

No. 1 INSTITUTE FOR IAS/IFoS EXAMINATIONS



OUR ACHIEVEMENTS IN IAS (FROM 2008 TO 2019)



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MAINS TEST SERIES-2021

(JUNE to DEC.-2021)

IAS/IFoS

MATHEMATICS

Under the guidance of K. Venkanna

TEST CODE: TEST-3: IAS(M)/04-JULY-2021

ODE, DYNAMICS & STATICS AND VECTOR ANALYSIS

(PAPER-I)

Time: 3 Hours

Maximum Marks: 250

INSTRUCTIONS

Each question is printed only in English.

Answer must be written in the medium specified in the admission Certificate issued to you, which must be stated clearly on the cover of the answer-book in the space provided for the purpose. No marks will be given for the answers written in a medium other than that specified in the Admission Certificate.

Candidates should attempt Question Nos. 1 and 5, which are compulsory, and any THREE of the remaining questions selecting at least ONE question from each Section.

The number of marks carried by each question is indicated at the end of the question.

Assume suitable data if considered necessary and indicate the same clearly.

Symbols/notations carry their usual meanings, unless otherwise indicated.

All questions carry equal marks.

Important Note: Whenever a question is being attempted, all its parts/ sub-parts must be attempted contiguously. This means that before moving on to the next question to be attempted, candidates must finish attempting all parts/ sub-parts of the previous question attempted. This is to be strictly followed.

Pages left blank in the answer-book are to be clearly struck out in ink. Any answers that follow pages left blank may not be given credit.



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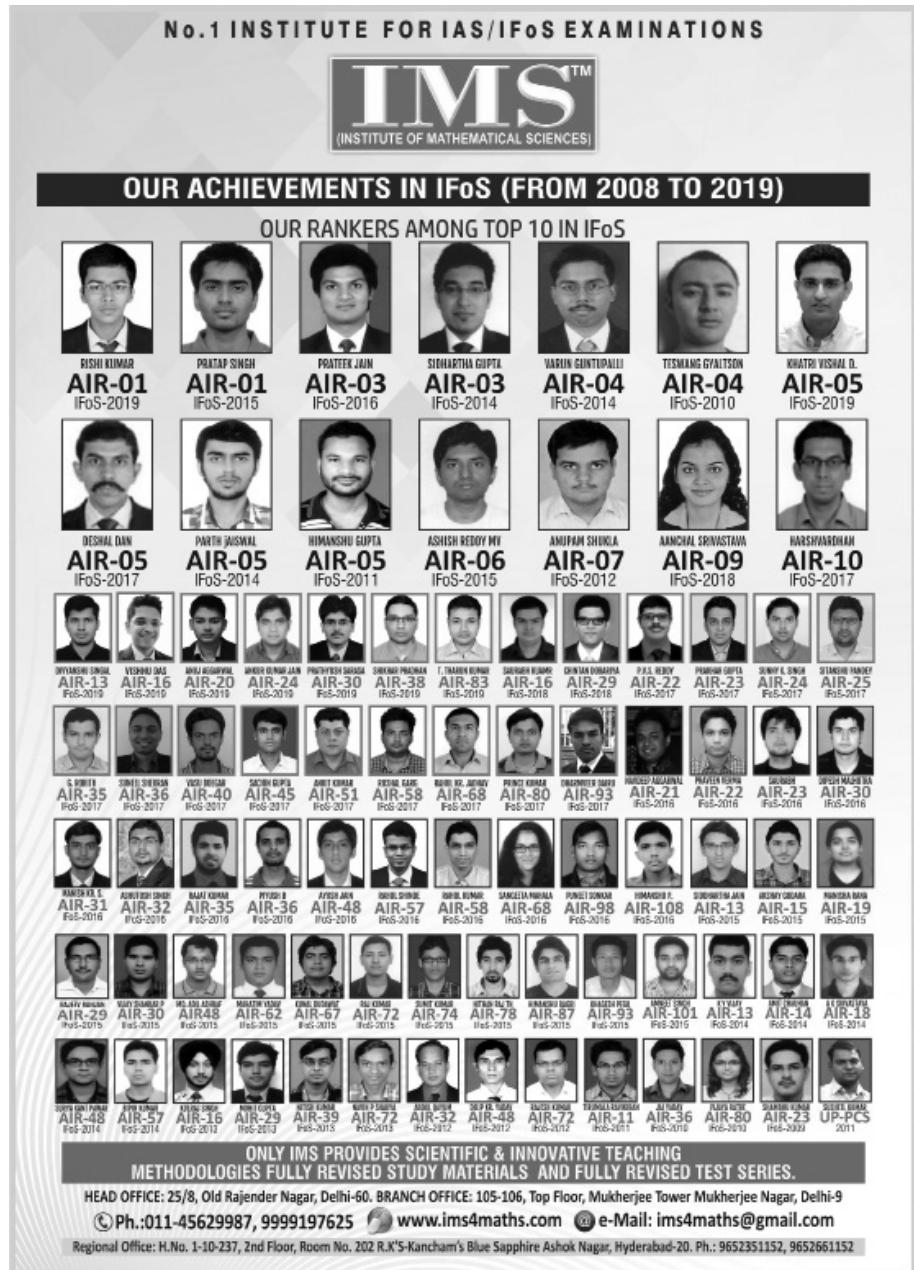
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SECTION - A

