

# JEE ADVANCED

2016

## TOPIC WISE ANALYSIS



# JEE Advanced 2016 Paper

<b>Exam Conducting Body</b>	<b>IIT Guwahati</b>
<b>Exam Date</b>	<b>22nd May, 2016</b>
<b>Exam Mode</b>	<b>Computer-Based Online Test</b>
<b>Exam Paper and Duration</b>	<b>2 papers (Paper 1 and Paper 2) of 3 hours each</b>
<b>Subjects or Sections</b>	<b>Physics, Chemistry, Maths</b>
<b>Total Marks</b>	<b>372 Marks</b>
<b>Question Types</b>	<b>MCQs, Numerical Problems, Comprehension, list match sets</b>

# JEE Advanced 2016 Paper Marking Scheme

JEE Advanced Paper I and Paper II are divided into **three sections** containing three different subjects each.

- Number of Parts (One for each Subject): **3**
- Number of Sections per Part: **3**

Paper I					Paper II			
Section	Question Pattern	Marking Scheme	No. of Q.	Total Marks	Question Pattern	Marking Scheme	No. of Q.	Total Marks
1	Single Answer Correct Type	+3 for correct, -1 for wrong	5	15	Single Answer Correct Type	+3 for correct, -1 for wrong	6	18
2	Multiple Answers Correct Type	+4 for correct, +1 for Partial correct, -2 for wrong	8	32	Multiple Answers Correct Type	+4 for correct, +1 for Partial correct, -2 for wrong	8	32
3	Numerical Answer Type	+3 for Correct, No Negative Marking	5	15	Paragraph	+3 for Correct, No Negative Marking	4	12

# JEE Advanced 2016 Paper: Distribution of Questions

The distribution of questions in both Paper I and Paper II is given below:

Subject	Class 11		Class 12		Total	
	No of Questions	Total Marks	No of Questions	Total Marks	No of Questions	Total Marks
Chemistry	11	37	25	87	36	124
Mathematics	18	59	18	65	36	124
Physics	13	45	23	79	36	124
Grand Total	42	141	66	231	108	372

