

General ** Studies Paper

For Civil Services Preliminary Exams

Precise & In-depth knowledge of concepts Updated Current Affairs and General Knowledge

4000 plus Objective Type Questions with Explanatory Notes

Five Years (2015 – 2011) Solved Papers and Five Practice Papers

Based on New Syllabus & Latest Pattern of UPSC Civil Services Exams

The Gen X Series

GENERAL STUDIES PAPER-I 2015 FOR CIVIL SERVICES PRELIMEXAM

Edited & Compiled by EDITORIAL BOARD



1

Published by:



F-2/16, Ansari road, Daryaganj, New Delhi-110002 ☎ 23240026, 23240027 • Fax: 011-23240028 Email: info@vspublishers.com

Regional Office : Hyderabad

5-1-707/1, Brij Bhawan (Beside Central Bank of India Lane) Bank Street, Koti, Hyderabad - 500 095 \$\overline\$040-24737290 E-mail: vspublishershyd@gmail.com

Branch Office : Mumbai

Jaywant Industrial Estate, 2nd Floor–222, Tardeo Road Opposite Sobo Central Mall, Mumbai – 400 034 © 022-23510736 E-mail: vspublishersmum@gmail.com



All books available at **www.vspublishers.com**

The Copyright of this book, as well as all matter contained herein (including illustrations) rests with the Publisher. No person shall copy the name of the book, its title design, matter and illustrations in any form and in any language, totally or partially or in any form. Anybody doing so shall face legal action and will be responsible for damages.

Printed at. Param Offsetters, Okhla, New Delhi



V&S publishers, after the grand success of a number of Academic and General books, is pleased to bring out a series of books, *The Gen X series which means generating Xcellence in generation X*. Under the series we are going to publish a comprehensive and updated book 'General Studies - Paper - I' which is based on new pattern of Civil Services Aptitude Test (CSAT) exam. The book has been designed keeping in mind the real-time problems faced by the aspirants of civil services and the changing scenario of the questions asked in the Civil Services Preliminary Exams. It will help the aspirants to grasp concepts in depth and learn through 4000 plus questions given with explanatory notes. The book is also useful for various other competitive exams such as State Civil Services, SSC, Banking, and Railway etc. conducted at national and state levels.

The book has been divided into eight major sections namely: *History of India, World Geography and Geography of India, Indian Polity, Economic and Social Development, Environment and Ecology, General Science – Physics, Chemistry, Biology and Computer, General Knowledge, Current Affairs.* In the beginning of each chapter the theory and concepts have been discussed in detail followed by 300 plus Multiple Choice Questions with Answer Key and Explanatory Notes. *Last four years Solved Papers* help candidates to know the level of difficulty and grasp the structure of questions asked in the exam. *Five Mock Test Papers* have been included for thorough practice and to understand the pattern of exam. A *step-wise preparation strategy* has been given in the introductory section of the book.

To get success in such prestigious exam as civil services conducted by Union Public Service Commission, the aspirants have to go through extensive study of the topics covered in the new syllabus and make a dedicated effort during preparation. This exam not only tests the in-depth knowledge of the candidates but also identifies their efficiency in terms of application of the gained knowledge in problem solving. The main objective of this exam is to indentify decision making potentials and problem solving approaches of a candidate. Therefore, this exam requires careful attention towards comprehension of concepts and theories, thorough practice, and application of the concepts in everyday life situations. *Hard working, Regularity, and Self-Confidence* are essential to go through such a tough exam and achieve the unique goal. Therefore, a candidate should make a sincere effort to qualify in the exam.

We wish you success in the examination and a very bright future in the field of civil services. Good Luck!!!

Contents

Publisher's Note	3
Preface	
Civil Servicies Examination : An Overview	
The Path to Success	. 20
Believe in Yourself	. 22
Civil Services Examination : (A Comprehensive Strategy)	. 25

HISTORY OF INDIA

1.	Fro	m Indus Valley Civilisation to Mahajanapadas 3
	1.1	Age (Bronze Age)
	1.2	Vedic Culture
	1.3	Emergence of Jainism and Buddhism
	1.4	Mahajanapadas 8
	15.	Rise of Magadha 8
	1.6	Macedonian Invasion and its Effects
2.	His	tory of India from 4th Century B.C. to 3rd
	Cer	ntury A.D
	2.1	Foundation of the Mauryan Empire
	2.2	Ashoka and His Dharma 10
	2.3	The Mauryan Administration 10
	2.4	The Sangam Age 11
	2.5	The Sangam Administration 12
	2.5	The Satavahanas Administration 13
3.	Ind	ia From 4th Century A.D. to 12th Century A.D 14
	3.1	The Guptas 14
	3.2	Administration in the Gupta Age 15
	3.3	The Pallavas (560 – 903 A.D.) 17
	3.4	Early Chalukyas 17
	3.5	Rashtrakutas
	3.6	The Cholas 18
	3.7	The Pratiharas (800 – 1036 A.D.) 19
	3.8	The Palas (750 – 1140 A.D.) 19
	3.9	The Gahadavalas 19
	3.10	The Paramaras 19

	3.11	The Chauhans	19
	3.12	2 The Kalachuris	19
4		ia from 1206 A.D. to 1526 A.D	
	4.1		
	4.2	Vijayanagar and Bahamani Kingdoms	
5.	Ind	lia from 1526 onwards and Socio-Economi	c and
	Cul	tural Life under the Mughals	25
	5.1	The Mughal period	25
	5.2	Sur Dynasty (1540 – 1545 A.D.)	27
	5.3	Akbar (1556 – 1605 A.D.)	28
	5.4	Decline of The Mughal Empire	32
	5.5	Rise of the Marathas	33
	5.6	The Third Battle of Panipat (1761 A.D.)	35
6.	Nat	ional Movement	36
	6.1	The Revolt of 1857	36
	6.2	Other Popular Movements	37
	6.3	The Act for Better Government of India, 1858	38
	6.4	Foundation of the Indian National Congress	38
7.	Histe	ory of the Republic of India	41
	7.1		
	7.2	The 21st Century INDIA	
In	dian	History At a Glance	46
		ant Dynasties, Their Founders and Capitals	
	-	ant Battles of Indian History	
	-	ant Indian Ruler, Dynasties and Titles	
		-	

WORLD GEOGRAPHY AND GEOGRAPHY OF INDIA

125 — 276

1 - 123

PART 1: WORLD GEOGRAPHY

1.	The	Solar System
	1.1	The Universe
	1.2	The Solar System
	1.3	The Earth in Space
	1.4	Motions of the Earth and their Consequences 131
	1.5	Apparent Migration of the Sun132
	1.6	Latitude and Longitude
	1.7	Years, Months and Calendars
	1.8	Moon and the Tides
	1.9	Eclipses
	1.10	Origin of the Earth

2.	Geo	blogical Time Scale14	5
	2.1	Main Features of the Periods14	5
3.	Inte	erior of the Earth14	8
	3.1	Introduction14	8
	3.2	Facts to Remember about the Interior of	
		The Earth14	9
	3.3	Sources About Earth's Interior14	9
	3.4	Evidences from the Theories of the Origin of the	
		Earth	0
4.	Roo	2 ks	4
	4.1	Important Mineral Groups15	4
	4.2	Types of Rocks	4

