

IMP for MATHEMATICS HSC BOARD EXAM 2019

Chapter 1: Logic

- Write the following statement in four different ways, conveying the same meaning.
"If you drive over 80 km per hour, then you will get a fine."
- Write the contrapositive of the inverse of the statement "If two numbers are not equal, then their squares are not equal".
 - If $(P \wedge q) \rightarrow r$ is false, then find the truth value of the negation of the statement. $(p \vee \sim r) \rightarrow (q \wedge \sim p)$
 - Show that the dual of $(p \rightarrow \sim q) \vee q$ is a contradiction.
- Textbook exercise 1.7 (Q4)
- Textbook page 38 (Q.8, Q4, Q3)
- Textbook page 39 (Q.4, Q.15, 19, 20)
- Textbook page 40 Q.29.
- Textbook page 36 read rule V for MCQs

MHTCET CRASH COURSE 2019



MHTCET 2019

CRASH COURSE

Course Duration: 21st Mar to 30th April 2019

Only at iScore Guarantee of Quality & Success

"STUDY with US

SCORE 100 Plus mark in MHTCET

THEN PAY our coaching fees after result "

Attend our Demo Classes from 10th Mar to 19th Mar.

Call Now: 9561643319

[For details & Registration | Admission Started]

Chapter 2: Matrices

- Three cricket fans, nick named as Soni, Moni and Dhoni, went to play for a country match. Their individual scores being x , y and z respectively. Find x , y , z using inversion method from the following data :
 - The sum of their scores is a century.
 - If we subtract the sum of Soni and Moni's score from twice of Dhoni's score it is still a half century.
 - Four times Moni's score minus Soni's score equal to Dhoni's score.
- Textbook page 52 Q3 and page 54 (Q5, 10,13,19)
- If A is invertible matrix of order 3 and $|A| = 5$, then find the value of $|\text{adj } A|$.
- $$\text{If } f(x) = x^2 - 2x - 3, \text{ find } f(A) \text{ when } A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$$
- $$\text{If } f(x) = \begin{bmatrix} \cos x & -\sin x & 0 \\ \sin x & \cos x & 0 \\ 0 & 0 & 1 \end{bmatrix} \text{ show that } (f(x))^{-1} = f(-x).$$

Solve the following equations by using Reduction method.

6. $\log_e^x + e^y + z^2 = 3$

$$\log_e^x + 2 e^y + 3 z^2 = 6$$

$$2 \log_e^x + 3 e^y + 4 z^2 = 1$$

7. For the matrix $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$,

verify that $A^3 - 6 A^2 + 9 A - 4 I = 0$. Hence find A^{-1} .

Chapter 3: Trigonometric functions

1. Textbook page 75 (Q9 (iii), Q17)
2. Textbook page 94 (Q17),
3. page 112 (Q13, 14)
4. proofs textbook page 79,82,84,86, 87,88,89
5. Ex 3.1.page 79 Q1 (iii), Q2 (iii)
6. Find the number of ordered pairs (x,y) satisfying $y = 2 \sin x$ and $y = 5x^2 + 2x + 3$
7. Find the number of solutions of the equation $1 + \sin x \cdot \sin^2 \left(\frac{x}{2} \right) = 0$ in $[-\pi, \pi]$
8. If $2 \cos^2 x + 3 \sin x - 3 = 0$, $0^\circ \leq x \leq 180^\circ$, then find the value of x

Hotel Management Entrance Exam 2019 Course



NCHM JEE 2019

CRASH COURSE

Preparation for NCHMJEE & MAH HMCET
Course Duration: 15th Mar to 25th April 2019

Only at iScore Guarantee of Quality & Success

“ STUDY with US

GET AIR [All India Rank] in NCHMCT JEE

THEN PAY our coaching fees after result “

Attend our Demo Classes from 5th Mar to 13th Mar.