- (a) Solve $dy/dx = (x + y + 4)/(x - y - 6)$. [10]
 - (b) Solve $(D^2 + 5D + 6)y = e^{-2x} \sec^2 x (1 + 2 \tan x)$. [10]
 - (c) A uniform solid hemisphere rests in equilibrium upon a rough horizontal plane with its curved surface in contact with the plane and a particle of mass m is fixed at the centre of the plane face. Show that for any value of m , the equilibrium is stable. [10]
 - (d) Find the values of constant λ and μ so that the surfaces $\lambda x^2 - \mu yz = (\lambda + 2)x$, $4x^2y + z^3 = 4$ intersect orthogonally at the point $(1, -1, 2)$. [10]
 - (e) Find $\int_C \mathbf{F} \cdot d\mathbf{r}$ on every path between $(0, 0, 1)$ and $(1, \pi/4, 2)$ where $\mathbf{F} = (2xyz^2, (x^2 z^2 + z \cos yz), (2x^2 yz + y \cos yz))$. [10]
 - (a) (i) Solve $\sin x (dy/dx) + 3y = \cos x$.
(ii) Find the orthogonal trajectories of family of parabolas $y^2 = 4a(x + a)$, where a is parameter. [8+10=18]
 - (b) A square framework, formed of uniform heavy rods of equal weight W , jointed together, is hung up by one corner. A weight W is suspended from each of the three lower corners and the shape of the square is preserved by a light rod along the horizontal diagonal. Find the thrust of the light rod. [16]
 - (c) (i) Determine the constants a and b such that the curl of vector $\bar{A} = (2xy + 3yz)\hat{i} + (x^2 + axz - 4z^2)\hat{j} - (3xy + byz)\hat{k}$ is zero.
(ii) Show that $\vec{V}(x, y, z) = 2xy\hat{z} + (x^2z + 2y)\hat{j} + x^2y\hat{k}$ is



IAS/IFoS MATHEMATICS

(Optional)

by K. Venkanna

OUR SUCCESSFUL STUDENTS IN CSE 2018 with HIGHEST MARKS



KANISHAK KATARIA
AIR-01
MARKS
361/500



K. VARUN REDDY
AIR-07
MARKS
324/500



TANMAY V. SHARMA
AIR-10
MARKS
336/500



G.S.S. PRAVEENCHAND
AIR-64
MARKS
342/500



MANISHA RANA
AIR-67
MARKS
326/500



DALIP KUMAR
AIR-73
MARKS
327/500



KHUSHBOO GUPTA
AIR-80
MARKS
326/500



JAY SHIVANI
AIR-81
MARKS
336/500



AANCHAL SRIVASTAVA
AIR-110
MARKS
309/500



HIMANSHU PRAJAPATI
AIR-124
MARKS
328/500



SUNEEL SHEORAN
AIR-192
MARKS
325/500



AKASH SINGH
AIR-193
MARKS
336/500



SACHIN BANSAL
AIR-348
MARKS
316/500



KATTA RAVI TEJA
AIR-349
MARKS
322/500



RAJAT BHARDWAJ
AIR-366
MARKS
302/500



C. VISHNU CHARAN
AIR-406
MARKS
312/500



PANKAJ KUMAWAT
AIR-443
MARKS
334/500



SANJAY SAHU
AIR-526
MARKS
305/500



AMIT KUMAWAT
AIR-600
MARKS
320/500

And Many More...

irrotational and find a scalar function $u(x, y, z)$ such that $\vec{V} = \text{grad}(u)$. [16]