5.	Fol	ding and Faulting159
	5.1	Endogenic Forces
	5.2	Exogenic Forces
	5.3	Folds
	5.4	Faults
	5.5	Crustal Fracture
	5.6	Theory of Continental Drift
	5.7	Theory of Plate Tectonics
	5.8	Great plates
	5.9	Cause of Plate Motion
6.	Vol	canism164
	6.1	Types of Volcanoes
	6.2	Types of Volcanic Belts
	6.3	Topography of Volcanoes166
7.	Ear	thquakes170
	7.1	Causes of Earthquakes170
	7.2	Types of Earthquake Waves
	7.3	Classification of Earthquakes
	7.4	World Distribution of Earthquakes
	7.5	Indian Seismic Zone
8.	We	athering174
	8.1	Types of Weathering
	8.2	Weathering Controls
	8.3	Mass Wasting175
	8.4	Mass Wasting in Cold Climates
	8.5	Subaqueous Mass Wasting
	8.6	Erosion176
9.	Lar	ndforms178
	9.1	Fluvial Landorms and Running Water 178
	9.2	Base Level
	9.3	Erosional Landforms 179
	9.4	Depositional Landforms179
	9.5	Waterfalls
	9.6	Delta
	9.7	Wind and Aeolian Landforms
	9.8	Underground Water
		Oceans of the World
10.		nosphere (Climatology)196
		Composition of Atmosphere
		2 Structure of Atmosphere
		B Layers of Atmosphere
		Chemical Composition of Atmosphere
		Heating and Cooling of Atmosphere 197
		5 Temperature
		7 Types of Temperature Inversion
		B Horizontal Distribution of Temperature
		Pressure Belts and Wind System
		10 Clouds and Rainfall
		11 Cyclones and Anti-cyclones
		12 Climatic classification
		13 Types of Climate
11.		eanography
		1 Reliefs of The Ocean Basins
		2 Distribution of Submarine Canyons
		Atlantic Ocean
	11.4	Pacific Ocean

	11.5 Indian Ocean	222
	11.6 Temperature of the Ocean Water	.223
	11.7 Salinity	.224
	11.8 Ocean Deposits	225
	11.9 Distribution of Ocean Deposits	.227
	11.10 Ocean Currents	
	11.11 Currents of the Atlantic Ocean	228
	11.12 Currents of the Pacific Ocean	229
	11.13 Currents of the Indian Ocean	230
	11.14 Waves and Tides	232
12.	Biogeography	241
	12.1 Introduction	
	12.2 Concepts of Biogeography	.241
	12.3 Types of Biogeography	
	12.4 Soils	241
	12.5 Soil Acidity	241
	12.6 Soil Texture	
	12.7 Minerals of the soil	241
	12.8 Soil forming process	242
	12.9 Factors controlling soil formation	242
	12.10 World's Soil Classification	.242
	12.11 World Pattern of Soils	243
	12.12 Major Biomes of the World	
	-	

PART 2: GEOGRAPHY OF INDIA

1.	Physiography	247
	1.1 Location	
	1.2 Size and Shape	
	1.4 India's Neighbour	
	1.4 Physiography	
2.	Drainage System	254
	2.1 Introduction	
	2.2 Himalayan Rivers	
	2.3 Indus River Draingae System	254
	2.4 The Ganga River Drainage System	
	2.5 The Brahmputra River System	
	2.6 The Peninsular River System	
	2.7 The East Flowing Rivers	
	2.8 The West Flowing Rivers of the Peninsula	258
3.	Climate	261
	3.1 Introduction	
	3.2 Factors Influencing the Climate of India	
	3.3 Mechanism of the Monsoons	
	3.4 Modern Theories	
	3.5 Seasons of India	
	3.6 Winter Season	
	3.7 Precipitation	
	3.8 The Summer Season	
	3.9 The Rainy Season	
	3.10 Rainfall	
	3.11 Annual Rainfall	
	3.12 Indian Climate	
4.	Soil of India	
	4.1 Introduction	
	4.2 Soil Acidity	
	4.3 Soil Texture	

4.4	Minerals of Soil	
4.5	Soil Forming Processes	
4.6	Factors Controlling Soil Formation	269
4.7	Major Soil Groups of India	269
4.8	Laterite Soil	

INDIAN POLITY

Indian	Constitution	
1.	Historical Perspective	
2.	Nature of Indian Constitution	
3.	Preamble to The Indian Constitution	
4.	The Union and its Territory	
5.	Citizenship	
6.	Fundamental Rights	
7.	Fundamental Duties	
8.	Directive Principles	
9.	The President	
10.	Vice-President	
11.	Prime Minister	
12.	Council of Ministers	
13.	The Union Legislature (Parliament)	
14.	The State Executive	
15.	The State Legislature	
16.	Judiciary	
17.	Relations between the Centre and States	
18.	Services	
19.	Special Provisions Regarding Scheduled	
	Castes, etc.	
20.	Union Territories	
21.	Attorney-General of India	
22.	Comptroller and Auditor-General	
23.	Election Commission	
24.	Amendment to the Constitution	
Politica	ll System in India	
1.	Main Features of Indian Polity	
2.	The form of Government in India	
3.	Parliamentary Democracy	

12. Natural Vegetation2735.1 Introduction2735.2 Classification of India's Vegetation2735.3 Sub-classification of India's Vegetation2745.4 Distribution of Forest Area275

277-428

429-544

4.	Majority Government	
5.	Minority Government	
6.	Care-taker Government	
7.	National Government	
8.	Coalition Government	
9.	Characteristics of Indian Democracy	
10.	Parliamentary Democracy	
11.	Election System in India	
12.	Political Defection	
13.	Dissidence	
14.	Party-Government Relations	
15.	Political Violence	
16.	Parliamentary Politics	351
17.	Communalism in India	
18.	Pressure Politics	
19.	Political Parties in India	
20.	Panchayati Raj	
21.	Community Development Projects	
Indian	Administration	357
1.	Bureaucracy in India	
2.	Centralisation versus Decentralisation	
3.	Planning Commission	
4.	Delegation of Authority	
5.	Generalist Versus Specialist Controversy	
6.	Relations in Public Administration	
7.	Administrative Tribunals	
8.	Administrative Reforms in India	
9.	Corruption in Administration	
10.	Developmental Administration	
11.	Public Versus Private Sectors	

ECONOMIC AND SOCIAL DEVELOPMENT

1.	Intr	roduction to Micro Economics	431
	1.1	Meaning of Economics	431
	1.2	Definition of Economics	431
	1.3	Nature of Economic	432
	1.4	Micro and Macro Economics	432
	1.5	Methods of Study of Economic Theory	433
	1.6	Economic System	433
	1.7	Central Problems of an Economy	434
	1.8	Solution of Central Problems in Different	
		Economics	434
	1.9	Production Possibility Curve (PPC)	434

2. Theory of Demand and Supply 435 2.1 Meaning and Law of demand 435 2.2 Elasticity of Demand 436 2.3 Theory of Consumer Behaviour 439 2.4 Meaning of Supply 440 2.5 Elasticity of supply 441 3. Theory of Production and Cost 442 3.1 Theory of Production 442 3.2 Capital 442 3.3 Entrepreneur 443 3.4 Land 443 3.5 Labour 443