Call Now: 9561643319

[For details & Registration | Admission Started]

Chapter 4: Pair of straight lines

1. Theorem Textbook page 116, 117, 118, 119, 125
2. Textbook page 121 (Q4), page 123 (Q7)
3. Textbook page 124 (Q 10 (iv), Textbook page 126 (Q 2, 3)
4. Textbook page 131 (18, 20 ,21 ,22)
5. If the angle between the pair of straight lines represented by the equation. $x^2 - 3xy + \lambda y^2 + 3x - 5y + 2 = 0$ is $\tan^{-1} (1/3)$ where ‘ λ ’ is non negative real number, then find ‘ λ ’.
6. The orthocentre of the triangle formed by lines $x + y = 1$, $2x + 3y = 6$ and $4x - y + 4 = 0$ lie in which quadrant?

- The slopes of the lines represented by $x^2 + 2hxy + 2y^2 = 0$ are in the ratio 1: 2 then find 'h'
- Find the condition that the lines joining origin to the points of intersection of the line $y = mx + c$ and the curve $x^2 + y^2 = a^2$ will mutually perpendicular.
- Find the distance between pair of parallel lines given by $x^2 + 2xy + y^2 - 8ax - 9a^2 = 0$
- The lines represented by $x^2 + \lambda xy + 2y^2 = 0$ and the lines represented by $(1 + \lambda) x^2 - 8xy + y^2 = 0$ are equally inclined, then find λ

Chapter 5: Vectors

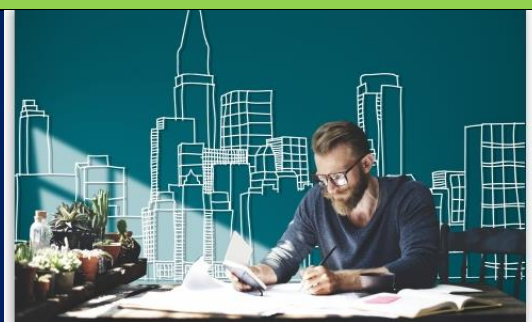
- Textbook page 137 Ex 5.1 Q3.
- Theorem Textbook page 138, page 142
- Textbook page 141 Ex 5.2 Q7, Q9
- Textbook page 146 Q2
- Textbook page 153 Q9
- A parallelogram is constructed on the vector $\vec{a} = 3\vec{\alpha} - \vec{\beta}$, $\vec{b} = \vec{\alpha} + 3\vec{\beta}$ and $|\vec{\alpha}| = |\vec{\beta}| = 2$ and angle between $\vec{\alpha}$ and $\vec{\beta}$ is $\frac{\pi}{3}$ then find lengths of the diagonals.
- $\vec{a}, \vec{b}, \vec{c}$ are three vectors such that $|\vec{a}| = |\vec{b}| = |\vec{c}| = 4$ and angles between \vec{a} and \vec{b} ; \vec{b} and \vec{c} ; \vec{c} and \vec{a} are equal to $\frac{\pi}{3}$. Find volume of parallelepiped whose adjacent sides $\vec{a}, \vec{b}, \vec{c}$.
- If \vec{a} and \vec{b} are non collinear vectors then find the value of x for which vectors $\vec{\alpha} = (x - 2)\vec{a} + \vec{b}$ and $\vec{\beta} = (3 + 2x)\vec{a} - 2\vec{b}$ are collinear.
- Let $\vec{a}, \vec{b}, \vec{c}$ are three non-zero vectors such that any two of them are non-collinear. If $\vec{a} + 2\vec{b}$ is collinear with \vec{c} and $\vec{b} + 3\vec{c}$ is collinear with \vec{a} then prove that $\vec{a} + 2\vec{b} + 6\vec{c} = \vec{0}$
- $\vec{a}, \vec{b}, \vec{c}$ represent three concurrent edges of a rectangular parallelepiped whose lengths are 4, 3, 2 units respectively then find value of $(\vec{a} + \vec{b} + \vec{c}) \cdot (\vec{a} \times \vec{b} + \vec{b} \times \vec{c} + \vec{c} \times \vec{a})$

Ch 6: Three dimensional geometry

- Read textbook page 155-156 for MCQs
- Exercise 6.1 Q.9
- Theorem page 160
- Textbook page 162 (Q6, 7)
- Misc-6 (Q 12, 13)
- The equation of motion of a particle in space is given by $x = 2t$; $y = -4t$; $z = 4t$, where t is measured in second and co-ordinates of particle in kilometre. Then find the distance covered from the starting point by the particle in 15 seconds.

