D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

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D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Report

As the department always strives for the best, taking into consideration the need of the computer and job opportunity Department of Mathematics ran the Skill based course entitled 'Basic Mathematics for Competitive Exams' in academic year 2020-21.

The department has designed this course. It has its own Board of Studies (BoS). All the faculty members took active participation in running the said course. The course started from December 2020 and completed at March 2021. The 07 students enrolled to this course. The examination was conducted on 15th March, 2021.

The present faculty of the Department teaches this course as well. In addition to it the exam is taken and the certificates are issued to the students. Students are benefited through this course.

Sr. No.	Year	No. of Beneficiary Students
1	2020-21	07

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D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Course Particulars

1. Eligibility : XII std. pass.

2. Duration of Course : 3 Months.

3. No. of Students : 15

4. Examination : Written Exam (100 marks)

5. Faculty : 1. Mrs. Salunkhe A. S. (Co-ordinator)

2. Mr. Shete R. K.

6. Coordinator : Head, Dept. of Mathematics

D.P. Bhosale College, Koregaon.

7. Board of Studies : 1. Mrs.Salunkhe A.S. (Co-ordinator)

2. Dr. Yadav J.D. (S.G.M.College, Karad)

3. Mr. Patil S .A. (S.G.M.College, Karad)

8. Experts Name : 1. Dr. Yadav J.D. (S.G.M. College, Karad)

2. Mr. Patil S.A. (S.G.M. College, Karad)

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D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Objectives and Outcome of the course

Objectives of the course:

- 1) To enable the learners to explore the knowledge of basic mathematics used for competitive exams.
- 2) To make learners strong in numerical and mathematical reasoning.
- 3) To enable learners to recognize and understand the mathematical problems and solving by simple techniques of arithmetic calculations.
- 4) To train learners to use the idea of mathematics in calculations and make those calculations with accuracy and speed.

Outcome of the course:

- 1) Perform simple arithmetic calculations with speed and accuracy.
- 2) Enhance the Aptitude paper clearing ability in selection process.
- 3) Interpret the concepts of mathematical reasoning skill
- 4) Solve real-life problems requiring interpretation and comparison of various representations of ratios.
- 5) Self analysis of own skill.
- 6) The exam develops confidence, which increases students personality in a hardworking manner.
- 7) Enthusiasm for competitive examination.
- 8) Face numerical aptitude part of any competitive examination confidently.

Reference Books:

- 1) Dinesh Khattar, The Pearson Guide to Quantitative Aptitude
- 2) Kishor Lavate, MPSC Question Bank, Dnyanadeep Academy

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Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Syllabus

Sr. No.	Unit	Lectures
1.	 Introduction to Number System and properties of elements of Number system- Numbers, BODMAS, HCF & LCM, Divisibility Decimal Fractions and conversion into pure fractions 	04
2.	 Roots, Squares, Indices, sum and difference of squares, Averages, Percentages Profit and Loss, Simple interest, compound interest 	04
3.	 Ratio & Proportions, Partnership, Discounts & commission, Mixtures & allegations Speed, Distance, Time, Pythagoras theorem Work, Rate, Time & Pipes and cisterns, angles, watch 	05
4.	 Algebraic Formulae, Linear equations, Simultaneous equations, Quadratic equations Inequalities and absolute values 	03
5.	 Functions and Graphs- Plotting graphs of basic functions Set theory and Venn diagrams Two-dimensional figures, circles, Three-dimensional figures, coordinate geometry 	04
6.	 Mean, Median, Mode, Standard deviation, Normal distribution 	02
7.	 Matrices and determinants Sequence and series, Binomial theorem Functions, Logarithm 	04
8.	 Permutations and combinations Probability 	04

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D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Notice

Date: 25/11/2020

All students of B.Sc. III (Mathematics) are here by informed that Department of Mathematics going to organize your skill based course (Basic Mathematics for Competitive Exams) has been scheduled from 1stDecember 2020 to March 2021, remain present at prescribed time in lecture hall.

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Skill Based Course in

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Time Table (Dec.2020 to Feb.2021)

TIME	MON.	TUE.	WED.	THU.	FRI.	SAT.
10.30-11.20 a.m.	S.R.K.	S.A.S.	×		-	
03.30 – 4.30 p.m.	S.R.K.	S.A.S.			_	

- 1. S.A.S. Mrs. Salunkhe A.S.
- 2. S.R.K. Mr. Shete R. K.

