#Jenny

Finally I get this ebook, thanks for all these I can get now!

#Rio

Cool! I'am really happy

#Markus Jensen

I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu

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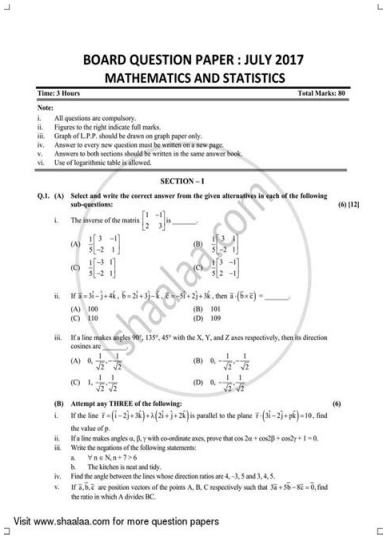
#Che Salsa

My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler

so many fake sites. this is the first one which worked! Many thanks



BOARD QUESTION PAPER : JULY 2017
MATHEMATICS AND STATISTICS

Time: 3 Hours | Total Marks: 80

Note:
i. All questions are compulsory.
ii. Figures to the right indicate full marks.
iii. Graph of L.P.P. should be drawn on graph paper only.
iv. Answer to every new question must be written on a new page.
v. Answers to both sections should be written in the same answer book.
vi. Use of logarithmic table is allowed.

SECTION – I

Q.1. (A) Select and write the correct answer from the given alternatives in each of the following sub-questions: (6) [12]

i. The inverse of the matrix $\begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix}$ is _____.

(A) $\frac{1}{5}\begin{bmatrix} 3 & -1 \\ -2 & 1 \end{bmatrix}$ (B) $\frac{1}{5}\begin{bmatrix} 3 & 1 \\ -2 & 1 \end{bmatrix}$

(C) $\frac{1}{5}\begin{bmatrix} -3 & 1 \\ -2 & 1 \end{bmatrix}$ (D) $\frac{1}{5}\begin{bmatrix} 3 & -1 \\ 2 & -1 \end{bmatrix}$

ii. If $\vec{a} = 3\hat{i} - \hat{j} + 4\hat{k}$, $\vec{b} = 2\hat{i} + 3\hat{j} - \hat{k}$, $\vec{c} = -\hat{i} + 2\hat{j} + 3\hat{k}$, then $\vec{a} \cdot (\vec{b} \times \vec{c})$ = _____.

(A) 100 (B) 101
(C) 110 (D) 109

iii. If a line makes angles 90°, 135°, 45° with the X, Y, and Z axes respectively, then its direction cosines are _____.

(A) $0, -\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}$ (B) $0, -\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}$

(C) $1, -\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}$ (D) $0, -\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}$

(B) Attempt any THREE of the following: (6)

i. If the line $\vec{r} = (\hat{i} - 2\hat{j} + 3\hat{k}) + \lambda(2\hat{i} + \hat{j} + 2\hat{k})$ is parallel to the plane $\vec{r} \cdot (3\hat{i} - 2\hat{j} + p\hat{k}) = 10$, find the value of p.

ii. If a line makes angles α, β, γ with co-ordinate axes, prove that cos 2α + cos2β + cos2γ + 1 = 0.

iii. Write the negations of the following statements:
a. $\forall\, n \in N, n + 7 > 6$
b. The kitchen is neat and tidy.

iv. Find the angle between the lines whose direction ratios are 4, -3, 5 and 3, 4, 5.

v. If $\vec{A}, \vec{B}, \vec{C}$ are position vectors of the points A, B, C respectively such that $3\vec{A} + 5\vec{B} - 8\vec{C} = \vec{0}$, find the ratio in which A divides BC.

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