3. (a) Reduce the equation $x^2y'' - 2x(1+x)y' + 2(1+x)y = x^3$, ($x > 0$) into the normal form and hence solve it. [15]
3. (b) A particle moves in a plane under a central force which varies inversely as the square of the distance from the fixed point, find the orbit. [18]
3. (c) Verify Stokes theorem for $A = (y - z + 2)\mathbf{i} + (yz + 4)\mathbf{j} - xz\mathbf{k}$, where S is the surface of the cube $x = 0, y = 0, z = 0, x = 2, y = 2, z = 2$ above the xy plane. [17]
4. (a) (i) Find $L\{F(t)\}$, if $F(t) = \begin{cases} 1, & 0 < t < 2 \\ t, & t > 2 \end{cases}$
(ii) Evaluate $L\{F(t)\}$, if $F(t) = (t - 1)^2$, $t > 1$ and $F(t) = 0$, $0 < t < 1$.
(iii) Evaluate $L\{(t^2 - 3t + 2) \sin 3t\}$. [5+5+7=17]
4. (b) A particle attached to a fixed peg O by a string of length l , is lifted up with the string horizontal and then let go. Prove that when the string makes an angle θ with the horizontal, the resultant acceleration is $g\sqrt{1+3\sin^2\theta}$. [15]
4. (c) The acceleration of a particle at time t is given by $\vec{a} = 18\cos 3t\hat{i} - 8\sin 2t\hat{j} + 6t\hat{k}$. If the velocity \vec{V} and displacement \vec{r} be zero at $t = 0$, find \vec{v} and \vec{r} at any point t . [08]

(3)

4. (d) Use the divergence Theorem to evaluate $\iint_S \vec{F} \cdot d\vec{S}$ where $\vec{F} = yx^2\vec{i} + (xy^2 - 3z^4)\vec{j} + (x^3 + y^2)\vec{k}$ and S is the surface of the sphere of radius 4 with $z \leq 0$ and $y \leq 0$. [10]

(16)

Anyone who has done B.Tech / M.Tech / B.Sc / M.Sc and has an interest in Maths.
Usually commit and their mitigation measures. For example, I commit a lot of mistakes when doing Integration by parts and usually the error involves missing negative (-) sign etc. Therefore whenever I come across such type of question I try to devote extra 1 minute to re-check all my steps.

Maths.stackexchange.com is the best online resource for preparation. You can create an account and get your maths questions answered within minutes.

Why did I score only 262?

Among all the students in the final list who had Maths as an optional, I have scored the least. My paper - 1 was a complete disaster and I only scored 92 marks in it. In fact I could only attempt 160 marks paper and had to leave 90 marks paper completely.

The reasons for the above situation in Paper - 1 are as follows:

- Lack of written practice:** In many topics (especially statics and dynamics) I used to just look at a question and its solution without solving it first. As a result I forgot the exact method in the exam hall!
- Left many topics:** I prepared only 25% 3-D, 80% Calculus and 25% Statics & Dynamics and had to pay a heavy price in the exam.

On the other hand my preparation for paper - 2 was excellent and therefore I scored an amazing 170 marks in it

BHAVESH MISHRA
AIR-58 in CSE-2014

(15)

Easy paper: The difficulty level of paper is quite moderate and almost all questions are directly picked from the IMS Test Series / Standard Textbooks.

WHO SHOULD TAKE IT?

Myths around science subjects.

Coaching institutions have mastered the art of brainwashing students and creating an atmosphere of gloom and doom around science subjects. There are lots of myths circulating among students. Let's bust these myths.

1. **Maths optional is only for students from IITs: Definitely not.** Anyone willing to put in hard work can easily score very high marks. The best example being **Nitish K (Rank 8) who is not from any IIT.**
2. **There is heavy scaling:** Let the data speak for itself. I attempted 240 marks in Paper 2 and got 170 marks. Now would you call it a scaling?
3. **It plays no role in GS:** Yes it's true that science optional subjects don't overlap with GS but it's equally true that GS has never been a rank decider in UPSC IAS.
4. **There are 3 major things that decides your rank:** Essay, Optional and Interview. Even if one puts in 5 years of efforts in GS the advantage in terms of marks would be around 30 marks or so but 1 year of dedicated effort in maths would give you 50+ marks advantage straightaway.

Do's and Dont's:

1. Practice, Practice and Practice. The key to success in maths is filling up as many notebooks as you can, during the preparation stage. The more you sweat during preparation the less you will bleed in the battlefield!
2. Don't read Maths book / notes like GS. It is a recipe for disaster. Rather always study with pen, paper and calculator.
3. While solving examples don't jump to see solution first. Try giving your best shot and after making sure that you are not able to solve it using your present knowledge then only look at the answer. This will ensure that better retention.
4. Generally we make lots of silly mistakes while solving a question. It is best to catch these errors early and not repeat them in exam hall. The best strategy for this is to maintain a notebook of errors that you

(4)