Head
Department of Mathematics
D. P. Bhosale College, Koregaon

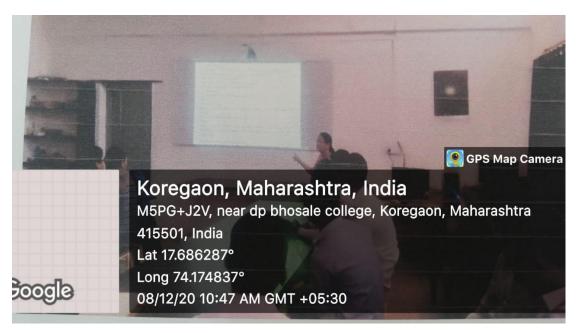
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D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

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Mrs. A.S. Salunkhe explained about competitive Exam dated on 08/12/2020



Guidance on Mathematical Reasoning by Mrs. A.S. Salunkhe dated on 01/02/2021



D. P. Bhosale College, Koregaon

Department of Mathematics

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List of the Student

Sr. No.	Name of the Students		
1	Bodke Amruta Chandrakant		
2	Dhole Dipti Narhari		
3	Ghorpade Priyanka Raju		
4	Ghorpade Priyanka Vinayak		
5	Gaikwad Mrudula Raju		
6	More Dipali Tukaram		
7	Phadtare Vaishnavi Nitin		



D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Examination Notice

Students of skill based course in 'Basic Mathematics for Competitive Exams' are hereby informed that their examination will be conducted on 15th march 2021. The time table is as follows:

Course	Date	Time
Basic Mathematics for Competitive Exams	15/03/2021	12:00 to 02:00 pm

Head
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Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Time: 12 to 02 pm

Marks-100

Date: 15/03/2021

Ins	Instructions: All questions are compulsory and equal marks.				
Q.	Choose the correct a	lternative.		[100]	
1)	Amber Chew opened a departmental store at Great India Palace in Noida by investing ₹20 million. After a few months her brother Sheesh Chew joined the business and invested ₹30 million. At the end of the year, the profit was shared in the ratio of 3:2. After how many months did Amber's brother join the business?				
	(a) 4 months	(b) 6 months	(c) 7 months	(d) 8 months	
2)	Two motor cars were 10% on the other. The				
	(a) Neither loss nor g	gain	(b) 1% profit		
	(c) (99/100) % profit		(d) 1% loss		
3)	A man purchased sor gained ₹143 in all. T			for ₹12. Thus, he	
	(a)210	(b) 200	(c) 195	(d) 190	
4)	A, B and C can do undertook to finish exceeds that of B by.	the work together			
	(a) ₹120	(b) ₹180	(c) ₹300	(d) ₹600	
5)	1) 12 men complete a work in 18 days. Six days after they had started working, 4 men joined them. How many days will all of them take to complete the remaining work?				
	(a) 10 days	(b) 12 days	(c) 15 days	(d) 9 days	
6)	A tin of oil was four-fifths full. When six bottles of oil were taken out and four bottles of oil were poured into it, it was three-fourths full. How many bottles of oil can it contain?				
	(a) 20	(b) 10	(c) 30	(d) 40	
7)	7) Two filling pipes A and B can fill a tank in 30 hrs and 20 hrs respectively. Pipe B alone is kept open for half the time and both pipes are kept open for the remaining time. In how many hrs, will the tank be completely full?				

(a) 2	5 hrs	(b) 15 hrs	(c) 40 hrs	(d) 28 hrs	
8) Ia a, a a is .		prime numbers, the	n the number of po	ssible solution for	
(a)	One	(b) Two	(c) Three	(d) Four	
	-	tern in 6 hrs. Due to n is full, in how mu			
(a) 42 hrs	(b) 45 hrs	(c) 40 hrs	(d) 43 hrs	
- 6		7/11 of its own spe saved if the train ru	-		
(a)	8 hrs	(b) 7 hrs	(c) 14 hrs	(d) 16 hrs	
11) 348÷	$+29 \times 15 + 156 = x^{2}$	3+120, find value of	fx.		
(a)	12	(b) 6	(c) 36	(d) 9	
		reased by 20%. O		tax rate is 10%	
(a)	20%	(b)22%	(c) 23%	(d) 24%	
85		which when subtra 20,28,38 and 35 is .	100 To	a number exactly	
(a)	1122	(b) 4714	(c) 5200	(d) 5600	
55 11		wo numbers are 7 a 45, the sum of numbers		y. If the numbers	
(a) 63		(b) 77	(c) 73	(d) 56	
		ber is added to ar What is the ratio be	10 10 10 10 10 10 10 10 10 10 10 10 10 1		
(a)	3:2	(b) 2:5	(c) 2:3 (d) D	ata inadequate	
16) 0, 4,	18, 48, ?,180				
(a) 58	(b) 68	(c) 84	(d) 100	
17) If \sqrt{x}	$c + \sqrt{49} = 8.2$, the	en value of x is equa	al to		
(a)	1.20	(b) 1.40	(c) 1.44	(d) 1.89	
18) A man buys a single apple for ₹25. If he were to buy a dozen apples, he would have to pay a total amount of ₹250. What would be the approximate per cent discount he would get on buying a dozen apples?					
(a)	13	(b) 32	(c) 20	(d) 17	
train	19) A train travels a distance of 300 km at a constant speed. If the speed of the train is increased by 5 km an hour, the journey would have taken 2 hrs. less. The original speed of the train was				
	original speed o	f the train was			