7

	3.6 Production Function	443
	3.7 Theory of Cost	
	3.8 Cost Function	446
4.	Meaning and Types of Market	447
••	4.1 Market	
	4.2 Price Determination in Different Markets	
=		
5.	Indian Economy – A Profile	
	5.1 Meaning of an underdeveloped economy5.2 Nature of Indian Economy	
	5.3 Role of Different Sectors in India	
	5.4 National Income in India	
	5.5 Tax System in India	
	5.6 Tax Structure in India	
6.	Other Aspects of Indian Economy	
	6.1 Population6.2 Growth of Population in India and Its Effects	457
	6.2 Growth of Population in India and Its Effects on Economic Development	158
	6.3 Poverty	
	6.4 Unemployment	
	6.5 Trends of unemployment in India	
	6.6 Causes of Unemployment in India	
	6.7 Infrastructure	
	6.8 Inflation	
	6.9 Budget and Fiscal Deficits	
	6.10 Balance of Payment	
	6.11 External Debt	
7.	Economic Reforms in India	.462
7.	Economic Reforms in India	
7.	7.1 Economic Reforms in India	462
7.	7.1 Economic Reforms in India	462 463
7.	7.1 Economic Reforms in India7.2 Various Economic Reforms	462 463 463
7.	7.1 Economic Reforms in India7.2 Various Economic Reforms7.3 Fiscal Policy	462 463 463 464
	 7.1 Economic Reforms in India	462 463 463 464 1 465
 8. 	 7.1 Economic Reforms in India	462 463 463 464 1.465 465
	 7.1 Economic Reforms in India	462 463 463 464 465 465 465
	 7.1 Economic Reforms in India	462 463 464 1.465 465 465 466
	 7.1 Economic Reforms in India	462 463 464 1.465 465 465 466 466
	 7.1 Economic Reforms in India	462 463 463 464 465 465 466 466 467
8.	 7.1 Economic Reforms in India	462 463 464 465 465 465 466 466 467 467
	 7.1 Economic Reforms in India	462 463 463 464 465 465 465 466 466 466 467 467 467
8.	 7.1 Economic Reforms in India	462 463 463 464 465 465 465 466 466 467 467 467 468 468
8.	 7.1 Economic Reforms in India	462 463 463 464 465 465 466 466 467 467 467 468 468 468 471
8.	 7.1 Economic Reforms in India	462 463 463 465 465 465 465 466 466 467 467 467 468 468 471 472
8.	 7.1 Economic Reforms in India	462 463 463 465 465 465 465 466 466 467 467 468 468 468 471 472 474
8.	 7.1 Economic Reforms in India	462 463 463 465 465 465 466 466 467 467 467 468 468 468 471 472 474 475
8. 9. Co	 7.1 Economic Reforms in India	462 463 463 465 465 465 465 466 467 467 467 467 468 468 471 472 474 475 476
8.	 7.1 Economic Reforms in India	462 463 463 465 465 465 465 466 466 467 467 467 468 467 472 472 474 475 476 476
8. 9. Co 1.	 7.1 Economic Reforms in India	462 463 463 465 465 465 466 466 467 467 467 468 468 471 472 474 475 476 476 477
8. 9. Co 1. 2.	 7.1 Economic Reforms in India	462 463 463 465 465 465 466 466 467 467 467 468 468 471 472 474 475 476 476 477 477
8. 9. 1. 2. 3.	 7.1 Economic Reforms in India	462 463 463 465 465 465 465 466 467 467 467 467 467 468 468 468 471 472 474 475 476 477 477 478
8. 9. 0. 1. 2. 3. 4.	 7.1 Economic Reforms in India	462 463 463 465 465 465 465 466 467 467 467 467 467 468 468 471 472 474 475 476 477 477 478 478 478

8.	Internal Assessment System	.480
9.	Women's Liberation —A Long Way Off	. 480
10.	Co-existence of Heavy Industries and Small Industries	. 481
11.	Improving the Quality of Indian Human Resources	.481
12.	Employment-Oriented Growth Strategy	. 481
13.	Superior Governance - Key to All Development Plans	s 482
14.	India's Commitment to Sustainable Development	
	in the 11th Plan.	. 482
Δn	alysing A Situation	483
1.	Causes and Solutions of Global Warming	
2.	Ways to Check the Growth of Rural Migration	. 405
2.	to Urban Centres	484
3.	Ways to Reduce Noise Pollution	
<i>3</i> . 4.	Ways to Curb Air Pollution?	
ч . 5.	Ways to Accumulate Natural Rain Water?	
5. 6.	Ways to Improve the Surface Transport System in	. 405
0.	the North Eastern States?	185
7.	Ways to Improve the Economics Status of Farm	.405
1.	Labourers	185
8.	How To Increase the Availability of Potable Water?	
o. 9.	Falling Inflation—Cause of Cheer or Worry?	
	Progress of Microfinance in India	
	Poverty and Social Welfare	
	Shortage of Capital in Farming and Other Enterprises	
	Dispensation of Justice in India	
	Impact of Gender Inequality on Development	
	Erosion of Moral Values	
	How legislation on domestic violence has	. 400
10.	changed women's life in India?	180
17	Why India is lagging behind in higher education?	
	The World towards a Complete Acceptance of Genetic	
10.	Modified(gm) Food. Can India be left Behind?	-
19.	RBI's Plan for more new for private sector Banks	, 0
	Discuss	. 491
C		
	nerating New Ideas	
1. 2	Eyes at the Back of Head	. 491
2.	Discussion of Animals	400
2	Disappearance of Animals	
	Controlling the Ageing Process	. 492
4.	Controlling the Ageing Process Loss of Ability to Laugh	. 492 . 492
4. 5.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees	. 492 . 492 . 492
4. 5. 6.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery	. 492 . 492 . 492 . 493
4. 5. 6. 7.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night	.492 .492 .492 .493 .493
3. 4. 5. 6. 7. 8.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels	.492 .492 .492 .493 .493 .493 .494
4. 5. 6. 7. 8. 9.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels Removal of Hills	.492 .492 .492 .493 .493 .494 .494
4. 5. 6. 7. 8. 9. 10.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels Removal of Hills Role of Distance Education	.492 .492 .493 .493 .493 .494 .494 .494
4. 5. 6. 7. 8. 9. 10. 11.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels Removal of Hills Role of Distance Education Eliminating Inequalities in India	.492 .492 .493 .493 .493 .494 .494 .494 .495
4. 5. 6. 7. 8. 9. 10. 11.	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels Removal of Hills Role of Distance Education	.492 .492 .493 .493 .493 .494 .494 .494 .495
 4. 5. 6. 7. 8. 9. 10. 11. 12. 	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels Removal of Hills Role of Distance Education Eliminating Inequalities in India	.492 .492 .493 .493 .493 .494 .494 .494 .495 .495
 4. 5. 6. 7. 8. 9. 10. 11. 12. 	Controlling the Ageing Process Loss of Ability to Laugh	.492 .492 .493 .493 .493 .494 .494 .494 .495 .495 .495
 4. 5. 6. 7. 8. 9. 10. 11. 11. 12. Mis 	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels Removal of Hills Role of Distance Education Eliminating Inequalities in India Does ethics have a role to play in Cricket? scellaneous Ideas	.492 .492 .493 .493 .493 .494 .494 .494 .495 .495 .495 .495
 4. 5. 6. 7. 8. 9. 10. 11. 12. Mis 1. 	Controlling the Ageing Process Loss of Ability to Laugh Ban on Felling Trees Eradication of Bribery Day and Night Ban on all TV Channels Removal of Hills Role of Distance Education Eliminating Inequalities in India Does ethics have a role to play in Cricket? scellaneous Ideas Role of Public Sector Undertakings (PSUs)	.492 .492 .493 .493 .493 .494 .494 .494 .495 .495 .495 .495 .495
 4. 5. 6. 7. 8. 9. 10. 11. 12. Mis 1. 2. 	Controlling the Ageing Process	.492 .492 .493 .493 .493 .494 .494 .494 .495 .495 .495 .495 .496 .496
 4. 5. 6. 7. 8. 9. 10. 11. 12. Mis 1. 2. 3. 	Controlling the Ageing Process Loss of Ability to Laugh	.492 .492 .493 .493 .494 .494 .494 .495 .495 .495 .495 .495
4. 5. 6. 7. 8. 9. 10. 11. 12. Mi 1. 2. 3. 4.	Controlling the Ageing Process	.492 .492 .493 .493 .494 .494 .494 .495 .495 .495 .495 .495

