$$

(A) 0 (B) $a^3 - x^3$
 (C) $x^3 - a^3$ (D) $(x-a)^3$

6. In how many ways we can select of 6 persons from 6 boys and 3 girls if atleast two Boys and at least two girls must be three in the committee ?

- (A) 45 (B) 55
 (C) 65 (D) 75

7. Let
- $f(n) = \sum_{r=1}^n \binom{n}{r}^2$
- then the value of
- $f(5)$
- is equal to

- (A) 1000 (B) 1250
 (C) 1750 (D) 2500

8. If
- $b_r = 1 - a_r$
- ,
- $na = \sum_{r=1}^n a_r$
- ,
- $nb = \sum_{r=1}^n b_r$
- ,

then $\sum_{r=1}^n a_r b_r + \sum_{r=1}^n (a_r - a)^2 = \dots$

- (A) ab (B) -nab
 (C) $(n+1)ab$ (D) nab

MOCK TEST PAPER # 1

IITJEE (Main) (MATHEMATICS)

Time : 1 hour Maximum Marks: 120

GENERAL INSTRUCTIONS

For each question you will be given 4 Marks if you have darkened only the bubble corresponding to the correct answer and zero mark if no bubble is darkened. In all other cases, minus one (-1) Marks (NEGATIVE MARKING) will be given.