20) If 1 micron = 10 microns?	0000 angstrom, then	100 angstroms is	what percent of 10
(a) 0.0001%	(b)0.001%	(c) 0.01%	(d) 0.1%
21) A man can row 6 takes 3 hrs more The distance is	in upstream than t	147 March 1990	current is 2 km/hr, it the same distance.
(a) 24 km	(b) 30 km	(c) 34 km	(d) 32 km
22) Two fifth of one-the number?	third of three-sevent	th of a number is 15	5. What is 4000% of
(a) 136	(b) 140	(c) 72	(d) 105
23) How many numbonce?	pers are there between	en 500 and 600 in v	which 9 occurs only
(a) 19	(b) 18	(c) 20	(d) 21
24) In 4 years, the sprincipal. The an	imple interest on a nual rate of interest i		oney is 7/25 of the
(a) 4%	(b) 5.4%	(c)7%	(d) 9%
25) Milk sold by a should be added to	milkman contains 5 to 20 liters so that wa	•	
(a) 13 liters	(b) 24 liters	(c) 20 liters	(d) 30 liters
26) In a class, 20 op subjects. The class	ted for Physics, 17 is contains how man		oth and 10 for other
(a) 42	(b) 35	(c) 52	(d) 60
		nd 20 years are re	reased by 2 months placed by two new
(a) 19 years 1 n	nonth	(b) 19 years 11	month
(c) 19 years 6 n	nonth	(d) 19 years 5 n	nonth
28) Speed of a man then the effective	is 10 km/hr in still v speed of the man up		f current is 3 km/hr,
(a) 7 km/hrs	(b) 8.5 km/hrs	(c) 9 km/hrs	(d)10km/hrs
		t the rate of 3% for	14 months. What is
(a) ₹130	(b) ₹230	(c) ₹290	(d) ₹330
AD 100 TO	37.1	n is Devan and he	is 7 years junior to
(a) 19 years	(b) 20 years	(c)15 years	(d) 18 years

31) A card is drawn at random from a well-shuffled pack of 52 cards. What is the probability of getting a two of hearts or a two of diamonds?						
(a) 3/26	(b) 2/17	(c) 1/26	(d) 4/13			
32) Two customers borrowed the same amount of money, one at compound interest and the other at simple interest. If after 2 years, the interest payable by one was ₹220 and by the other ₹200, then what was the principal money lent to each one of them?						
(a) ₹450	(b) ₹550	(d) ₹390	(d) ₹500			
	1.5		ally and for one year in the value of the rate			
(a) 12.5%	(b) 18%	(c)20%	(d) 16.66%			
34) The number of	real solutions of the	equation $\log(-x) =$	$2 \log (x + 1) \text{ is}$			
(a) One	(b) Two	(c) Three	(d) None			
35) In how many we that no two boys	· ·	six boys can sit are	ound a round table so			
(a) $(6!)^2$	(b) $6! \times 7!$	(c) $(7!)^2$	(d) $6! \times 5!$			
	eclared by the comp	_	value ₹20 each. If the d the rate of dividend			
(a) 12.5%	(b) 18%	(c)15%	(d) 16.66%			
THE DESIGNATION AND ADDRESS OF THE PARTY OF	5 brown and 4 white they are of the same		es out two socks. The			
(a) 1/6	(b) 5/108	(c) 5/18	(d) 4/9			
38) 36, 28, 24, 22, ?)					
(a) 21	(b) 18	(c) 20	(d) 17			
39) A company declared a semi-annual dividend of $7\frac{1}{2}$ % Find the annual dividend of Chetan, owning 1,250 shares of the company having a par value of ₹10 each						
(a) ₹1875	(b) ₹1757	(c) ₹1680	(d) ₹1557			
answer and 0.25		ry incorrect answer	given for each correct r. Ankur attempted all aswers did he have?			
(a) 10	(b) 11	(c) 12	(d) 13			
	of 175 pesons, 40 reany. How many pers		ead the Samachar and papers?			
(a) 20	(b) 18	(c)15	(d) 16			