7.	Economic Consumption of Petroleum Fuels	498
8.	Setting Up Small Industries in Rural Areas	499
9.	Defence Services	499
10.	Atrocities against Women	499

ENVIRONMENT AND ECOLOGY

Institutions in Environment	547
People in Environment	549
Natural Resources	550
Forest Resources	550
Mangroves	551
Water Resources	552
Food Resources	554
The Environment	554
Types of Environment	554
Habitat and Niche	556
Habitat: The Organism's Home	557
Niche: The Organism's Role	558
Population Age Structure	558
Mathematical Modles of Population Growth	559
Factors and Processes	559
Species Interactions	560
Herbivory	562
Carnivory	562
Community Ecology	563
Ecotone	565
Ecological Succession	566
Types of Climax	566
Forest Succession	566
The Terrestrial Ecosystem	567
Types of Salt Water Habitats	568
Freshwater Ecosystems	569
Biogeography	570
Environmental Pollution	570
Environmental Pollution Effects on Humans, Other	
Animals and Plants	571

11.	Development Work in Villages	500
12.	Illiteracy and Poverty	501
13.	Capitalism Concentrates Profits, Socialises Losses	501

545-616

617—616

Environmental Pollution Effects on Humans	571
Environmental Pollution Effects on Animals	572
Environmental Pollution Effects on Trees and Plants	572
General Environmental Pollution Effects	573
Acid Rain	573
Basic Concept of Biodiversity	575
Patterns of Biodiversity	576
Loss of Biodiversity	577
Biodiversity Conservation	579
Biosphere Reserves	580
Project Tiger	581
Project Elephant	582
Wildlife Conservation Category	583
Biodiversity Hotspots around the Globe	583
Importance of Biodiversity	584
Biodiversity In India	584
Miscellaneous	585
Biodiversity and its Conservation	587
Importance of Biological Diversity	588
Uniqueness of Indian Biodiversity and Associated	
Regional Specificity	589
Causes of Biodiversity Depletion	589
Conservation of Biodiversity	590
Conservation Strategies	590
Biosphere Reserves	591
Biosphere Reserve Network	592
Climate Change	595
Introduction	
Reasons of Climate Change	595

GENERAL SCIENCE – PHYSICS, CHEMISTRY, BIOLOGY AND COMPUTER

PHYSICS

1.	Quantity and Measurement	619
	Units of Measurement	619
	System of Units:	619
	Seven Fundamental Units of SI System	619
2.	Motion and Force	
	Law of Conservation of Linear Momentum	
	Frictional force	
	Characteristics of frictional forces	
	Advantages of frictional forces	
	Disadvantages of frictional forces	
	Centrifugal Force or Pseudo Force or Fictitious	Force.624

	Centre of gravity of some rigid bodies	
3.	Work, Power and Energy	
	Transformation of Energy	625
4.	Gravitation	
5.	Properties of Matter	
	Pressure	
	Surface Tension	
	Capillary Action or Capillarity	628
	Incidents and facts related to surface tension	
	Examples of Capillarity	
	Viscosity	
	Atmospheric Pressure	

9

6.	Sim	ple Harmonic Motion	630
	Cha	racteristics of simple harmonic oscillator	
	Sim	ple pendulum	
	Sou	nd (Acoustics)	
		ns related to wave motion	
	Dop	pler's Effect in Sound	
7.	The	rmal Physics (Heat and Thermodynamics)	
	Uni	ts of Heat	
	Hea	t Transfer	
	The	rmodynamics	
	Imp	ortant thermodynamical processes	
9.		ht	
	Nat	ure and Speed of Light	
Imj	porta	Int Facts	639
	1.	Eclipse	
	2.	Reflection of Light	
	3.	Refraction of Light	
	4.	Total Internal Reflection of light	
	5.	Refraction of Light through a Lens	
	6.	Dispersion of light	
	7.	Polarisation of light waves	
	8.	Human eye	
	9.	Optical Instruments	
	10.	Electricity and Magnetism	
	11.	Atomic and Nuclear Physics	
	12.	Electronics	
	13.	Astronomy	
Mi	scell	aneous	676
	1.	Physical quantities and symbols of	
		their units	
	2.	Conversion Units	
	3.	Scientific devices/equipment	
	4.	Inventions related to devices/equipments	
	5.	Inventions in Physics/Inventors	
	6.	Physicists and their outstanding contribution	ns680
~			

CHEMISTRY

General Chemistry727
Structure of Atom
Atomic Number and Mass Number727
Wavelength
Amplitude
Einstein's Explanation of Photoelectric Effect
Bohr's Atomic Model728
de-Broglie Concept
Heisenberg's Uncertainty Principle
Nuclear Chemistry729
Radioactivity
Group Displacement Law730
Law of Radioactive Decay
Chemical Bonding
Valence Shell Electron Pair Repulsion (VSEPR) Theory731
Periodic Table
General Characteristics of Periods and Groups732
Electronic Configuration as the Basis of Classification732
Specific Periodic Properties and Periodicity

Electronic Concept	. 734
Rules of Calculating Oxidation Numbers	. 734
Physical Chemistry	735
Solid State	
Behaviour of Gases	. 738
Gas Laws	. 738
Molar Volumes or Gram Molecular Volume (GMV)	. 739
Dalton's Law of Partial Pressure	. 739
Graham's Law of Diffusion	. 740
Root Mean Square (RMS) Velocity	. 740
Solutions	. 741
Volumetric Analysis	. 743
Equivalent Weight	. 743
Chemical Equilibrium and Ionic Equilibria	. 744
Chemical Energetics	. 746
Entropy	. 748
Chemical Kinetics	. 748
Electrochemistry	. 750
Organic Chemistry	751
General Organic Chemistry	. 751
Classification and Nomenclature of Organic Compounds.	753
	. 100
Isomerism	
Isomerism	. 754
	. 754 . 755
Synthesis and Reactions of Alkanes (Paraffins)	. 754 . 755 . 757
Synthesis and Reactions of Alkanes (Paraffins) Alkenes (Olefins)	. 754 . 755 . 757 . 760
Synthesis and Reactions of Alkanes (Paraffins) Alkenes (Olefins) Alkynes (Acetylenes)	. 754 . 755 . 757 . 760 . 761
Synthesis and Reactions of Alkanes (Paraffins) Alkenes (Olefins) Alkynes (Acetylenes) Alkyl Halides Alcohols Ethers	. 754 . 755 . 757 . 760 . 761 . 763 . 765
Synthesis and Reactions of Alkanes (Paraffins) Alkenes (Olefins) Alkynes (Acetylenes) Alkyl Halides Alcohols Ethers Aldehydes and Ketones (Carbonyl Compounds)	. 754 . 755 . 757 . 760 . 761 . 763 . 765 . 766
Synthesis and Reactions of Alkanes (Paraffins) Alkenes (Olefins) Alkynes (Acetylenes) Alkyl Halides Alcohols Ethers	. 754 . 755 . 757 . 760 . 761 . 763 . 765 . 766
Synthesis and Reactions of Alkanes (Paraffins) Alkenes (Olefins) Alkynes (Acetylenes) Alkyl Halides Alcohols Ethers Aldehydes and Ketones (Carbonyl Compounds)	. 754 . 755 . 757 . 760 . 761 . 763 . 765 . 766 . 769
Synthesis and Reactions of Alkanes (Paraffins) Alkenes (Olefins) Alkynes (Acetylenes) Alkyl Halides Alcohols Ethers Aldehydes and Ketones (Carbonyl Compounds) Carboxylic Acids	. 754 . 755 . 757 . 760 . 761 . 763 . 765 . 766 . 769 . 771