Attend our **Demo Classes from 3rd Mar to 6th Mar.**

NATA Crash Course 2019



NATA 2019

CRASH COURSE

Course Duration: 8th Mar to 12th April 2019

Only at iScore Guarantee of Quality & Success

“ **STUDY** with US

GET Qualifying score in NATA

THEN PAY our coaching fees after result “

Chapter 7: Line

1. Textbook page 171 Q9
2. Exercise 7.1 page 172 Q14
3. Textbook page 176 Q2
4. Textbook page 179 Q7
5. Textbook page 182 Q17
6. A line makes the same angle θ with each of X and Z – axis. If the angle β which it makes with Y axis is such that $\sin^2\beta = 3 \sin^2\theta$, then find the value of $\cos^2\theta$

Chapter 8: Plane

1. Textbook page 186 (Q4)
2. Textbook page 190 (Q2)
3. Textbook page 192 exercise 8.1 Q12
4. Textbook page 199 exercise 8.2 Q 6,9, 10
5. Misc - 8. Page 201 Q13, Q15

NEET Crash Course 2019**NEET 2019****CRASH COURSE**

Course Duration: 21st Mar to 30th April 2019

Only at iScore Guarantee of Quality & Success

“ STUDY with US

QUALIFY in NEET

THEN PAY our coaching fees after result “

Attend our *Demo Classes* from 10th Mar to 19th Mar.

Call Now: 9561643319

[For details & Registration | Admission Started]

Chapter 9: Linear Programming

1. Textbook page 206 (Q 4)
2. Textbook page 209 (Q 11)
3. Textbook page 217 problem based on infinite nos of optimal solution, unbounded solutions, infeasible solution.
4. Find the area of feasible region for the constraints $x + 3y \leq 3$, $x \geq 0$, $y \geq 0$
5. Find the solution set of inequation $x - 2y \geq 0$, $2x - y + 2 \leq 0$, $x \geq 0$, $y \geq 0$.
6. Draw the geometrical shape of the common region represented by the inequalities $0 \leq x \leq 6$, $0 \leq y \leq 4$

Chapter 10: Continuity

1. Textbook page 8 (Q.4, 5, 8)
2. Textbook page 14(Q xv)
3. Textbook page 17 Q.5 (viii)
4. Textbook page 23 (Q.4, 5,6)
5. Textbook page 27 Q2 (viii)
6. Let $f(x)$ be a continuous function and $g(x)$ be a discontinuous function, prove that $f(x) + g(x)$ is discontinuous function.

7. Discuss the continuity of the function

$$f(x) = \frac{(1 - \tan(x/2))(1 - \sin x)}{(1 + \tan(x/2))(\pi - 2x)^3}, x \neq \pi/2$$

$$= \frac{1}{16}, x = \pi/2 \text{ at } x = \pi/2$$

8. Let $f(x) = \frac{\log(1+x-x^2) + \log(1-x+x^2)}{\sec x - \cos x}, x \neq 0$

then find the value of $f(0)$ so that $f(x)$ is continuous at $x = 0$

MHTCET CRASH COURSE 2019



MHTCET 2019
CRASH COURSE

Course Duration: 21st Mar to 30th April 2019

Only at iScore Guarantee of Quality & Success

“ STUDY with US

SCORE 100 Plus mark in MHTCET

THEN PAY our coaching fees after result “

Attend our Demo Classes from 10th Mar to 19th Mar.