# JEE Advanced 2016: Expert's Viewpoint

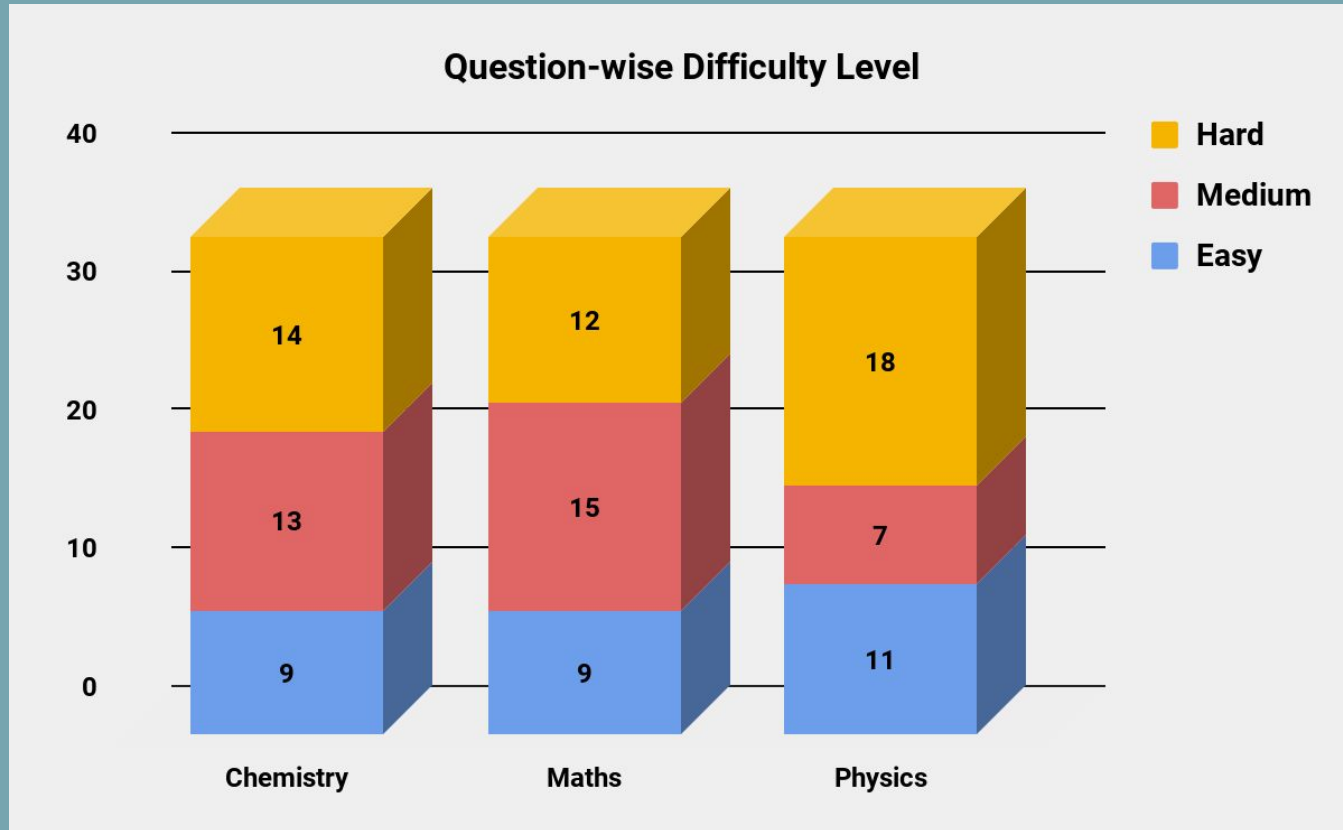
As per the experts, the two papers were set in the following manner:

Subjects	Difficulty Level
Physics	On a moderate level. Took longer time to solve all the questions.
Chemistry	Consisted of few tricky questions requiring greater alertness and sound knowledge of the fundamentals.
Maths	From moderate to difficult level. Questions from the topic of Calculus were lengthy.
Overall	Both the papers were quite moderate and well balanced paper. Quite similar to 2015 paper in terms of the difficulty level.