SECTION - B

5. (a) Solve $xp^2 - 2yp + x + 2y = 0.$ [10]
5. (b) (i) Evaluate $L^{-1} \left\{ \frac{se^{-2\pi s/3}}{s^2 + 9} \right\}$
 (ii) Find $L^{-1}\{(1/s) \log(1 + 1/s^2)\}$ [10]
5. (c) One end of a heavy uniform rod AB can slide along a fixed rough horizontal rod AC to which it is attached by a ring. B and C are joined by a string. When the rod is just on the point of slipping, the string is perpendicular to the rod which makes an angle ' α ' with the vertical, prove that the coefficient of friction is given by

$$\mu = \frac{\tan \alpha}{2 + \tan^2 \alpha}$$
 [10]
5. (d) A particle is projected vertically upwards from the surface of earth with a velocity just sufficient to carry it to the infinity. Prove that the time it takes to reach a height h is $\frac{1}{3} \sqrt{\left(\frac{2a}{g}\right) \left[\left(1 + \frac{h}{a}\right)^{3/2} - 1 \right]},$ where a is the radius of the earth. [10]
5. (e) Find the direction in which the directional derivative of $\phi(x,y) = \frac{x^2 + y^2}{xy}$ at (1, 1) is zero and hence find out component of velocity of the vector $\bar{r} = (t^3 + 1)\hat{i} + t^2\hat{j}$ in the same direction at $t = 1.$ [10]
6. (a) Solve $(xy \sin(xy) + \cos(xy))y \, dx + (xy \sin(xy) - \cos(xy))x \, dy = 0$ [07]
6. (b) Solve $x^2 \frac{d^2y}{dx^2} - 3x \frac{dy}{dx} + y = \frac{\log x \sin \log x + 1}{x}$ [15]

(5)

6. (c) Use the method of variation of parameters to solve
 $y'' + y = 1 / (1 + \sin x)$ [13]

6. (d) By using Laplace transform method $[t D^2 + (t - 1) D - 1] y = 0$, if $y(0) = 5$, $y(\infty) = 0$. [15]

7. (a) A uniform chain, of length $2l$ and weight $2w$, is suspended from two points in the same horizontal line. A load w is now suspended from the middle point of the chain and the depth the this point below the horizontal line is h . Show that the terminal tension is

$$\frac{1}{2} w \cdot \frac{h^2 + 2l^2}{hl}. \quad [16]$$

7. (b) Two equal uniform rods are firmly jointed at one end so that the angle between them is α , and they rest in a vertical plane on a smooth sphere of radius r . Show that they are in a stable or unstable equilibrium according as the length of the rod is $2a > \text{or} < 4r \operatorname{cosec} \alpha$. [17]

7. (c) A particle moves with a central acceleration $\mu(r + a^4/r^3)$ being projected from an apse at a distance 'a' with a velocity $2a\sqrt{\mu}$. Prove that it describes the curve
 $r^2(2 + \cos\sqrt{3}\theta) = 3a^2$. [17]

8. (a) If the directional derivative of $\phi = ax^2y + by^2z + cz^2x$ at the point $(1, 1, 1)$ has maximum magnitude 15 in the direction parallel to the line $\frac{x-1}{2} = \frac{y-3}{-2} = \frac{z}{1}$, find the values of a , b and c . [10]

8. (b) Given the space curve $x = t$, $y = t^2$, $z = \frac{2}{3}t^3$, find (i) the curvature κ , (ii) the torsion τ . [13]

(14)

Irrespective of whether you are very happy or deeply unsatisfied about paper 1, try to forget about it and stay calm for paper 2.

INTERVIEW

In the interview, you can expect some questions related to mathematics optional. Generally you won't be asked to solve a problem because that ability has been tested in mains. They would like to see whether you have a genuine curiosity regarding mathematics outside what is mentioned in syllabus. In both my UPSC interviews, I was asked about Ramanujan's work. There were questions on Vedic Mathematics, National Mathematics Day, important Indian Mathematical Institutions, Field medalist Manjula Bhargava etc. Hence while preparing for interview, try to be aware about these non-theoretical aspects of maths as well.

I hope above tips provide some clarity regarding maths optional to UPSC aspirants.

All the best!

Bhavesh Mishra (AIR-58)
in IAS-2014 Examination
CLASSROOM STUDENT

Why Maths?

Simply because it is the best performing optional subject in UPSC/IAS.

Extremely high scoring: If you get your maths optional right then you will make it to the final list. This year one of my batch mate in IMS Nitish K (Rank 8) has got a mind boggling 346 marks.

Certainty: If you have attempted your paper well then you are sure that you will get good marks. For example this year just by attempting 400 marks paper you could get a decent 260+ marks. Even if you don't get good marks in first attempt but you can be sure that you will increase your marks in subsequent attempt(s).

Fun: Mathematics is a delightful subject and therefore doing maths takes you away from somewhat boring humanities.