BIOLOGY

Plant and Animal Kingdom	820
Cell — The Basic Unit of Life	820
Classification of Organisms	821
Nutrition	824
The Transport System	826
Biocommunication	826
Skeletal System	829
Sexual Reproduction	829
Human Diseases and Defence Mechanism	832
Non-communicable or Non-infectious or Degenerative	
Diseases	832
Human Defence Mechanism	833
Various Branches of Biological Sciences	833
Medical/Biological Discoveries or Inventions	834
Biotechnology	835
The Cloning Debate	836
Human Stem Cells Types, Characteristics	837
A Decade of Embryonic Stem Cell Research	839
Bt Cotton :	842
A Boon for Indian Farmer	842
Nanotechnology	844

Environment and Ecology	
Draft National Environment Policy, 2004	
Wildlife	
Pollution	
Global Warming	
Greenhouse Gases	
Global Environment Facility (GEF)	853
Agriculture	
Types of Cultivation	
Animal Husbandry	

COMPUTER

Introduction	908
Classification of Computers	908
Software	908
History of Computer	908
Early Electronic Computers	910
Computer Generations	911
Characteristics of Computer	912
Classification of Computers	913
Fundamental Information	914
Microsoft Windows	916
Keyboards and Languages	917
Desktop and Application Bar	917
Computer Locking Problem	917
File System	

Network folders at UNIBZ	
Computer Networks	
Network Components	
External threats	
E-mails	
Backup	
Data and Information	
Representation of the Data	
Bits and Bytes	
Text Codes	
EBCDIC	
ASCII	
Unicode	
Number system	
Decimal System	
Binary System	
Representation of Fraction	
Hexadecimal Representation of Numbers	
Conversions	
Decimal to Binary Conversion	
Binary System to Other Number	
Systems	
The Super Computers	
E-world	
Computer Abbreviations	
Computer Terminology	

GENERAL KNOWLEDGE

India: Art and Culture956
Indian Classical Dances
Bharat Natyam
Kathakali
National Insignia958
National Flag
State Emblem
National Animal
National Bird959
National Flower
Important Facts about Science960
Branches of Science
Various Branches of Science
Scientific Instruments
Inventions and Inventors
Medical/Biological Discoveries or Inventions
Biology
Vital Vitamins
Human Body At a Glance
Parts of the Body Affected by Diseases966
Diseases and Causative Agents
Blood Groups of Children
Diseases Propagated by Insects, Water and Food966
Computer and Information Technology967

Vitamins: Deficiency Symptoms and Natural Sources967 E-mail Important Facts about India970 Fruits

953 -1071

	072
Scientific Museums	
Cooperative Research	
Medical Research	
Study of Diseases and Treatments	
Microbiology and Related Studies	
Nuclear and Space Research Centres	
Nuclear Research	
Space Research	
Economic planning in india	
Finance commission	
Distribution of Population : Census 2011	
Railway	
Progress of Loco in India	
Awards	977
Bharat Ratna	
Dada Saheb Phalke Award	
First in World and India	981
First In India (Woman)	
First in India (Man)	
Alternate Names of Famous Personalities	
Important Dates, Weeks, Years and Decades	
International Decades	
International years of the United Nations	
National/International year	
National/International year	
National/International year	
National/International year News agency Indian news agency	
National/International year	990 990 990 991
National/International year News agency Indian news agency Important Facts about World	990 990 990 991 991
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets	990 990 990 991 1001 1001
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth	990
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth Continents of the World Countries	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth Continents of the World	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets Superlatives in the world	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets Superlatives in the world Longest	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets Superlatives in the world Longest Highest	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets Superlatives in the world Longest Highest Other Superlatives	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets Superlatives in the world Longest Highest Other Superlatives Important Cities/Towns on The Banks of Rivers	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets Superlatives in the world Longest Highest Other Superlatives Important Cities/Towns on The Banks of Rivers Important Straits	
National/International year News agency Indian news agency Important Facts about World United Nations & other organisations Facts about the Sun Facts About the Planets Facts about the Planets Facts about the Earth Continents of the World Countries Know Your Universe The Inner Planets The Outer Planets Sobriquets Superlatives in the world Longest Highest Other Superlatives Important Cities/Towns on The Banks of Rivers	

Largest Peninsulas of the World	
Principal Waterfalls of the World	
World's Principal Deserts	1008
Oceans and Seas	
Principal Rivers of the World	1009
Geographical Discoveries	1009
Principal Lakes of the World	1009
Industrial Towns	1010
Principal Mountain Peaks of the World	1010
Important Boundary Lines	
Agriculture	
Minerals	
Important Lines on the Map	1011
Shipping Canals	
Some Facts about Straits	
Seven Wonders of the World	
Indian Sites in the World Heritage List	
Region and Grasslands	
Some Important Alloys	
Women Rulers	
Important News Agencies in The World	
The Leading Dailies of India	
Important Residences of the world	1015
Important Residences of the World Books and Authors	
Books and Authors	1015
Books and Authors Famous Characters in Literature	 1015
Books and Authors Famous Characters in Literature Sports and Games	1015 1018 1018
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms	 1015 1018 1018 1018
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies	 1015 1018 1018 1018 1019
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds	1015 1018 1018 1018 1018 1019 1020
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements	1015 1018 1018 1018 1019 1020 1020
Books and Authors Famous Characters in Literature	1015 1018 1018 1018 1019 1020 1020 1021
Books and Authors Famous Characters in Literature	1015 1018 1018 1018 1019 1020 1020 1021
Books and Authors Famous Characters in Literature	1015 1018 1018 1018 1019 1020 1020 1021 1021 1021
Books and Authors Famous Characters in Literature	1015 1018 1018 1018 1019 1020 1020 1021 1021 1021 1022 1023
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games	1015 1018 1018 1018 1019 1020 1020 1021 1021 1021 1022 1023 1023
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations	1015 1018 1018 1018 1019 1020 1020 1021 1021 1023 1023 1024
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations National Economy	1015 1018 1018 1018 1019 1020 1020 1021 1021 1023 1023 1024 1025
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations National Economy Political Parties	1015 1018 1018 1018 1019 1020 1020 1021 1021 1021 1022 1023 1023 1024 1025 1025
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations National Economy Political Parties Terrorist Outfits	1015 1018 1018 1018 1019 1020 1020 1021 1021 1022 1023 1024 1025 1025 1026
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations National Economy Political Parties Terrorist Outfits Miscellaneous	1015 1018 1018 1018 1019 1020 1020 1020 1021 1021 1022 1023 1023 1025 1025 1026 1026
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations National Economy Political Parties Terrorist Outfits Miscellaneous International Organisation	1015 1018 1018 1018 1019 1020 1020 1020 1021 1021 1023 1023 1024 1025 1025 1026 1026
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations National Economy Political Parties Terrorist Outfits Miscellaneous International Organisation Sports	1015 1018 1018 1018 1019 1020 1020 1020 1021 1021 1023 1023 1024 1025 1026 1026 1026 1027
Books and Authors Famous Characters in Literature Sports and Games Sports/Games and Terms Trophies Names of Playgrounds Sports Measurements Number of Players in Popular Sports/Games Olympics World Cup Cricket Tournaments World Cup Cricket Finals Asian Games Abbreviations National Economy Political Parties Terrorist Outfits Miscellaneous International Organisation	1015 1018 1018 1018 1019 1020 1020 1020 1021 1021 1022 1023 1023 1024 1025 1025 1026 1026 1027 1027