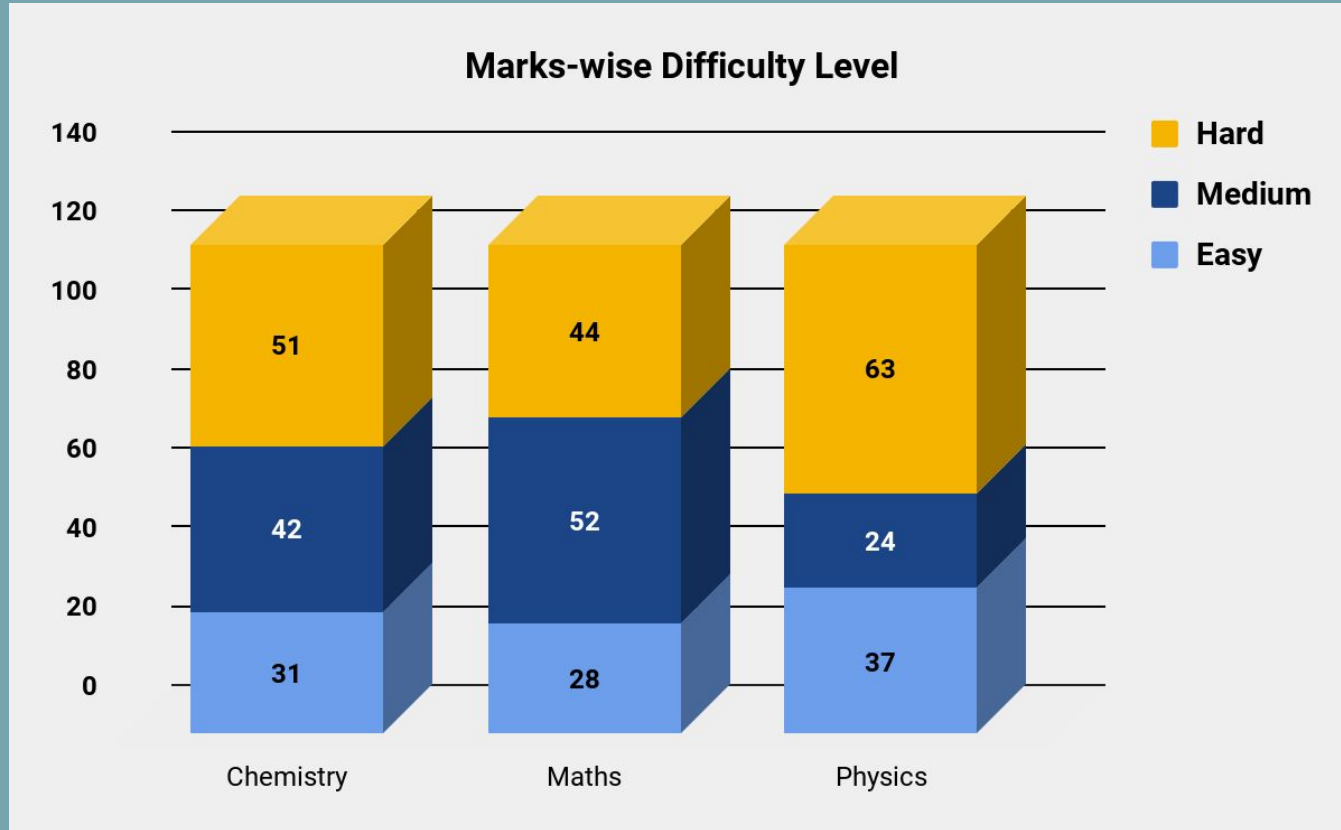
# JEE Advanced 2016 Overall Difficulty Analysis

Subject	Easy		Moderate		Tough	
	No. of Questions	Total Marks	No. of Questions	Total Marks	No. of Questions	Total Marks
Physics	11	37	7	24	18	63
Chemistry	9	31	13	42	14	51
Maths	9	28	15	52	12	44
Grand Total	29	96	35	118	44	158

# JEE Advanced 2016 Question-wise Difficulty Level



# JEE Advanced 2016 Marks-wise Difficulty Level





# JEE Advanced 2016 Paper Analysis: Physics

- Physics section had a blend of easy, medium and difficult level questions.
- However, Physics paper demanded more time.
- Questions were asked from almost all the units but more weightage was given to Mechanics.
- In paper II, this section was difficult as more of lengthy and calculation based questions were asked.