1 or to person	2, task 2 must be as is to be assigned o	ssigned to eithe	r person 3 or person 4. w many ways can the
(a) 144	(b) 180	(c) 192	(d) 360
	nt of ₹2600 in 5 year l by 3%, it would amo	•	erest. If the interest rate n?
(a) ₹1300	(b) ₹23000	(c) ₹2900	(d) ₹3300
(5)	persons in a party an ny handshakes happen		shakes hands with each
(a)77	(b) 66	(c) 44	(d) 55
,	f three consecutive nu umbers. What is the la		ore than one-third of the pers?
(a) 15	(b) 19	(c) 17	(d)Data inadequate
	ossed repeatedly. If he of appearance of tail of		he first four tosses, then is
(a) 1/2	(b) 1/7	(c) 3/7	(d) $2/3$
S			ished a piece of work in er could finish that piece
(a)210	(b) 200	(c) 195	(d) 190
48) If $log_a(ab)=x$,	then log _b (ab) is		
$(a)\frac{1}{x}$	$(b)\frac{x}{x+1}$	$(c)\frac{x}{x-1}$	$(d)\frac{x}{1-x}$
49) Find the value	of $x^4 + \frac{1}{x^4}$ if $x = 3 + \frac{1}{x^4}$	2√2	
(a) 12	(b) 9	(c) 36	(d) 6
50) $(x^n - a^n)$ is di	visible by (x - a)		
(a) For all va	lues of n	(b) Only fo	r even values of n
(c) Only for	odd values of n	(d) Only fo	r prime values of n

D. P. Bhosale College, Koregaon

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Date: 15/03/2021 Time: 12 to 02 pm Marks- 100

Answer Sheet

Q. NO.	ANSWER	Q. NO.	ANSWER
1	В	26	A
2	D	27	D
3	C	28	A
4	В	29	С
5	D	30	D
6	D	31	В
7	В	32	D
8	A	33	С
9	A	34	A
10	A	35	В
11	В	36	C
12	В	37	D
13	В	38	A
14	A	39	A
15	С	40	D
16	D	41	C
17	C	42	A
18	D	43	С
19	В	44	В
20	D	45	В
21	A	46	A
22	D	47	С
23	В	48	С
24	С	49	D
25	D	50	A



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Mark-sheet

Sr. No.	Name of the Students	Marks	Grade
1	Bodke Amruta Chandrakant	62	A
2	Dhole Dipti Narhari	60	A
3	Ghorpade Priyanka Raju	88	A+
4	Ghorpade Priyanka Vinayak	82	A+
5	Gaikwad Mrudula Raju	88	A+
6	More Dipali Tukaram	80	A+
7	Phadtare Vaishnavi Nitin	84	A+

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Attendance

Sr. No.	Roll No.	Name of the Student	1-12-2020	1-12-2029	8-12-2020	14-12-2020	15-12-2020
1	38209	Bodke Amruta Chandrakant	Amuto		Amnuta	Amnota	Armite
2	38210	Dhole Dipti Narhari	Diptip	Dietie	Diptip	Diptip	Diptip
3	38212	Ghorpade Priyanka Raju	Rethorpard 1	Thorpade	Behorpade		Charpaule
4	38213	Ghorpade Priyanka Vinayak	P.V. Ghorpade	P.U. Ghorpac	e p.V. Ghora	ade Au. Chorpac	ep.v. Ghorpad
5	38211	Gaikwad Mrudula Raju	m·R4ailwa	m·R·Gaike	m. R.Gaiko		m·R.6aike
6	38214	More Dipali Tukaram		Prore	Thore	Thore	Thore
7	38215	Phadtare Vaishnavi Nitin	J.H. Phodfee	J.M. Hadte	un phodites	VM shadtes	