Call Now: 9561643319

[For details & Registration | Admission Started]

Chapter 11: Derivatives

1. Let $f(x) = e^x, g(x) = \sin^{-1}x$ and $h(x) = f(g(x))$ then find $\frac{h'(x)}{h(x)}$
2. Find the derivative of $f(\tan x)$ w.r. to $g(\sec x)$ at $x = \pi/4$ where $f'(1) = 2$ and $g'(\sqrt{2}) = 4$
3. If $y = \tan^{-1} \left(\frac{1}{1+x+x^2} \right) + \tan^{-1} \left(\frac{1}{x^2+3x+3} \right) + \tan^{-1} \left(\frac{1}{x^2+5x+7} \right) + \dots + n$ terms then find $y'(0)$
4. If $f(x) = \cos x \cos 2x \cos 4x \cos (8x) \dots \cos 16x$ then find $f'(\pi/4)$
5. If f be twice differentiable function such that $f''(x) = -f(x)$ and $f'(x) = g(x)$, $h(x) = [f(x)]^2 + [g(x)]^2$ if $h(5) = 10$ then find $h(10)$.
6. If $y = \sqrt{x + \sqrt{y + \sqrt{x + \sqrt{y + \dots}}}}$

show that $\frac{dy}{dx} = \frac{y^2 - x}{2y^3 - 2xy - 1}$

7. Theorem Textbook page 33, 43, 71
9. Textbook page 61 Q4 (vii, xi)
11. Textbook page ex 2.5 Q2 (ix, xii)
13. Textbook page ex 2.7 Q3 (vii)

8. Textbook page 36 ex2. 1 Q5
10. Textbook page ex 2.4 Q3 (iii)
12. Textbook page ex 2.6 Q4 (vii)

Chapter 12: Application of Derivatives

Hotel Management Entrance Exam 2019 Course



1. Textbook page 90 Q3, Q5, Misc-3 page 114 Q 3, 21
2. Textbook page 97 Q 7, 15, 16
3. Textbook page 100 Q4, Q5 , exercise 3.3 Q7,
4. Using LMVT, find a point on the curve $y=x^2+x$ where the tangent is parallel to the chord joining (0,0) and (1, 2)
5. Textbook page 104 ex 3.4 Q4.
6. Textbook page 113 ex 3.5 Q6, 12
7. Textbook page 116 Q 37, 38, 41

NCHM JEE 2019

CRASH COURSE

Preparation for NCHMJEE & MAH HMCET
 Course Duration: 15th Mar to 25th April 2019

Only at iScore Guarantee of Quality & Success

“ STUDY with US

GET AIR [All India Rank] in NCHMCT JEE

THEN PAY our coaching fees after result “

Attend our Demo Classes from 5th Mar to 13th Mar.

Call Now: 9561643319

[For details & Registration | Admission Started]

Chapter 13: Integration

1. Ex 4.1 III (Q3)
3. Textbook page 128 Q4 (iv)
5. Ex 4.6 Q1 (8)
7. If $\int [\log(\log x) + (\log x)^{-2}] dx = f(x) + c$ then find $f(x)$.
8. Theorem on page 122- 123, 136 - 139, 166 - 168
4. Ex 4.2 Q3 (10)
6. Ex 4.9 Q2 (5)

Also find $f(x)$ when graph of $y = f(x)$ passes through the point (e, e)

8. Evaluate $\int x \cdot (x^x)^x (2 \log x + 1) dx$
9. Show that $\int \frac{dx}{\sin^4 x}$ is a polynomial of degree three in $\cot x$.

Chapter 14: Definite Integration

1. Textbook exercise 5.2 Q30
2. Textbook page 214 (Q2, Q3)
3. Properties textbook page 215, 221, 225.
4. Textbook page 233 Q3 (7)
5. Textbook page 187 Q1 (iii)

Chapter 15: Application of Definite Integral

1. Textbook page 238 Q5, Q8
2. Find the area enclosed within the curves $x| + |y| = 1$

NATA CRASH COURSE 2019**NATA 2019****CRASH COURSE**

Course Duration: 8th Mar to 12th April 2019

iScore Guarantee of Quality

“ **STUDY** with US

GET Qualifying score in NATA

THEN PAY our coaching fees after result “

Attend our **Demo Classes** from 3rd Mar to 6th Mar.