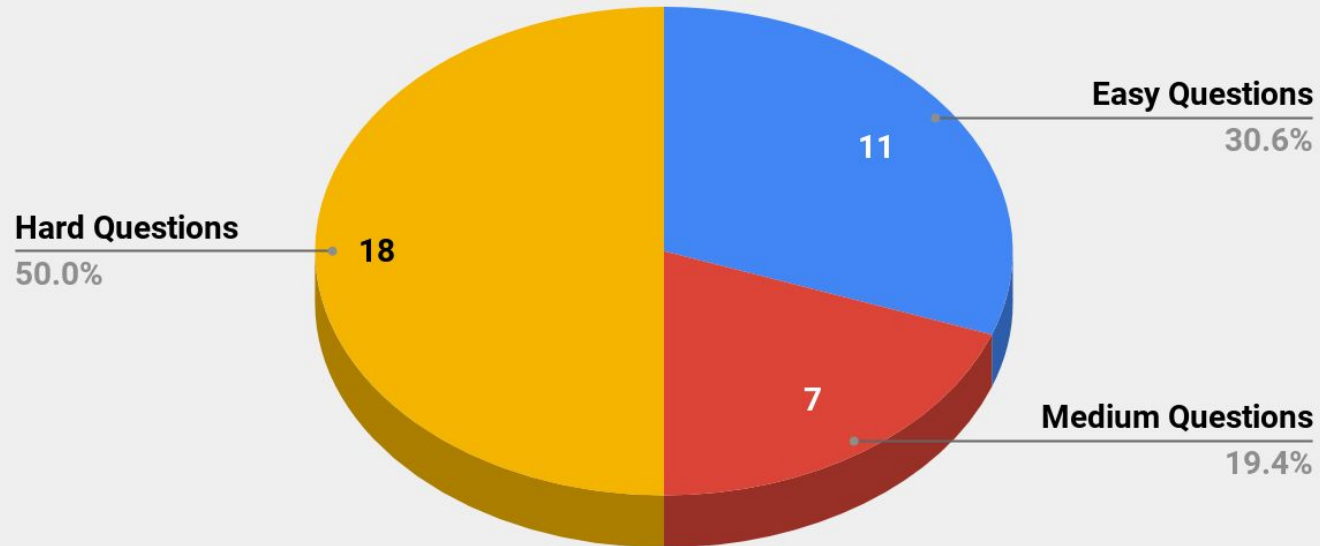
Subject	Class 11		Class 12		Total	
	No. of Questions	Total Marks	No. of Questions	Total Marks	Total Questions	Total Marks
Physics	13	45	23	79	36	124

Topic wise Question Breakup in Physics		
Topics	No of Questions	Weightage of Marks
<b>Electrodynamics</b>	<b>8</b>	<b>22.58%</b>
Capacitance	2	4.84%
Current Electricity	2	6.45%
Electromagnetic Field	1	2.42%
Electromagnetic induction	3	8.87%
<b>Heat &amp; Thermodynamics</b>	<b>5</b>	<b>12.90%</b>
Calorimetry & Thermal Expansion	1	2.42%
Heat Transfer	3	8.06%
KTG & Thermodynamics	1	2.42%
<b>Mechanics</b>	<b>9</b>	<b>25.00%</b>
Circular Motion	2	4.84%
Elasticity & Viscosity	1	2.42%
Error in Measurement	2	5.65%

Topic wise Question Breakup in Physics		
Topics	No of Questions	Weightage of Marks
Rigid Body Dynamics	3	8.87%
Unit & Dimension	1	3.23%
<b>Modern Physics</b>	<b>7</b>	<b>18.55%</b>
Modern Physics	7	18.55%
<b>Optics</b>	<b>5</b>	<b>14.52%</b>
Geometrical Optics & Physical Optics	4	11.29%
Wave Optics	1	3.23%
<b>SHM &amp; Waves</b>	<b>2</b>	<b>6.45%</b>
SHM	1	3.23%
Sound Waves	1	3.23%

# JEE Advanced 2016 Paper Analysis: Physics Section

No of Questions and Difficulty Percentage



# JEE Advanced 2016 Paper Analysis: Chemistry

- Chemistry section in paper I was on the difficult side whereas in paper II this section was relatively easier.
- The questions in both paper I and II were quite tricky which required alertness and sound fundamentals.
- Physical, organic and inorganic chemistry had almost same weightage.
- Organic chemistry questions were above moderate level.

