

ବୁଝିପୁର, ଶୁକ୍ଲବାର, ଡିସେମ୍ବର ୨୧/୨୦୧୮ (୨୦ ପୃଷ୍ଠା)

୧୪ ଶ ଭାଗ ୩୭୭ ସଂଖ୍ୟା

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Berhampur, Friday, December 21/2018

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କ୍ରିକେଟ କୋର୍ ଦୌଡ଼ରେ ଅନ୍ୟମାନଙ୍କଠାରୁ ଆଗରେ ଅଛନ୍ତି।

୧୯ ୧୪

'ବୁଝର ମାଧ୍ୟମରେ ବାନ୍ତି କରୁଛନ୍ତି ସୋନା'
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ବିଶିଷ୍ଟ ଗାୟକ ସୋନୁ ନିଗମ ପ୍ରକାଶ କରିଛନ୍ତି।



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ଏହାକୁ ଦ୍ୱାରା କରି ନାହିଁ
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ବିଶେଷତଃ

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୨୦୧୮ ଅନ୍ତର୍ବାରରେ ଦେଶରେ
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ମର୍ଜଣାଳେ ପ୍ରତ୍ୟାନି ହୋଇଥିବା
ବେଳେ ଏହା ଏଥୁରେ ୧୦.୮୮% କୁଣ୍ଡ
ପାଇଁଛା । - ବାଣିଜ୍ୟ ମନ୍ତ୍ରାଳୟ

CBSE
Exam Mate
ପୃଷ୍ଠା - ୧୪

20.12.2018			
Dist	Farm Gate/Kg	With Skin/Kg	Skinless/Kg
BBSR	73	123	133
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કુલનાશ, ૭૦૧૭ (ગુયરો)
રાખ્ય રસકારક ગો-સ્વિપ્ટ આપ વારા
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૪૦૦ ટમે પૂર્ણિમિદેશ પ્રસ્તુત ગૃહણ કરાયાછો.

ગુજરાતમણીએ એક વાનિશારિ સામગ્રી પ્રસ્તુત કરુથાના
બયબાયીક પ્રસ્તુત એથી પ્રસ્તુત દેખછો રાજ્ય
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આપ પ્રચળન કરાયાયથાલા। ઉત્તે કલ્પાના કટકારે
પ્રાય માટે ૩૦ કોટિ રૂપા બાયને બાર્ષિક ૧,૧૦,૦૦૦
ટન્ન ક્ષમતા દર્શિશું એક કાર કલેનેર પ્રસ્તુત કરીન બોળી
શીંગ દિવાન સ્વરૂપ પ્રકાશ। એહી પ્રકાશ વારા પ્રાય ૧૨૦૦
નિરૂપિત મુયોશ મુશ્કે હેબ બોલી જીવાયાછો. એ નેણ શીંગ
એવિધ વાજાર ચોપ્યા કન્ફિડન્ટ યે, બયબાય કરિવા પાછાં
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સાબ્ધાન

ગુમાંનક પ્રચાર-પ્રસાર કારણું હુંગુ હાન્દી હુંગુ હેઠીની

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Exam Mate



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

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MOCK TEST PAPER # 2 CLASS-XII (MATHEMATICS)

Time Allowed : 3 hours

Maximum Marks: 100

GENERAL INSTRUCTIONS

- All questions are compulsory
- Please check that this question paper contains 29 questions.
- Questions 1-4 in Section A are very short answer type questions carrying 1 mark each.
- Questions 5-12 in Section B are short answer type questions carrying 2 marks each.
- Questions 13-23 in Section C are short answer questions carrying 4 marks each.
- Questions 24-29 in Section D are long answer questions carrying 6 marks each.
- Please write down the serial number of the questions before attempting it.

SECTION-A

- Evaluate $\int x^x (1+\log x) dx$
- If the percentage error in the edge of a cube is 1, then find error in its volume.
- If A is a matrix of order 2×3 and B is a matrix of order 3×5 , then what is the order of matrix $(AB)^T$ and $(AB)^{-1}$?
- Find the value of λ such that the line $\frac{x-2}{12} = \frac{y-1}{\lambda} = \frac{z-3}{-8}$ is perpendicular to the plane $3x - y - 2z = 7$.

SECTION-B

- If $y = |x - x^2|$, then find $\frac{dy}{dx}$ at $x = 1$
- Find the slope and equation of the normal to the curve $x = 1 - \sin\theta$, $y = b\cos^2\theta$ at $\theta = \frac{\pi}{2}$
- Evaluate $\int (x+1)e^x \log(xe^x) dx$
- A farm is engaged in breeding cow. The cows are fed on various products grown on the farm. In view of the need to ensure certain nutrient constituents (call them x, y and z), it is necessary to buy two additional products, say, A and B. One unit of product A contains 16 units of x, 8 units of y and 12 units of z. One unit of product B contains 6 units of x, 12 units of y and 18 units of z. The minimum requirement of x, y and z is 108 units, 36 units and 180 units, respectively. Product A costs ₹ 10 per unit and product B costs ₹ 60 per unit. Formulate the above as a linear programming problem to minimize the total cost.