9. If $1 + \sum_{r=0}^{18} \{r(r+2) + 1\} r! = k!$ then k is not divisible by:
 (A) 4 (B) 5
 (C) 6 (D) 10
10. Let $f: R \rightarrow (0, \infty)$ be a real valued function satisfying $\int_0^x u f(x-u) du = e^{2x} - 2x - 1$, then the value of $\lim_{x \rightarrow 0} \frac{f(x)-4}{x} =$
 (A) 4 (B) 6
 (C) 8 (D) 10
11. Number of points where function $f(x) = \max(|\tan x|, \cos|x|)$ is non differentiable in the interval $(-\pi, \pi)$ is
 (A) 4 (B) 6
 (C) 3 (D) 2
12. Let $f(x) = x^3 + ax^2 + bx + 5\sin^2 x$ be an increasing function in the set of real numbers R. Then a and b satisfy the condition:
 (A) $a^2 - 3b - 15 \geq 0$
 (B) $a^2 - 3b + 15 \geq 0$
 (C) $a^2 + 3b - 15 \leq 0$
 (D) $a > 0, b > 0$
13. If $f\left(x + \frac{y}{8}, x - \frac{y}{8}\right) = xy$ then $f(m, n) + f(n, m) = 0$
 (A) only when $m = n$
 (B) only when $m \neq n$
 (C) only when $m = -n$
 (D) for all m and n
14. $\int \frac{dx}{x(\log x)(\log \log x) \dots \left(\frac{\log \log \dots x}{8 \text{ times}}\right)}$ is equal to
 (A) $\left(\frac{\log \log \dots x}{8 \text{ times}}\right) + c$
 (B) $\left(\frac{\log \log \dots x}{7 \text{ times}}\right) + c$
 (C) $\left(\frac{\log \log \dots x}{9 \text{ times}}\right) + c$
 (D) $\left(\frac{x \log \log \dots x}{9 \text{ times}}\right) + c$
15. $\int_0^{\sqrt{2}} [x^2] dx$ is equal to: (where [] represent greatest integer function).
 (A) $2 - \sqrt{2}$ (B) $2 + \sqrt{2}$
 (C) $\sqrt{2} - 1$ (D) $\sqrt{2} - 2$
16. For non-zero vectors
 $\vec{a}, \vec{b}, \vec{c}$ $|\vec{a} \times \vec{b}| \cdot |\vec{c}| = |\vec{a}| |\vec{b}| |\vec{c}|$ holds if and only if:
 (A) $\vec{a} \cdot \vec{b} = 0, \vec{b} \cdot \vec{c} = 0$
 (B) $\vec{c} \cdot \vec{a} = 0, \vec{a} \cdot \vec{b} = 0$
 (C) $\vec{a} \cdot \vec{c} = 0, \vec{b} \cdot \vec{c} = 0$
 (D) $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{c} = \vec{c} \cdot \vec{a} = 0$
17. The distance of the point $(1, -2, 3)$ from the plane $x - y + z - 5 = 0$, measured parallel to the line $\frac{x}{2} = \frac{y}{3} = \frac{z-1}{-6}$ is equal to
 (A) 1 unit (B) 2 units
 (C) 3 units (D) $\sqrt{3}$ units
18. Intersection point of the line
 $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}$ and $\frac{x-4}{5} = \frac{y-1}{2} = \frac{z}{1}$
 (A) $(1, 1, 1)$ (B) $(-1, -1, -1)$
 (C) $(1, 0, 1)$ (D) $(-1, -1, 1)$
19. Three athletes A, B and C particular in a race. Both A and B have the same probability of winning the race and each is twice as likely to win as C. The probability that B or C wins the race is: (There is not tie and one must wins)
 (A) 2/3 (B) 3/5
 (C) 3/4 (D) 13/25
20. The area of region
 $\{(x, y) : x^2 + y^2 \leq 1 \leq x + y\}$ is:
 (A) $\frac{\pi^2}{5}$ sq. units (B) $\frac{\pi^2}{2}$ sq. units
 (C) $\frac{\pi^2}{4}$ sq. unit (D) $\left(\frac{\pi}{4} - \frac{1}{2}\right)$ sq. unit
21. The solution of the differential equation
 $\frac{dy}{dx} + \frac{2yx}{1+x^2} = \frac{1}{(1+x^2)^2}$ is:
 (A) $y(1+x^2) = c + \tan^{-1} x$
 (B) $\frac{y}{(1+x^2)} = c + \tan^{-1} x$
 (C) $y \log(1+x^2) = c + \tan^{-1} x$
 (D) $y(1+x^2) = c + \tan^{-1} x$
22. The gradient of common chord of the circles $x^2 + y^2 - 3x - 4y + 5 = 0$ and $3x^2 + 3y^2 - 7x + 8y + 11 = 0$ is
 (A) $\frac{1}{3}$ (B) $-\frac{1}{10}$
 (C) $-\frac{1}{2}$ (D) $-\frac{2}{3}$
23. A ray of light passing through at point $(1, 2)$ is reflected on the x-axis is point P and passes through the point $(5, 3)$. Then the abscissa of the point P is:
 (A) -3 (B) $\frac{13}{3}$
 (C) $\frac{13}{5}$ (D) $\frac{13}{4}$
24. The radius of the circle passing through the foci of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, and having its centre at $(0, 3)$ is
 (A) 4 (B) 3
 (C) $\sqrt{12}$ (D) $\frac{7}{2}$
25. The ends of a line segment are P(1, 3) and Q(1, 1), R is a point on the line segment PQ such that $PR : QR = 1 : \lambda$. If R is an interior point of the parabola $y^2 = 4x$, then complete values of λ is given by:
 (A) $\lambda \in (0, 1)$ (B) $\lambda \in \left(-\frac{3}{5}, 1\right)$
 (C) $\lambda \in \left(\frac{1}{2}, \frac{3}{5}\right)$ (D) $\lambda \in \left(-\frac{3}{5}, 1\right)$
26. If $x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$, then the value of
 $\tan^{-1}\left(\frac{\tan x}{4}\right) + \tan^{-1}\left(\frac{3 \sin 2x}{5 + 3 \cos 2x}\right)$ is
 (A) $\frac{x}{2}$ (B) $2x$
 (C) $3x$ (D) x
27. The number of integral values of m, for which the x-coordinate of the point of intersection of the lines $3x + 4y = 9$ and $y = mx + 1$ is also an integer is
 (A) 2 (B) 0
 (C) 4 (D) 1
28. Mean of 100 items is 49. It was discovered that three item which should have been 60, 70, 80 were wrongly read as 40, 20, 50 respectively. The correct mean is:
 (A) 48 (B) 82
 (C) 50 (D) 80
29. If $\sin \theta = -\frac{4}{5}$ and θ lies in the third quadrant, then $\cos \frac{\theta}{2}$ is equal to:
 (A) $\frac{1}{\sqrt{5}}$ (B) $-\frac{1}{\sqrt{5}}$
 (C) $\frac{\sqrt{2}}{5}$ (D) $-\frac{\sqrt{2}}{5}$
30. Consider:
 Statement-1: $(p \wedge \sim q) \wedge (\sim p \wedge q)$ is a fallacy.
 Statement-2: $(p \rightarrow q) \leftrightarrow (\sim q \rightarrow \sim p)$ is a tautology.
 (A) Statement 1 is true, statement 2 is true,
 statement 2 is not a correct explanation for statement 1
 (B) Statement 1 is true, Statement 2 is false.
 (C) Statement 1 is false, statement 2 is true.
 (D) Statement 1 is true, statement 2 is true,
 statement 2 is a correct explanation for statement 1.