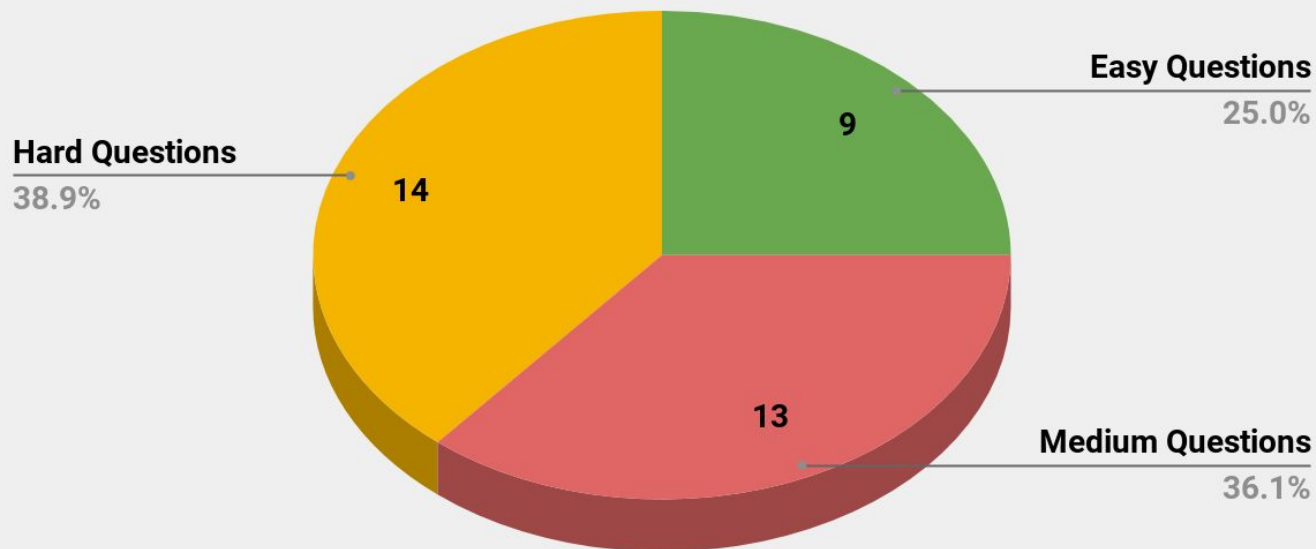
Subject	Class 11		Class 12		Total	
	No. of Questions	Total Marks	No. of Questions	Total Marks	Total Questions	Total Marks
Chemistry	11	37	25	87	36	124

Topic wise Question Breakup in Chemistry		
Topics	No of Questions	Weightage of Marks
<b>Inorganic Chemistry-I</b>	<b>5</b>	<b>15.32%</b>
Chemical Bonding	2	6.45%
p-block	3	8.87%
<b>Inorganic Chemistry-II</b>	<b>5</b>	<b>13.71%</b>
Coordination Compounds	2	4.84%
Metallurgy	1	3.23%
Qualitative Analysis	2	5.65%
<b>Organic Chemistry-I</b>	<b>1</b>	<b>2.42%</b>
General Organic Chemistry- II	1	2.42%
<b>Organic Chemistry-II</b>	<b>12</b>	<b>33.87%</b>
Alkyl Halide, Alcohol & Ether (Reaction Mechanism)	1	3.23%
Amines	1	3.23%
Aromatic Compounds	1	3.23%
Biomolecules	1	3.23%

Topic wise Question Breakup in Chemistry		
Topics	No of Questions	Weightage of Marks
Carbonyl compounds	1	2.42%
Grignard Reagent, Reduction, Oxidation & Hydrolysis	2	4.84%
Polymers	1	2.42%
Practical Organic Chemistry	2	6.45%
Stereoisomerism	2	4.84%
<b>Physical Chemistry-I</b>	<b>7</b>	<b>16.94%</b>
Atomic Structure & Nuclear Chemistry	1	2.42%
Chemical Equilibrium	2	4.84%
Gaseous State	1	2.42%
Mole Concept	3	7.26%
<b>Physical Chemistry-II</b>	<b>6</b>	<b>17.74%</b>
Chemical Kinetics	2	6.45%
Electrochemistry	1	2.42%
Solid State	1	3.23%
Solution & Colligative Properties	1	3.23%
Surface Chemistry	1	2.42%