CURRENT AFFAIRS

National News 1073
Scientists Discovered two Earth-like planets Kepler 438b
and Kepler 442b 1073
102nd Indian Science Congress held in Mumbai1073
Whole plant therapy can beat malaria parasites'
drug resistance: Study 1073
Prime Minister released commemorative coin to mark 175th

1072 -1217

birth anniversary of Jamsetji Tata	1073
President signed Ordinance to amend Citizenship	
Act, 1955	1073
Main Provisions of the Ordinance	1074
Subramanium committee recommended single window	
system for environment projects	1074
Larry Page named Business Person of the Year 2014	1074

Prime Minister appointed economist Arvind Panagariya	
as the Vice Chairman of NITI Aayog	1074
President signed Ordinance to amend Mines and	
Minerals Development & Regulation Act, 1957	1074
Objectives of the MMDR (Amendment) Bill, 2014	
RBI constituted High Powered Committee headed by	
R Gandhi on Urban Cooperative Banks	1075
Terms of Reference of the High Powered Committee	
Shanta Kumar Committee on FCI restructuring submitted	1075
its report to the Prime Minister	1075
Recommendations of the Shanta Kumar Committee	
RBI cut Repo Rate by 0.25% in sixth Bi-Monthly	1075
· · · ·	1076
Monetary Policy Statement 2014-15	1076
Union Government identified five areas for Varanasi-	1076
Kyoto partnership	10/6
Japan will extend its expertise to help in rejuvenating	
Varanasi under the Kyoto-Varanasi partnership deal ?	
Japan approved its largest ever Defence Budget for 2015	1076
Pope Francis cannonised Joseph Vaz, the first saint of	
Sri Lanka	1076
Kolinda Grabar-Kitarovic won the 2015 Presidential	
elections of Croatia	1076
US to host international Anti-terror Summit on 18th	
February 2015	1077
Chinese scientists published first genetic map of	
Tibetan Highland Barley	1077
Periyar Tiger Reserve won NTCA biennial award	1077
PETA announced to create India's first fenced	
elephant sanctuary near Bengaluru	1077
Union Government divested 10 percent stake in	
Coal India Limited	1077
18th National Conference on e-Governance held in	
Gujarat	1077
20th Law Commission submitted 253rd Report titled	
Commercial Courts Bill 2015 to Union Government	1078
66th Republic Day celebrated across the Nation	
PM Narendra Modi launched Sukanya Samridhi Yojana	1070
under BBBP campaign	1078
Union Government launched National Heritage	1078
Development and Augmentation Yojana (HRIDAY) 1	1070
Idukki in Kerala became first District of India to have	1078
	1070
Complete Rural Broadband Coverage	10/8
Union Government reconstituted Pollution Control	1070
Board Working Group	10/8
Ministry of Railways inaugurated India's first CNG	
powered train	1078
Union Government accepted Bezbaruah panel report on	
safety of North East people	1079
UNCTAD released Global Investment Trends Monitor	
Report	1079
World Bank Group released Global Economic	
Prospects (GEP) Report, January 2015	1079
Maithripala Sirisena won 2015 Presidential Elections	
of Sri Lanka	1079
NASA Kepler Space Telescope made 1000th	
Exoplanet Discovery	1079

Year 2014 ranked as Earth's hottest year since 1880	
released by UNESCAP	J
Universe 2014)
Paul van Ass appointed as coach of National Men's	
Hockey team)
India to host ICC Twenty 20 World Cup in 2016 1080)
Sean Abbott of Australia named as the Bradman Young Cricketer of the Year 2015)
Pankaj Advani won National Billiards title for seventh	
time)
Mark Knowles, Ellen Hoog named FIH Player-of-the- year 2014)
Petra Kvitova won women's single title of Sydney	
International Tennis tournament)
Viktor Troicki won Men's Single title of Sydney	
International Tennis Tournament)
Stephen Constantine appointed as head coach of India's	1
men football team	
Cristiano Ronaldo won the 2014 FIFA Ballon d'Or Award 1081	
India to host World Bridge Championships 2015	l
Russian Popov Ivan won 7th Chennai International	1
Open Grandmaster Chess title	l
Andy Murray won ATP World Tennis Championship in	1
Abu Dhabi	1
Union Sports Ministry recognised Boxing India as national federation for representing Boxing	1
Trai bill passed in parliament	
Forest cover increases	
West Bengal on top	
Navy Gets its Largest Destroyer	
Government Slaps Further \$579 Million Fine on RIL 1083	
Bill on Polavaram Project Passed	
Number of Poor to Rise under Rangarajan Formula 1083	
Find of 1800 year Old Artefacts	
Second Covert Defence Site in Karnataka : Report	
India Ratifies Marrakesh Treaty for Visually Impaired 1084	
More Homes Turn To Public Distribution System	
India More Open To N-inspectors	
Persons in News	
International News 1087	7
295 Killed In Malaysian Jet Crash 1087	7
Russia-Argentina Sign Nuclear Pact	7
Church of England Approves Women Bishops 1087	7
Japan Cabinet Approves "Collective Self-defence" 1088	
Badie, 36 Others Get Life Sentences in Egypt 1088	3
Badle, 50 Others Get Ene Sentences in Egypt 1000	
World's Largest Mall to Come up in Dubai	8
World's Largest Mall to Come up in Dubai	8 8 8
World's Largest Mall to Come up in Dubai	8 8 8
World's Largest Mall to Come up in Dubai	8 8 8
World's Largest Mall to Come up in Dubai 1088 Bangladesh Wins Maritime Dispute With India 1088 UN Approves Peacekeeping Budget 1088 United Kingdom to Boost India's Allocation in 1089 Chevening Scholarships 1089	8 8 8 8 9
World's Largest Mall to Come up in Dubai 1088 Bangladesh Wins Maritime Dispute With India 1088 UN Approves Peacekeeping Budget 1088 United Kingdom to Boost India's Allocation in 1089 Switzerland to Share List of Account Holders 1089	8 8 8 9 9
World's Largest Mall to Come up in Dubai 1088 Bangladesh Wins Maritime Dispute With India 1088 UN Approves Peacekeeping Budget 1088 United Kingdom to Boost India's Allocation in 1089 Switzerland to Share List of Account Holders 1089 19th Century Stamp Sells for Record Price 1089	8 8 8 9 9
World's Largest Mall to Come up in Dubai 1088 Bangladesh Wins Maritime Dispute With India 1088 UN Approves Peacekeeping Budget 1088 United Kingdom to Boost India's Allocation in 1089 Switzerland to Share List of Account Holders 1089	8 8 8 9 9 9 9