Good Impression: The fact that you have taken Maths makes a good impression on interview board members

(it happened in my case!). They are very pleased to see that you have opted for a tough optional.

(13)

PRACTICE

Just knowing theory is not enough. It needs to be accompanied by consistent problem solving practice. It is best to solve questions that have already been asked in mains. If some problem seems very non-intuitive, it would help if the trick to solve such problem is written in your notebook.

TEST SERIES

Test series is very important for this optional. I had joined IMS test series which helped me in identifying my weak areas. In both CSE and IFoS mains, there were many questions similar to those covered in IMS test series. With enough practice, a candidate can achieve the ability to complete the maths paper in 3 hours. It is important to assess your performance after each test. Necessary steps should be taken to rectify common mistakes that you are committing in the test series. You should be alert not to repeat the same mistakes again & again. As your performance improves with every test, the actual mains paper will seem just like any other test & you will be able to comfortably complete it. Presentation of your answer matters a lot. Your aim should be to make examiner's life as easy as possible so that he/she will award you maximum marks. Only the final answer doesn't matter. Writing proper steps is also important to show the logical flow with which you arrived at the solution. Specifically mention whichever theorem or property you are using in a particular step. Wherever possible, draw neat diagrams with proper labelling. Such small things will collectively fetch you the extra marks that you are expecting from this optional. The habit of writing such detailed answers will not develop overnight and hence you have to consciously work through the test series in this direction.

DURING MAINS

The mains exam schedule does not provide much gap between General Studies & Maths papers. You will generally have 1 day in between. Your notebook containing important formulae & theorems will be very useful at such times. You will be able to go through this summary of each chapter and it will provide much needed confidence before the actual paper. During the main exam, I would advise completing the compulsory questions 1 & 5 first. Then you can choose 3 out of remaining 6 questions. Easier questions like those from topics like linear programming, numerical analysis, linear algebra etc. should be the priority. Even if you don't know the complete answer to any question, write as many steps as you can since partial marks also matter.

Once you finish paper 1, don't start immediately analyzing your performance.

(6)

8. (c) Verify Green's theorem in the plane for
 $\oint_C (2x - y^3)dx - xy dy$, where C is the boundary of the region enclosed by the circles $x^2 + y^2 = 1$ and $x^2 + y^2 = 9$.

[15]

8. (d) If C is the curve given by
 $r(t) = (1 + 2 \sin(t))\mathbf{i} + (1 + 5 \sin^2(t))\mathbf{j} + (1 + 4 \sin^3(t))\mathbf{k}$
 $0 \leq t \leq \pi/2$ and F is the radial vector field
 $F(x, y, z) = xi + yi + zk$
compute the work done by F on a particle moving along C.

[12]

OUR TOPPER'S MARKS LIST (IAS)

- ⇒ For your final selection, optional subject marks are crucial.
- ⇒ Choose Optional Subject based on Your Graduation Studies & Score Highest Marks.
- ⇒ Now Mathematics has become one of the most Cherished Optional Paper among Science Graduates, especially Students with Mathematics background including B.Tech.
- ⇒ In the new pattern of exam, the average marks of successful candidates in Maths is more than 300 out of 500.
- ⇒ Mathematics (Opt.) has proven to be the Most Reliable and High Scoring Subject in IAS/IFoS.
- ⇒ IMS has been successfully providing consistent results since its inception.

MARKS ARE BEFORE YOU AND YOU SHOULD ANALYZE YOURSELF



KANISHA KATARIA

AIR-01

IAS-2018

SUBJECT

ESSAY (PAPER-I)

GENERAL STUDIES-I (PAPER-II)

GENERAL STUDIES-II (PAPER-III)

GENERAL STUDIES-III (PAPER-IV)

GENERAL STUDIES-IV (PAPER-V)

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

170/250

191/250

1750

275

2025

Marks. Obtained

133

98

117

117

116

361/500

324/500

885

182

1067

SUBJECT

ESSAY (PAPER-I)

GENERAL STUDIES-I (PAPER-II)

GENERAL STUDIES-II (PAPER-III)

GENERAL STUDIES-III (PAPER-IV)

GENERAL STUDIES-IV (PAPER-V)

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

1750

1750

275

275

2025

Marks. Obtained

113

097

113

117

121

SUBJECT

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

178/250

146/250

1750

275

2025

Marks. Obtained

324/500

885

182

1067



TANMAY V. SHARMA

AIR-10

IAS-2018

SUBJECT

ESSAY (PAPER-I)

GENERAL STUDIES-I (PAPER-II)

GENERAL STUDIES-II (PAPER-III)

GENERAL STUDIES-III (PAPER-IV)

GENERAL STUDIES-IV (PAPER-V)