- If $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$, find $A^2 - 4A + I$.
- Find the point on the parabola $y^2 = 18$ at which the ordinate increases at twice the rate of the abscissa.
- Show that the three points A(1, -2, -8), B(5, 0, -2) and C(11, 3, 7) are collinear, and find the ratio in which B divides AC.
- Let A and B be two events of the same sample space S of an experiment, then prove that $0 \leq P(A/B) \leq 1$, $B \neq \emptyset$

SECTION-C

- Show that $\begin{vmatrix} a & b-c & c+b \\ a+c & b & c-a \\ a-b & b+a & c \end{vmatrix} = (a+b+c)(a^2+b^2+c^2)$

OR

If $f(x) = \begin{vmatrix} a & -1 & 0 \\ ax & a & -1 \\ ax^2 & ax & a \end{vmatrix}$, by using properties of determinants, find the value of $f(2x) - f(x)$.

- If $y = \frac{\sin^{-1} x}{\sqrt{1-x^2}}$, show that $(1-x^2)\frac{d^2y}{dx^2} - 3x\frac{dy}{dx} - y = 0$

- A manufacturer considers that men and women workers are equally efficient, so he pays them at the same rate. He has 30 and 17 units of workers (male and female) and capital respectively, which he uses to produce two types of goods A and B. To produce 1 unit of A, 2 workers and 3 units of capital are required while 3 workers and 1 unit of capital is required to produce 1 unit of B. If A and B are priced at ₹ 100 and ₹ 120 per unit respectively, then how should he use his resources to maximize the total revenue? Form the above as an LPP and solve it graphically. Also write what quality of manufacturer reflects here?

16. Evaluate: $\int \frac{dx}{1-3\sin x}$

OR

Evaluate: $\int \frac{1-\sqrt{x}}{\sqrt{1+\sqrt{x}}} dx$

17. Show that: $\int_0^{\pi/2} f(\sin 2x) \sin x dx = \sqrt{2} \int_0^{\pi/4} f(\cos 2x) \cos x dx$

18. Solve the equation $\tan^{-1} \sqrt{x^2+x} + \sin^{-1} \sqrt{x^2+x+1} = \frac{\pi}{2}$

19. Solve the following differential equation $(1+x^2) \frac{dy}{dx} - 2xy = (x^2+2)(x^2+1)$, when $x = 1$ and $y = 2$

20. Find the distance from the point (3, 4, 5) to the point,

where the line $\frac{x-3}{1} = \frac{y-4}{2} = \frac{z-5}{2}$ meets the plane $x + y + z = 2$

21. Find the probability distribution of number of doublets in three throws of a pair of dice.

22. Show that area of the parallelogram whose diagonals are given by \vec{a} and \vec{b} is $\frac{|\vec{a} \times \vec{b}|}{2}$. Also, find the area of the parallelogram whose diagonals are $2\hat{i} - \hat{j} + \hat{k}$ and $\hat{i} + 3\hat{j} - \hat{k}$

23. A letter is known to have come from either 'TATANAGAR' or 'CALCUTTA'. On the envelope just two letters 'TA' are visible. What is the probability that the letter has come from

- TATANAGAR ?
- CALCUTTA ?

OR

If A and B are two independent events such that $P(\bar{A} \cap B) = \frac{2}{15}$ and $P(A \cap \bar{B}) = \frac{1}{6}$, then find P(A) and P(B).

SECTION-D

- If $f : R \rightarrow R$ is a function defined by $f(x) = 2x^3 - 5$, then show that the function f is a bijective function.

OR

Consider $f : R \rightarrow R$ given by $f(x) = 4x + 3$. Show that f is invertible and find the inverse of f.

- The sum of three numbers is 6. If we multiply third number by 3 and add second number to it, we get 11. By adding first and third numbers, we get double of the second number. Represent it algebraically and find the numbers using matrix method.

OR

If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$, prove that $A^n = \begin{bmatrix} 3^{n-1} & 3^{n-1} & 3^{n-1} \\ 3^{n-1} & 3^{n-1} & 3^{n-1} \\ 3^{n-1} & 3^{n-1} & 3^{n-1} \end{bmatrix}$, $n \in N$

26. Sketch the graph of $y = |x+3|$ and evaluate $\int_{-6}^0 |x+3| dx$

27. A variable plane which remains at a constant distance 3p from the origin cuts the coordinate axes at A, B and C. Show that the locus of the centroid of $\triangle ABC$ is $x^2 + y^2 + z^2 = p^2$.

OR

If lines $\frac{x-1}{2} = \frac{y+1}{3} = \frac{z-1}{4}$ and $\frac{x-3}{1} = \frac{y-k}{2} = \frac{z}{1}$ intersect, find the value of k and hence, find the equation of the plane containing these lines.

- Find the equation of a curve passing through the point (1, 1). If the tangent drawn at any point P(x, y) on the curve meets the coordinate axes at A and B such that P is the mid-point of AB.

- Find the value of p for which the curves $x^2 = 9p(9-y)$ and $x^2 = p(y+1)$ cut each other at right angle.

For Answers visit: www.dharitri.com