For Answers visit: www.dharitri.com



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Citing higher cost, the manufacturer of the Alto and Swift cars said in a note to stock exchanges.

It has become imperative for the company to absorb some of the impact of the additional cost to consumers through price increase across various models from January 2019.



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ଶ୍ରୀ ସଂରକ୍ଷଣ ସଚେତନା ଶୋଭାଯାତ୍ରୀ

ଗୁଣ୍ଡା, ୧୪୧୨(ଡି.ଏନ୍.ଏ.)

ଗଜପତି ଜିଲ୍ଲା ମୁକ୍ତିଆ କୁଳ ସଦରଚୁ
ସରକାରୀ ଉଚ୍ଚ ବିଦ୍ୟାଲୟ ଉପରଥି
ଶୁଭ୍ରବାର ବିଦ୍ୟୁତ ଶିଳ୍ପ ସଂରକ୍ଷଣ
ସଂକ୍ରାନ୍ତ ସତେନତା ଶୋଭାଯାତ୍ର
ଆୟୋଜିତ ହୋଇଯାଇଛି । ଛାତ୍ର
ଛାତ୍ରମାନେ ପ୍ଲାକାର୍ଡ ଧରି ଓ ବିଭିନ୍ନ
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ଅନୁଷ୍ଠାତ କୁଇକ ପ୍ରତିଯୋଗିତାର କୃତ
ପ୍ରତିଯୋଗୀମାନଙ୍କୁ ପ୍ରମାଣପତ୍ର
ପରିଦ୍ୱାରା ପଦାନ ଜନାଯାଇଥିଲା

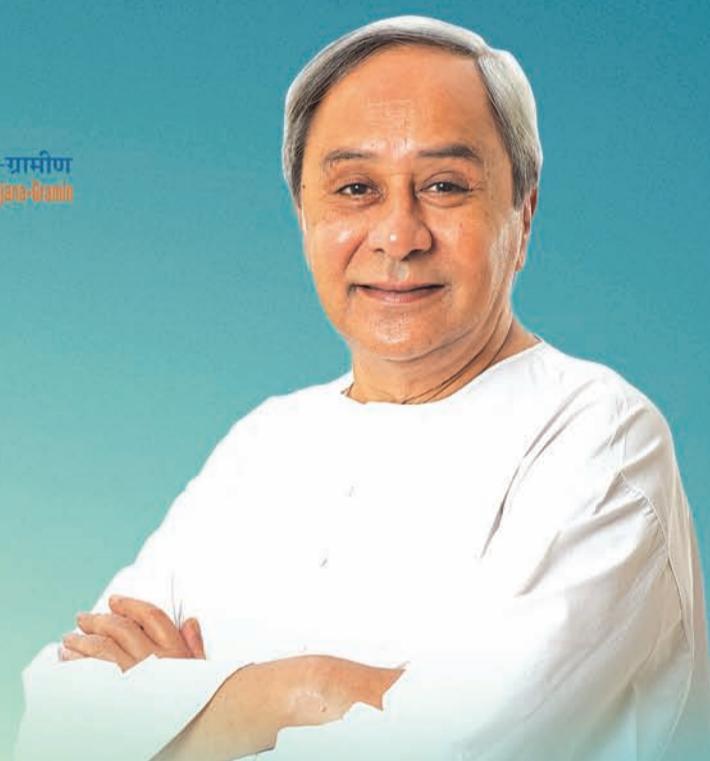
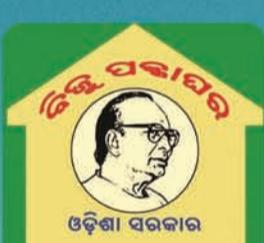
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ଧୈର୍ଯ୍ୟର ସହ ପରିଷ୍କାର ମୁକାବିଲା ପାଇଁ ପରାମର୍ଶ