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

168/250

168/250

1750

275

2025

Marks. Obtained

138

091

111

097

104

336/500

342/500

873

157

1064

SUBJECT

ESSAY (PAPER-I)

GENERAL STUDIES-I (PAPER-II)

GENERAL STUDIES-II (PAPER-III)

GENERAL STUDIES-III (PAPER-IV)

GENERAL STUDIES-IV (PAPER-V)

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

175/250

167/250

1750

275

2025

Marks. Obtained

119

098

107

106

101

SUBJECT

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

178/250

167/250

1750

275

2025

Marks. Obtained

342/500

873

157

1030



MANISHA RANA

AIR-67

IAS-2018

SUBJECT

ESSAY (PAPER-I)

GENERAL STUDIES-I (PAPER-II)

GENERAL STUDIES-II (PAPER-III)

GENERAL STUDIES-III (PAPER-IV)

GENERAL STUDIES-IV (PAPER-V)

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

155/250

171/250

1750

275

2025

Marks. Obtained

130

105

099

112

100

326/500

327/500

872

157

1029

SUBJECT

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

175/250

172/250

1750

275

2025

Marks. Obtained

117

084

115

109

097

SUBJECT

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

178/250

164/250

1750

275

2025

Marks. Obtained

336/500

328/500

854

171

1025



KHUSHBOO GUPTA

AIR-80

IAS-2018

SUBJECT

ESSAY (PAPER-I)

GENERAL STUDIES-I (PAPER-II)

GENERAL STUDIES-II (PAPER-III)

GENERAL STUDIES-III (PAPER-IV)

GENERAL STUDIES-IV (PAPER-V)

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

151/250

151/250

1750

275

2025

Marks. Obtained

854

151

103

093

109

326/500

328/500

171

1025

SUBJECT

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

250

175/250

160/250

1750

275

2025

Marks. Obtained

846

171

109

106

107

152/250

157/250

1750

275

2025

SUBJECT

OPTIONAL-I (MATHEMATICS) (PAPER-VI)

OPTIONAL-II (MATHEMATICS) (PAPER-VII)

WRITTEN TOTAL

PERSONALITY TEST

TOTAL FINAL

Max. Marks.

250

250

250

250

the best mode of judging your preparation. You can fairly evaluate your performance with your marks and then focus on the weak topics. Secondly, it's a rehearsal of Mains Exam and thus helps you greatly in time management.

Mains exam is nearly a marathon for your hand and thus you get very much trained for facing them.

Test Series also provided me another pool of questions to practise. They also helped in developing the ability of answer writing which definitely can't be developed overnight. I attended Test Series of IMS and luckily many questions of Test Series appeared in both IFoS Exam and CSE. I would also request all the candidates to give the test series by coming to classroom if possible and stick to the timelines as it really helps in completion of syllabus.

I hope this writeup clears some of the doubts and gives clarity on maths optional to UPSC IAS aspirants. All the Best

If anyone wants to contact me, please drop me an email - parthjaiswal512@gmail.com. I will be more than happy to help you.

Thank You

Parth Jaiswal

AIR-5 in IFoS-2014,
AIR-299 in CSE-2014

KUMBHEJKAR YOGESH VIJAY (AIR-08 in IAS-2015) (AIR-13 IFoS) & (AIR-143 IAS) in IFoS-2014 & IAS-2014 Examinations CLASSROOM STUDENT

MY BACKGROUND

I am Yogesh Kumbhejkar. I am an Electrical Engineer from IIT Bombay. I secured AIR 13 in Indian Forest Service Exam (IFoS) 2014 with Mathematics & Physics as the optional subjects. For Civil Service Exam (CSE) also, my optional is Mathematics. In IFoS exam, I scored 231/400 (118 + 113) in maths. In 2013 CSE Mains, my maths score was 250/500 (109 + 141). Hence mathematics has helped me in clearing mains in both CSE and IFoS. I was not selected in the final list of CSE 2013. In my second CSE attempt also I appeared for mains in 2014 with Maths as the optional subject. Now i

		SUBJECT	Max. Marks	Marks. Obtained
SUNEEL	SHEROAN	ESSAY (PAPER-I)	250	118
		GENERAL STUDIES-I (PAPER-II)	250	087
		GENERAL STUDIES-II (PAPER-III)	250	090
		GENERAL STUDIES-III (PAPER-IV)	250	105
		GENERAL STUDIES-IV (PAPER-V)	250	096
AIR-192		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	173/250	325/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	152/250	
		WRITTEN TOTAL	1750	821
		PERSONALITY TEST	275	182
		TOTAL FINAL	2025	1003