# JEE Advanced 2016 Paper Analysis: Chemistry Section

No of Questions and Difficulty Percentage





# JEE Advanced 2016 Paper Analysis: Maths Section

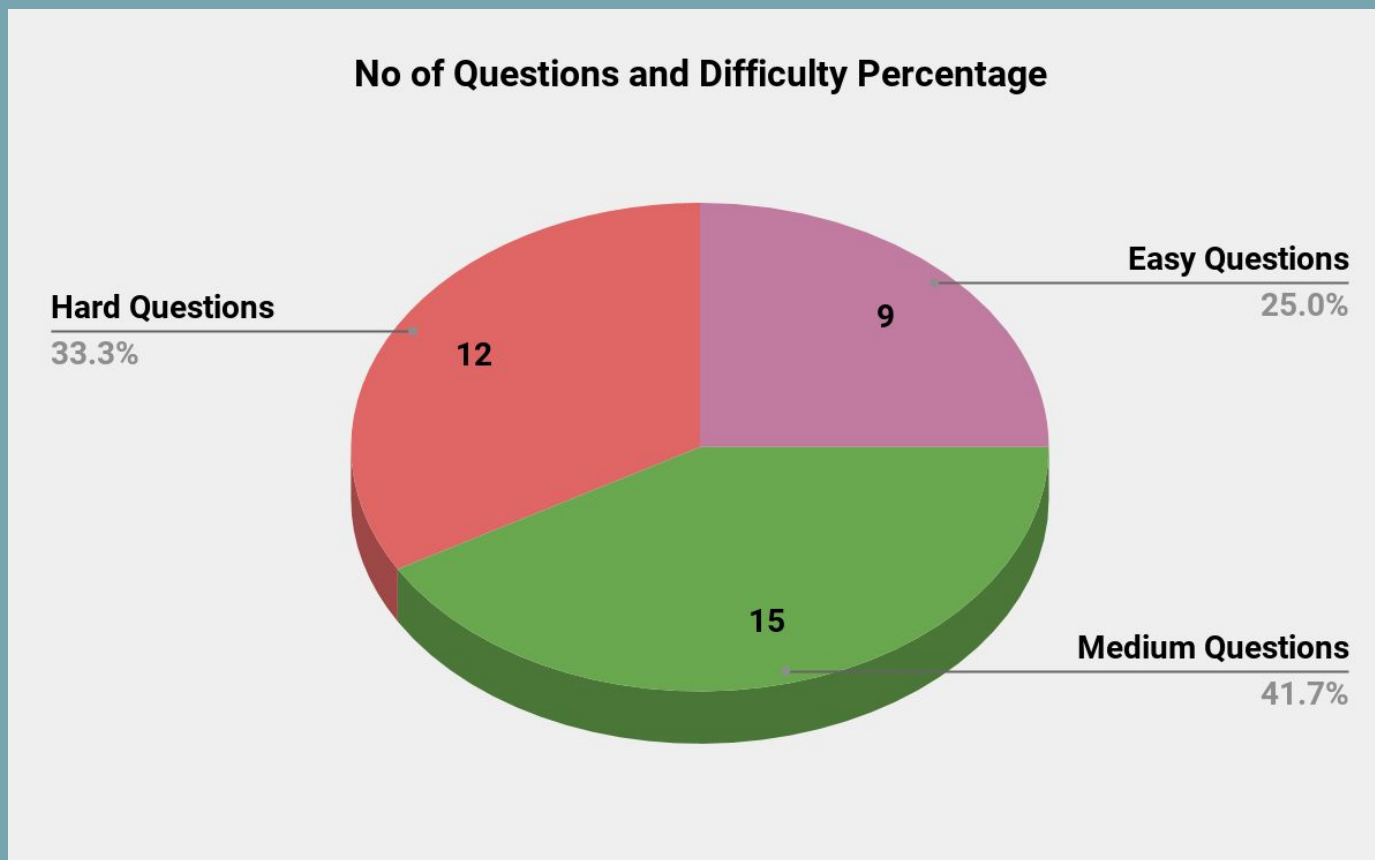
- Mathematics section was from moderate to difficult level.
- This section consisted of question that were a bit lengthy and calculation intensive.
- No questions were doubtful or ambiguous.
- Few questions from calculus took more time to solve.