କାନ୍ଦିପକ୍ଷାବେଳୀ ଧାର୍ଯ୍ୟାନ୍ତ ପତ୍ର ।

ଶୁନ୍ନା, ୧୯୧୯ (ଡ.ଏନ.୬)-

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ପଞ୍ଚାମୀତର ପନ୍ଥପୁର ଗ୍ରାମପୁଣ୍ଡିତ
ବିନୋଦିମୀ ବିଜ୍ଞାନ ମହାବିଦ୍ୟାଳୟରେ
ଗତ ୧୨ଦିନ ଧରି ଚାଲିଥିଥା ଆମ୍ବରକ୍ଷା
ତାଲିମ ଶିରି ଶୁଭ୍ରବାର ଉଦସାପିତ
ହୋଇଯାଇଛି । ଏହି କାର୍ଯ୍ୟକ୍ରମରେ
ମୁଖ୍ୟ ଅତିଥି ଭାବେ ବିଧ୍ୟାୟକ କେ.
ସୂର୍ଯ୍ୟ ରାତ୍ରି ଏବଂ ଏବଂ ମୁଖ୍ୟବଙ୍କ୍ରା ଭାବେ
ପାରାଳାଖେମୁଣ୍ଡିଲା ମହାବିଦ୍ୟାଳୟର
ଅଧ୍ୟକ୍ଷା ଅରଣ୍ୟ ସାମଲ ଯୋଗଦେଇ



(Peoples' Empowerment - Enabling Transparency and Enhancing Accountability on Odisha Initiatives)

ଗାମୀଣ ଗନ୍ଧ ନିର୍ମାଣ ଯୋଜନା

୧୯-୨୦ ଡିସେମ୍ବର ୨୦୧୮

୧. ଡିସେମ୍ବର ମାସର ୧୫ ରୁ ୨୦ ତାରିଖ ମଧ୍ୟରେ ପ୍ରତି ଗ୍ରାମ ପଞ୍ଚାଯତ୍ତ ପ୍ରକାଶରେ ପାଲନ କରାଯାଉଛି ପିଠା ଶିବିର ।
 ୨. ୪ ମାସରେ ଏବଂ ଏ ମାସରେ ଗୃହ ନିର୍ମାଣ ଶେଷ କରିଥିବା ୧ ଲକ୍ଷ ହିତା�ୁକାରୀଙ୍କୁ ୨୦୦ କୋଟି ଟଙ୍କାର ପ୍ରୋସାହନ ରାଶି ପ୍ରଦାନ କରାଯିବ ।
 ୩. ଜୌଗଳିକ ଅବସ୍ଥାରେ ରଖି, ରାଜ୍ୟ ସରକାର ନିର୍ମାଣ କରିଥିବା ନୁତନ ଗୃହ ନିର୍ମାଣ ପଞ୍ଚତି ସମ୍ପର୍କରେ ପ୍ରତ୍ୟେକ ହିତାଧୁକାରୀଙ୍କୁ ସଚେତନ କରାଯିବ ।
 ୪. ଗୃହ ନିର୍ମାଣରେ ହିତାଧୁକାରୀ ଯଦି କୌଣସି ଅସୁବିଧାର ସମ୍ବୁଦ୍ଧିନ ହେଉଥାନ୍ତି, ବୁକ୍ କର୍ମଚାରୀ ଏହାର ଆଶ୍ରୁ ସମାଧାନର ମଧ୍ୟ ନିରମଣ କରିବେ ।