		SUBJECT	Max. Marks	Marks. Obtained
SACHIN	BANSAL	ESSAY (PAPER-I)	250	124
		GENERAL STUDIES-I (PAPER-II)	250	091
		GENERAL STUDIES-II (PAPER-III)	250	109
		GENERAL STUDIES-III (PAPER-IV)	250	104
		GENERAL STUDIES-IV (PAPER-V)	250	105
AIR-348		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	167/250	316/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	149/250	
		WRITTEN TOTAL	1750	849
		PERSONALITY TEST	275	138
		TOTAL FINAL	2025	987

		SUBJECT	Max. Marks	Marks. Obtained
S.GAUTHAM	RAJ	ESSAY (PAPER-I)	250	135
		GENERAL STUDIES-I (PAPER-II)	250	086
		GENERAL STUDIES-II (PAPER-III)	250	093
		GENERAL STUDIES-III (PAPER-IV)	250	096
		GENERAL STUDIES-IV (PAPER-V)	250	085
AIR-353		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	162/250	296/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	134/250	
		WRITTEN TOTAL	1750	791
		PERSONALITY TEST	275	195
		TOTAL FINAL	2025	986

		SUBJECT	Max. Marks	Marks. Obtained
C. VISHNU	CHARAN	ESSAY (PAPER-I)	250	105
		GENERAL STUDIES-I (PAPER-II)	250	093
		GENERAL STUDIES-II (PAPER-III)	250	099
		GENERAL STUDIES-III (PAPER-IV)	250	090
		GENERAL STUDIES-IV (PAPER-V)	250	094
AIR-406		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	153/250	312/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	159/250	
		WRITTEN TOTAL	1750	793
		PERSONALITY TEST	275	187
		TOTAL FINAL	2025	980

		SUBJECT	Max. Marks	Marks. Obtained
SANJAY	SAHU	ESSAY (PAPER-I)	250	111
		GENERAL STUDIES-I (PAPER-II)	250	087
		GENERAL STUDIES-II (PAPER-III)	250	105
		GENERAL STUDIES-III (PAPER-IV)	250	106
		GENERAL STUDIES-IV (PAPER-V)	250	101
AIR-526		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	134/250	305/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	171/250	
		WRITTEN TOTAL	1750	815
		PERSONALITY TEST	275	138
		TOTAL FINAL	2025	953

		SUBJECT	Max. Marks	Marks. Obtained
AMIT	KUMAWAT	ESSAY (PAPER-I)	250	118
		GENERAL STUDIES-I (PAPER-II)	250	079
		GENERAL STUDIES-II (PAPER-III)	250	093
		GENERAL STUDIES-III (PAPER-IV)	250	103
		GENERAL STUDIES-IV (PAPER-V)	250	092
AIR-600		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	155/250	320/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	165/250	
		WRITTEN TOTAL	1750	805
		PERSONALITY TEST	275	138
		TOTAL FINAL	2025	943

		SUBJECT	Max. Marks	Marks. Obtained
AKASH	SINGH	ESSAY (PAPER-I)	250	114
		GENERAL STUDIES-I (PAPER-II)	250	082
		GENERAL STUDIES-II (PAPER-III)	250	099
		GENERAL STUDIES-III (PAPER-IV)	250	095
		GENERAL STUDIES-IV (PAPER-V)	250	101
AIR-193		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	161/250	336/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	175/250	
		WRITTEN TOTAL	1750	827
		PERSONALITY TEST	275	176
		TOTAL FINAL	2025	1003

		SUBJECT	Max. Marks	Marks. Obtained
KATTA	RAVI TEJA	ESSAY (PAPER-I)	250	069
		GENERAL STUDIES-I (PAPER-II)	250	101
		GENERAL STUDIES-II (PAPER-III)	250	110
		GENERAL STUDIES-III (PAPER-IV)	250	105
		GENERAL STUDIES-IV (PAPER-V)	250	101
AIR-349		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	173/250	322/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	149/250	
		WRITTEN TOTAL	1750	808
		PERSONALITY TEST	275	179
		TOTAL FINAL	2025	987

		SUBJECT	Max. Marks	Marks. Obtained
RAJAT	BHARDWAJ	ESSAY (PAPER-I)	250	122
		GENERAL STUDIES-I (PAPER-II)	250	093
		GENERAL STUDIES-II (PAPER-III)	250	108
		GENERAL STUDIES-III (PAPER-IV)	250	113
		GENERAL STUDIES-IV (PAPER-V)	250	107
AIR-366		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	162/250	302/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	160/250	
		WRITTEN TOTAL	1750	845
		PERSONALITY TEST	275	140
		TOTAL FINAL	2025	985