Centre Extends Validity of Industrial Licences
State Bank Launches Six Digital Banking Branches 1090
Diageo Gains Control of United Spirits Ltd
RBI Eases Reserve Norms
RBI Relaxes Rules on Diamond Imports 1091
CCI Slaps Rs. 25.67 Crore Penalty on Adani Gas 1091
Overseas Investment Norms Eased
TRAI Doubles Minimum Broadband Speed 1091
US Employers Added Robust 288 K Jobs 1091
Foreign Investors can Invest in Partly-paid Shares 1091
OVL Raises \$2.21 Billion Through Overseas Bonds 1092
EU Regulators Fine Six Drug Companies
Industrial Production Surges in May
Ranbaxy Gets FDA Nod for Diovan's Generic 1092
Vulnerable Indian Airline Companies
Accumulated Losses in 7 years 1093
India on US Piracy Watch List
Neotel Signs Broadband Deal in South Africa 1093
Transmission Projects Cleared 1093
China Finds Loans Tied to Falsified Gold Deals 1094
Air India Joins Star Alliance Group 1094
RBI Allows Foreign Investors to Access Currency
Futures
CPP To Invest in L & T Arm 1094
GMR Gets Relief in Male Airport Row 1094
Mayaram Panel Report On Foreign Direct Investment 1095
SEBI Unveils Measures to Revitalise Markets
Sports
Athletics
Badminton
Basketball

Chess
Golf1097
Hockey
Motor Racing
Snooker
Famous Personalities of India 1098
Famous Personalities of World 1099
Places
Award1101
Abbreviations
Report
Miscellaneous 1103
The Union Budget : 2014-15 1104
The Railway Budget : 2014-15 1108
Nobel Prizes – 2013 1111
News in Focus – 2013 1112
Beauty Pageants 2013 1121
Latest Awards & Honours
Important Places
Exercise/Operation/Expedition
Reports
Books
Commission/committee
Latest National News
Latest International news
Current Economy
States in News
Sports
Latest Science & IT
Miscellaneous Facts

SOLVED PAPERS

Solved Paper 2011	1219
Solved Paper 2012	1230

Solved Paper 2013	
Solved Paper 2014	

MODEL PRACTICE PAPERS

Model Practice Paper-1	. 1269
Model Practice Paper-2	. 1283
Model Practice Paper-3	. 1293

1218—1266

1267—1328

Model Practice Paper-4	304
Model Practice Paper-5	316



Aspiring for great things in life is human tendency. A person without any ambition in life is like a ship without a rudder. He has no destination. He does not have any urge to make a start. He is tossed up like a straw in the wind. He achieves nothing. But an aspirant wants to scale the greater height of success. However, success is not a matter of luck or mere intellect but of well oriented and disciplined effort. In the battle of life, the man who wins is the one who tries to win and believes what he can. *Success has its own price that is hard work*. It comes to those who dare and act. Today, life has become very fast-paced. Everyone is striving to be the best and as a result, competition has increased manifolds. The ticking of the clock is one of the most important things in the world, for it marks the passage of time. It reminds that another second, another hour, another day has gone. Despite this constant reminder, most of us are as a mere wastrel of time. There is plenty of time, we tell ourselves. Certainly, we are mistaken. The challenge is ahead. There is no time to stand and stare. Come forward with strong determination and self-belief, you will be the winner.

Every year the Union Public Service Commission (UPSC) announces for the recruitment of Officers for different Central Services Groups-A & B including IAS, IFS, IPS, IRS, etc. The book in your hand has been prepared exclusively for the aspirants of the UPSC Civil Services Exams taking into consideration the changed syllabus and the new scheme of exams. Taking this book as your base, you may impart a solid foundation to your preparation, which will be useful for your success in every way.

This book is unique in several ways. From the very inception, it has been our policy not to compromise with quality and quantity in the preparation of this book. Therefore, we have provided each and every topic as per the syllabus and based on the previous years' papers.

All the questions included in this book are of a standard nature and entirely based on the syllabus and therefore, quite useful for taking the exams at ease. The questions have been framed in appropriate patterns so that the candidates may handle the level of difficulty of questions quite efficiently. The competitive exams are much more difficult these days than they used to be earlier. At the same time, the number of candidates is also increasing, while the number of vacancies is not increasing in the same proportion. Therefore, the candidates need to take this exam as a challenge and from this respect, this book is quite useful.

A word of apology is also perhaps due to the readers, who may come across some errors and others. While every effort has been made to avoid mistakes, we crave for the inclusion of the readers' suggestions, for the errors that might have inadvertently crept in, due to the great volume and the rush of work which we have to cope with today. Suggestions for the improvement of the book will be highly appreciated and will be duly incorporated.

Finally, we hope you will keep us informed about your opinion on the book, as it has been our endeavour to include the valuable suggestions of our esteemed readers wherever possible.

Wishing You All the Best

History of India

History of India

1. FROM THE INDUS VALLEY CIVILISATION TO THE MAHAJANPADS

The *Indus* or the *Harappan* culture is older than the *Chalcolithic cultures*. It arose in the north-western part of the Indian subcontinent. It is called Harappan because it was first discovered in 1921 at the modern site of Harappa situated in the province of west Punjab in Pakistan. The Harappan civilisation covered parts of Punjab, Sindh, Baluchistan, Haryana, Gujarat, Rajasthan and the frings of Western Uttar Pradesh.

1.1 AGE (BRONZE AGE)

The archaeological excavations conducted under the direction of *Sir John Marshall* at *Mohenjodaro* in Larkana District (Sind) and at Harappa in Montgomery District (Punjab) have revealed the existence of a great civilisation, commonly known as the *Harappa civilisation*. Excavations of other sites in Sind, Punjab, Gujarat, Haryana, Northen Rajasthan and North-Western Uttar Pradesh give more details about this civilisation. Among the sites excavated in recent years are Dholavira, Ropar, Kalibangan, Bonawali and Lothal.

Origin : Some scholars regard the Harappan civilisation as an offshoot of the *Mesopotamian civilisation* which was brought to the Indus Valley by the *Sumerians*. This view is not supported by adequate proof. Others hold the view that it was indigenous in origin. It is likely that the stimulus for urban development in the Indus Valley might have come from outside, most likely from *Sumeria* where a well developed urban culture was already in vogue.

Extent : The Harappan culture extended from *Jammu* in the north to the *Narmada estuary* in the south and from the *Makran Coast* (Baluchistan) in the west to *Alamgirpur* (Uttar Pradesh) in the north-east, covering an area of about 1300000 square kms. No other culture zone in the third and second millennium B.C. in the world was as large as the Harappan Zone.

The Harappan culture flourished between 2300 B.C. and 1800 B.C.

Characteristics : Although, nearly 1000 Harappan sites are known, only six can be regarded as cities. Of these the two most important cities were Harappa in Punjab and Mohenjodaro in Sindh, both forming parts of Pakistian. Situated at a distance of 483 kms they were linked together by the *Indus* river.

Some characteristics of Indus Valley civilisation are given below :

(i) **Social life :** People lived in cities in houses built with burnt bricks. The houses were often of two or more storeys. They were equipped with rubbish bins and bathrooms, which were connected by drains with sewers under the main streets.

Wheat, barley, rice, milk and dates were important food items of the Harappans. Animal flesh was also eaten.

The household utensils were made of clay, stone, copper and bronze. The dress worn by men resembles the modern dhoti. Female dress did not differ from that of men. Iron was unknown to the Indus people.

(*ii*) **Economic Life :** Agriculture was the main occupation of the *Indus* people. They produced rice, wheat, barley, peas and cottons and domesticated animals like bull, sheep, pig, buffalo, dog and camel.

The Harappans were well acquainted with the manufacture and use of bornze. The *bronzesmiths* formed an important group of artisans in the Harappan society.

The Harappan used weights and measures, for trade and other transactions.

(*iii*) **Religion :** The cult of *Mother Goddess* was very popular among the Harappans. The Mother Goddess is believed to be represented by numerous nude female figurines in terracotta. The cult of *Shiva* was prevalent among the Harappans. Shiva is depicted as a horned God on some seals and as a God surrounded by four wild animals on one of these seals. Phallic worship seems to have been prevalent among the Harappans. Many polished stones mostly small but up to 60 cm or more in height and pierced stones have been found. The Harappans also worshipped trees and animals.