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ଶ୍ରୀମଦ୍ ପଠେନ୍ଦ୍ର

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ସଂଖ୍ୟପରେ



ଗାୟତ୍ରୀ ମହାୟତ୍ରୀ

ମୁନିମୁଢ଼ା, ୧୪୧୯(ବି.ଏନ.ଏ.)

ବୁନ୍ଦିପାଇୟ ଜନଜାତି ସାଂସ୍କୃତିକ ସମାରୋହ

ଉତ୍ତରିଆଙ୍କ ନୃତ୍ୟ ମନ ମୋହିଲା

ମୁନିମୁଢ଼ା, ୧୪୧୯(ବି.ଏନ.ଏ.)

ମୁନିମୁଢ଼ା କୁଳ ଅଞ୍ଚଳ ଆୟୁମ ମ୍ରାମାରେ ସ୍ଥାନୀୟ ଗାୟତ୍ରୀ ମହାୟତ୍ରୀ ଆରମ୍ଭ ହୋଇଛି। ଏଥରେ ମୁଖ୍ୟ ବ୍ୟବସ୍ଥାପକ ଭାବେ ପ୍ରତିତ ଦିବ୍ୟାନନ୍ଦ ଦେବବାସ ଯୋଗୀ ଦେବ ଗାୟତ୍ରୀ ମନ ପଠନ କରିଥିଲେ। ସ୍ଵାମୀ ବିବାର, ଧନୀସ ପାଦା, ଉତ୍ସବ ନାୟକ, ତ୍ରୀମାତ୍ରା ନାୟକ ମୁଖ୍ୟ ଉପଦ୍ୱିତ୍ୱ ହାତିଯାଇଛି। ଜିଲ୍ଲା ସତନ୍ତ୍ର ଆଦିବାସୀ ଉତ୍ସବ ପରିଷଦ ଅଧିକାରୀ ଉପଦ୍ୱିତ୍ୱ ହାତିଯାଇଛି। ଏହି ଅବସରରେ ସହାୟତା କରିଥିଲା। ଏହି ଅବସରରେ ମହିଳାମନ୍ଦିର ଦ୍ୱାରା ଏକ କଳେ ପାତ୍ରା ଅନୁଷ୍ଠାନିକ ହୋଇଥିଲା। ଏଥୁରେ ଜିଲ୍ଲା ପରିଷଦ ସର୍ବ ରେ ଦେବବାସ ନାୟକଙ୍କ ପରିଷଦ ଅଧିକାରୀ ଉପଦ୍ୱିତ୍ୱ ହାତିଯାଇଛି। ଏଥରେ ମୁଖ୍ୟ ବ୍ୟବସ୍ଥାପକ ଭାବେ ଦେବବାସ ନାୟକଙ୍କ ପରିଷଦ ଅଧିକାରୀ ଉପଦ୍ୱିତ୍ୱ ହାତିଯାଇଛି।

ଆଜିତୁ ରାମନାରୁତ୍ରାରେ

ପିଠା କାର୍ଯ୍ୟକ୍ରମ

ରାମନାରୁତ୍ରୀ, ୧୪୧୭(ବି.ଏନ.ଏ.)

ରାମନାରୁତ୍ରୀ, ୧୪୧୭(ବି.ଏନ.ଏ.)