Call Now: 9561643319

[For details & Registration | Admission Started]

Chapter 16: Differential equation

1. Textbook page 249 exercise 7.1 Q1 (viii, ix, x)
2. Textbook page 250 Q1, Q5
3. Textbook page 273 Q10, 14.
4. Textbook page 266 Q5
5. Textbook page 274 Q.20.
6. Find differential equation associated to the primitive $y = ae^{4x} - be^{-3x} + c$
7. Find A if $x = 4t^3$, $y = 4t^2 - t^4$ constitute a solution of the differential equation

$$36 \frac{d^2y}{dx^2} [y - (2x)^{2/3}] = A + \left(\frac{x}{4} \right)^{2/3}$$

8. Find the particular solution of the differential equation given as

$$e^{\frac{dy}{dx}} = x + 1 \text{ at } y(0) = 3$$

9. Find $y(\pi/2)$ if $(2 + \sin x) \frac{dy}{dx} + (y + 1) \cos x = 0$ and $y(0) = 1$
10. Verify $y = \frac{1}{4} e^{-2x} + cx + d$, is the solution of the differential equation $\frac{d^2y}{dx^2} = e^{-2x}$
11. Find the equation of the curve whose slope $\frac{dy}{dx} = \frac{2y}{x}$, $x, y > 0$ which passes through the point (1, 1)
12. Find the equation of curve passing through $(1, \pi/4)$ and having slope $\frac{\sin 2y}{x + \tan y}$ at (x, y)
13. Find the integrating factor (I.F.) of differential equation $\frac{dy}{dx} = e^{-y} (1 - e^y)$

Ch 8 Probability Distribution

- Textbook page 284 Q4
- Textbook page 288 Q7, 8
- Textbook page 295 Q4
- Textbook page 298 Q3
- Textbook page 304 Q11, 14
- In a roadside joint, veg and non-veg samosas are served along with other things. Profit per samosa is 3 rupees for a veg samosa and 5 rupees for a non-veg samosa. The probability distribution for the demand of veg and non-veg samosa are as follows:

i)	Demand (veg) :	10	15	20	25	30
	Probability :	0.3	0.2	0.3	0.15	0.05
ii)	Demand (non-veg) :	5	7	9	11	
	Probability :	0.4	0.3	0.15	0.15	

Which type of samosa brings in more expected profit?

Ch 9 Binomial Distribution

- India plays two matches each with West Indies and Australia. In any match the probabilities of India getting point 0, 1, 2 are 0.45, 0.05 and 0.50 respectively. Assuming that the outcomes are independent. Find the probability of India getting at least 7 points.
- 100 identical coins, each with probability p , of showing up heads are tossed once. If $0 < p < 1$ and the possibility of heads showing on 50 coins is equal to that of heads showing on 51 coins, then find the value of p .
- In a bag containing 100 eggs, 10 eggs are rotten. Find the probability that out of a sample of 5 eggs none are rotten, if the sampling is with replacement.
- A fair coin is tossed six times. What is the probability of obtaining four or more heads?
- The probability of India winning a test match against England is $2/3$. Assuming independence from match to match, find the probability that in a 7 match series India's third win occurs at the 5th match.
- Let x denotes the number of times heads occur in n tosses of a fair coin, if $P(X = 4)$, $P(X = 5)$ and $P(X = 6)$ are in A.P. find n .
- Textbook page 312 Q4.

BEST CLASSES for Coaching of MHTCET | NATA | Hotel Mgmt Entrance | NEET | NDA

iScore is the only institute that offer **Guarantee of Quality where it gives student advantage to pay coaching fees after result only if they succeed. STUDY WITH US → SCORE IN EXAM → THEN PAY AFTER RESULT**

Visit us for imp of Biology on www.iscoreAcademy.com