Subject	Class 11		Class 12		Total	
	No. of Questions	Total Marks	No. of Questions	Total Marks	Total Questions	Total Marks
Maths	18	59	18	65	36	124

Topic wise Question Breakup in Maths		
Topics	No of Questions	Weightage of Marks
<b>Binomial Theorem</b>	<b>1</b>	<b>2.42%</b>
Complex Numbers	2	5.65%
<b>Coordinate Geometry</b>	<b>5</b>	<b>14.52%</b>
Circle	1	3.23%
Ellipse	2	4.84%
Parabola	2	6.45%
<b>Differential Calculus</b>	<b>5</b>	<b>15.32%</b>
Application of Derivatives	2	6.45%
Limit, Continuity & Differentiability	3	8.87%
<b>Fundamentals of Mathematics</b>	<b>1</b>	<b>2.42%</b>
<b>Integral Calculus</b>	<b>6</b>	<b>16.94%</b>
Area Under Curve	1	2.42%
Definite integration	3	8.06%
Differential Equation	2	6.45%

Topic wise Question Breakup in Maths		
Topics	No of Questions	Weightage of Marks
Matrix & Determinants	4	11.29%
Permutation & Combination	1	2.42%
Probability	3	7.26%
Quadratic Equation	1	2.42%
Sequence & Series	1	2.42%
Trigonometry	3	8.06%
Solution of Triangle	1	3.23%
Trigonometric equation	1	2.42%
Trigonometric Ratio & identities	1	2.42%
Vector and 3D	3	8.87%
Coordinate Geometry (3-D)	2	5.65%
Vector	1	3.23%

# JEE Advanced 2016 Paper Analysis: Maths Section



# Important Topics Asked in JEE Advanced 2016 Paper: Physics

- ❑ Capacitance
- ❑ Current Electricity
- ❑ Electromagnetic induction
- ❑ Heat Transfer
- ❑ KTG & Thermodynamics
- ❑ Circular Motion
- ❑ Error in Measurement
- ❑ Rigid Body Dynamics
- ❑ Modern Physics
- ❑ Geometrical Optics & Physical Optics
- ❑ SHM
- ❑ Sound Waves

# Chemistry

- ❑ Chemical Bonding
- ❑ p-block
- ❑ Coordination Compounds
- ❑ Qualitative Analysis
- ❑ General Organic Chemistry- II
- ❑ Aromatic Compounds
- ❑ Grignard Reagent, Reduction, Oxidation & Hydrolysis
- ❑ Practical Organic Chemistry
- ❑ Stereoisomerism
- ❑ Chemical Equilibrium
- ❑ Mole Concept
- ❑ Chemical Kinetics
- ❑ Electrochemistry
- ❑ Solution & Colligative Properties

# Maths

- ❑ Complex Numbers
- ❑ Ellipse
- ❑ Parabola
- ❑ Application of Derivatives
- ❑ Limit, Continuity & Differentiability
- ❑ Definite integration
- ❑ Differential Equation
- ❑ Probability
- ❑ Quadratic Equation
- ❑ Trigonometry
- ❑ Coordinate Geometry (3-D)
- ❑ Vector

# JEE Advanced 2016 Cutoff

Category	Minimum Percentage of Marks in Each Subject	Minimum Percentage of Aggregate Marks
Common rank list (CRL)	10	20
OBC-NCL rank list	9	10
SC rank list	5	10
ST	5	10
Common-PwD rank list (CRL)	5	10
OBC-NCL-PwD rank list	5	10
SC-PwD rank list	5	10
ST-PwD rank list	5	10
Preparatory course rank lists	2.5	5



# Thank You!

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