		SUBJECT	Max. Marks	Marks. Obtained
PANKAJ	KUMAWAT	ESSAY (PAPER-I)	250	093
		GENERAL STUDIES-I (PAPER-II)	250	084
		GENERAL STUDIES-II (PAPER-III)	250	101
		GENERAL STUDIES-III (PAPER-IV)	250	115
		GENERAL STUDIES-IV (PAPER-V)	250	106
AIR-443		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	176/250	334/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	158/250	
		WRITTEN TOTAL	1750	833
		PERSONALITY TEST	275	138
		TOTAL FINAL	2025	971

		SUBJECT	Max. Marks	Marks. Obtained
AYUSH	KUMAR	ESSAY (PAPER-I)	250	102
		GENERAL STUDIES-I (PAPER-II)	250	091
		GENERAL STUDIES-II (PAPER-III)	250	104
		GENERAL STUDIES-III (PAPER-IV)	250	085
		GENERAL STUDIES-IV (PAPER-V)	250	120
AIR-598		OPTIONAL-I (MATHEMATICS) (PAPER-VI)	145/250	299/500
		OPTIONAL-II (MATHEMATICS) (PAPER-VII)	153/250	
		WRITTEN TOTAL	1750	800
		PERSONALITY TEST	275	143
		TOTAL FINAL	2025	943

PREPARATION STRATEGY

for IAS/IFoS
MATHEMATICS
 (Optional)
by Successful Candidate
PARTH JAISWAL
(AIR-5 IFoS) & (AIR-299 IAS)
in IFoS-2014 & IAS-2014 Examinations
CLASSROOM STUDENT

MY BACKGROUND

Hello, My name is Parth Jaiswal. I come from Jaipur, Rajasthan. I completed my graduation in Computer Science discipline from IIT Delhi in 2013. Soon afterwards I started preparing for Civil services and Indian Forest Service, aiming for the attempt of year 2014.

Luckily I was able to clear both the examinations in my first attempt. I secured AIR-5 in IFoS-2014 and AIR-299 in CSE-2014. My optional subject was Mathematics. In case of Forest Service Examination, candidate is required to choose 2 Optionals, thus my second optional was Forestry with Mathematics as my first optional. I secured 250/400 (125+125) marks in IFoS Exam and 300/500 (147+153) marks in CSE in Maths. Thus I would give much credit for my success to my correct choice of optional as well as performance in it. I am writing this to share my experience with Maths as an optional subject and would feel happy if I am able to clear some of the doubts as well as apprehensions regarding it which many UPSC aspirants possess.

Why I Chose Mathematics?

I chose **Mathematics** because of my inherent interest in it from childhood. I have performed well in this in my throughout education and thus was confident enough to handle it well. Another reason for choosing it was, I wanted to have my optional from my background and thus Maths proved to be appropriate choice. Having a science background, I found it much easier to study than any other subject, many of which we have to study for GS prep.

I would like to assert few points regarding it very clearly.

- This subject is vast in syllabus and takes more time to study than other optionals.
- It also requires consistent practise. But the positive part is - If you are thorough with the subject and have practised it well, you can comfortably attempt complete paper with correct answers and thus gives you a great opportunity to score well in your optional (inspite of the scaling often carried out in it) pushing you above the list.
- In this way, this optional gives a bit of security as well as certainty which again comes at a price i.e great amount of hard work. Also IFoS Exam prescribes certain optionals only and Mathematics is one of them. Not all optionals are available for this exam.
- So again it gives you the flexibility of giving IFoS Exam.

From where to study?

I attended classroom coaching of IMS, Rajinder Nagar. I restricted my preparation to the handouts provided by Venkanna Sir. Because of the voluminous syllabus, it is necessary to gauge the point where you have to stop. I found that the notes quite comprehensive and provided me a holistic coverage of the syllabus in a highly structured manner. I believe that those notes are sufficient from the theory point of view.

For practising questions which is of utmost importance, I solved all the questions given in the notes (whether solved or unsolved) multiple times in my registers. Besides that, I solved the questions of previous year papers provided by sir, again multiple times. I restricted my preparation upto this point. But if any student faces difficulty in understanding any particular topic or finds notes insufficient for it or wants to practise more, he/she can use any reference book for any particular topic which can easily be found on internet or available in market.

But again a word of caution, try to limit your preparation to the concepts relevant to the syllabus and don't delve into unnecessary theorems or proofs otherwise its a slippery slope to a massive ocean. We tend to skip the proofs of various theorems provided in the syllabus while studying them as they are of not much use. Proofs of theorems are generally not asked in the exams. But still I used to go through each and every proof in a brief manner provided in the notes. The reason being it would give me a better insight of the topic and often helped in me developing solutions of questions.

Test Series:

No optional is complete without writing a test series and it holds true in Maths also. Test Series is as important in your preparation as your notes + books. Firstly, Test Series is