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Attendance

Sr. No.	Roll No.	Name of the Student	211/2/202	22/12/202	28/12/2021	29/12/202	4101/2021
1	38209	Bodke Amruta Chandrakant	Amuta	-	Annata	Armets	Amada
2	38210	Dhole Dipti Narhari	Diptip	Piptip	Diptip	Dietie	Diptie
3	38212	Ghorpade Priyanka Raju	Thorpade	Behospads		Rahorpad.	Pahorpau
4	38213	Ghorpade Priyanka Vinayak	p. V. Other pade	p.v. ahorpad	P.V. Charpad	P.V. Storpad	e
5	38211	Gaikwad Mrudula Raju	MR-Gaikey	m. Radikun	M.RGaikua	m·R4aika	m·Réain
6	38214	More Dipali Tukaram	Thore	Thore	Prove	Thore	Prore
7	38215	Phadtare Vaishnavi Nitin	v.M. phadles	14. Hadles	V. W. Phadles	J.P. dradk	17 shadter



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Attendance

Sr. No.	Roll No.	Name of the Student	5/01/2021	19/01/2021	2/01/202	18/01/202	19/02/2021
1	38209	Bodke Amruta Chandrakant		Amruta	Amnete	Amnuta	Amouta
2	38210	Dhole Dipti Narhari	Dipting	Dietie	Diptip		DiptiD
3	38212	Ghorpade Priyanka Raju	Replay paule			Chargaile	
4	38213	Ghorpade Priyanka Vinayak	P.V. Chorpas	e p.V. Charpad	<u>e</u> .	P.V. Ghorpade	P.V. Chorpad
5	38211	Gaikwad Mrudula Raju	M. R. Gai kund	m·R· Gikwa	m· Raiku	m·R Gaikoo	m·R·6dikoo
6	38214	More Dipali Tukaram	Trone	Throate		Prore	Drove
7	38215	Phadtare Vaishnavi Nitin	J. H. Zhadles	J. H. Hadles	1.4. Phadte	V. r. phadter	



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Attendance

Sr. No.	Roll No.	Name of the Student	25/03/202	01/02/202	02/02/2021	08/02/202	9/02/2021
1	38209	Bodke Amruta Chandrakant	Amnate	Amuto	Amnota	Amnta	Amnita
2	38210	Dhole Dipti Narhari	Piptip	Diptip		Riptin	DiptiD
3	38212	Ghorpade Priyanka Raju	Peterpaula		ethorpak	Chorpal	Phopa
4	38213	Ghorpade Priyanka Vinayak	P.V. Chorpac	p.V. Cothorpac	P.V-C-harpak	P.V.Ghora	de p.v. Chore
5	38211	Gaikwad Mrudula Raju		m.R. Gaiks	m.R.Gaile	m·R.4aiku	m·R·Gaikwa
6	38214	More Dipali Tukaram	Torone		Prone	Trove	Prore
7	38215	Phadtare Vaishnavi Nitin	1:4 phadto	J. H. pradu	J. M. Dheidter		~ H ghadter



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D. P. Bhosale College, Koregaon

Department of Mathematics

Skill Based Course in

Basic Mathematics for Competitive Exams

Attendance

Sr. No.	Roll No.	Name of the Student	15/02/2021	16102/202	22/02/202	23/02/20	01/03/2021
1	38209	Bodke Amruta Chandrakant	Amouta	Amouta		Amouta	Amneta
2	38210	Dhole Dipti Narhari	Diptin	Diptig	Dieta	Diptin	Diptip
3	38212	Ghorpade Priyanka Raju	Rehamade	Rehorpade	Charpaule	Brompade	Rhompade
4	38213	Ghorpade Priyanka Vinayak	P.V. Ghorpade	p.v. 9thorpad	P.V. Ctarpad	e p.v.Ghorpa	e
5	38211	Gaikwad Mrudula Raju	M·RGai kurd		m·R6aikog	M·R·6diko	m·R baikuss
6	38214	More Dipali Tukaram	Thore	Phode	Prore	Thore	more
7	38215	Phadtare Vaishnavi Nitin	17. Prodled		V.H.phadtes	J.H Woods	J.P. phadles



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D. P. BHOSALE COLLEGE, KOREGAON



SKILL BASED COURSE Certificate

This is to certify that Mr./Miss	•••••••••••••••••••••••••••••••••••••••
CLASS:SU	BJECT
has successfully completed three mo	nths
"Skill Based Course" in .Basic .!	Mathematics for Competitive Examinations
From . Pec 2020 to Mar. 2021	and obtained Grade.

Chairman

Adunt!
Course Co-ordinator

Principal