(iv) Art : The fine engraving, on the seals and the beautiful ornaments show that the Harappans had some amount of artistic sense. Statuary is rare. Statues were cut from soft stones, limestone, alabaxter and steatite. The sculptural perfection of the dancing figure in bronze of a young woman is striking.

(v) **Art of writing :** The Harappans invented the *art of writing*. The harappan script is not alphabetical but *pictographic*. It is yet to be deciphered. The direction of writing seems to be from right to left though in some cases it is from left to right. Professor Hangdon is of the opinion that Indus script is the parent of the *Brahmi script* of Asoka's inscriptions.

"It is certain that two major cities of the Indus civilisation – Harappa and Mohenjodaro were completely abandoned by 1700 BC. Many causes are suggested for their disappearance:

- (*a*) It is said that the amount of rainfall might have decreased, affecting agriculture and stock breeding.
- (b) The soil might have lost its fertility due to increasing salinity caused by the expansion of the adjacent desert.
- (c) There might have occurred a sudden uplift or subsidence of the land, causing floods.
- (d) The course of the Indus river might have been changed by earthquakes leading to inundation of the hinterland of Mohenjodaro.
- (e) The Aryans might have destroyed this culture.

1.2 VEDIC CULTURE

The main sources of information for the study of the Vedic Aryans, were the four *Vedas* comprising the *Rig*, the Sama, the *Yajur* and the *Atharva* and the Samhitas, the *Brahmanas*, the *Aranyakas* and the *Upanishads* associated with them.

The Vedic Age (1500 B.C. - 600 B.C.) may be studied in two parts

- (1) The early vedic phase or Rig Vedic period (1500 B.C. 1000 B.C.)
- (2) The later Vedic phase (1000 B.C. 600 B.C.)

The Early Vedic Phase

The Rigveda is the main source of information for the study of the Early Vedic Phase.

Social division : The Rigveda shows some consciousness towards the physical appearance of people in north-western India in about 1500 – 1000 B.C. *Varna* was the term used for colour, and it seems that the Aryans were fair and the indigenous inhabitants dark in complexion. The colour distinction may have partially given rise to social orders, but its importance has been exaggerated by those western writers, who believed in racial distinction. The factor which contributed most to the creation of social division was conquest of the indigenous inhabitants by the Aryans. The *dasas* and the *dasyus*, who were conquered by the Aryans, were treated as slaves and sudras. The tribal chiefs and the priests acquired a larger share of the booty and they naturally prospered at the cost of the common people, which created social inequalities in the tribe.

The Rigvedic society was essentially tribal. Its basic unit was the patriarchal family. Yet the position of woman was much better than what it was in subsequent periods. She could take part in sacrifices with her husband. She could freely mix with youngmen. Girls normally married after puberty. Polygamy was practised. Though polyandry was known, it was not practised. Widow remarriage was known. Rigvedic women were said to have composed some of the Rigvedic hymns and rose to the rank of seers like Visvavara, Ghosha and Apala.

The Rigvedic Aryans lived in villages. Their houses were made of wood or reed. Their clothes were made of cotton, wool or deer skin. They used ornaments and flowers, particularly on festive occasions. The hair was combed and long. Women folded their locks in broad plaits. Besides parched grain, cakes, milk, vegetables and fruits, they used animal flesh; particularly at great feasts.

Political Institutions

During the Rigvedic period, the Aryan came to India in several waves. The region where they first settled is called *Sapta Sindhawu* i.e. the land of the seven rivers. The Aryans defeated the native people, called the *Dasyus*. Their success everywhere was due to the fact that they possessed chariots driven by horses. The Aryans were probably better equipped. After their complete success over the indigenous people, they fought amongst themselves, being divided into the five peoples, (*Panchajanas*). In the intra – tribal conflicts, they secured the support of the non-Aryan peoples, finally, the Bharatas, one among the Panchajanas, emerged victorious in the battle of the ten kings. Later they joined with the *Purus* and formed a new ruling class called the *Kurus*.

Kingship was a tribal institution. The king ruled over his tribe and not over specified territory. Primarily a military leader, he fought only for cows and not for land. He was the protector of his tribe.

We have evidence of election of King by the tribal assembly, though kingship was perhaps confined to certain families. Since, the available evidence does not indicate the continuance of royal succession in one family for more than three generations, it is likey that the principle of hereditary succession was not yet firmly established. The King was not autocrat. His power was substantially restricted by the tribal assemblies, particularly the *Sabha* and the *Samiti*. The King was assisted by a few functionaries such as the Purohita and the Senani. He received from the people voluntary offerings called *Bali*.

Economic Conditions

The Rigvedic people practised agriculture. Cultivated fields were known as urvara or kshetra. People used ploughstone probably made of wood. They were acquainted with sowing, harvesting and threshing. They grew yava or dhana. They were pre-dominantly a pastoral people. The Rigveda speaks about such artisans as the carpenter, the chariot maker, the weaver, and the potter (kulala) etc. Metal working was also known. The metal worker made all sorts of weapons, implements and ornaments from gold and avass (copper, bronge or iron). Though we come across the word samudra, it is doubtful whether they were acquainted with sea or ocean. The Panis controlled the trade which consisted mainly of barter. Cow was the standard unit of value. The Rigveda refers to necklets of gold called nishka which also served as a mean of exchange. Chariots and wagons (anans) were the chief means of transport.

Religious and Philosophical Ideas

The religion consisted of worship of gods with simple ceremonies which were known as *Yajna* or *sacrifices*. The worship comprised primarily oblation and prayer. Sacrifice consisted of offering of milk, ghee, grain, flesh and soma.

The Rigveda offers no consistent theory regarding life after death. The dead were either buried or cremated and according to some passages, dwelt in the realm af Yama, "The king of dead".

The Rigvedic people venerated the natural forces around them (like wind, water, rain, thunder, fire *etc.*) which they could not control and invested nature with divinity conceived in human forms which were mostly masculine, very few female deities were venerated.

The most important divinity in the Rigveda is *Indra*. He was the *God of thunder* and was the rainmaker who was asked periodically to release the water. *Agni*, next in importance to Indra, was the *God of fire*.

The chief deities in early days grew out of personification of natural phenomena, such as the sky (Dyuh), earth (Prithvi), sky god (Varuna), god of thunder, storm and rain (Indra), morning and evening stars (Asvins), goddess of dawn (Usas) with them came the domestic deities including the fire god (Agni) in his three forms (that in heaven, lightning in atmosphere and domestic fire on earth), and Soma (drought of immortality, some times identified with the moon). Later on, abstract deities like Dhatr (Establisher), Vidhatr (ordainer), Prajapati (Lord of creature), Sradha (faith) and Manyu (Wrath) made their appearance. The Vedic religion was sacrificial. Sacrifices or yajnas were performed to invoke the gods in order to grant boons or for acquisition of cattle, sons *etc.*

Prayers formed an important part in Rigvedic religion. The people prayed mainly for children, cattle, food and health.

The Later Vedic Phase

The Expression "Later Vedic Civilisation" comprise the changes and developments that took place in the religious, social, economic and political conditions of the people during the period when the later Samhitas – Atharva, Yajur and Sama and the Brahmanas and Sutras were composed.

All these later Vedic texts were compiled in the upper Gangetic basin in circa 1000 - 600 B.C. In the same period and in the same area, digging and exploration have brought to light nearly 700 sites inhabited for the first time. These are called *painted Grey Ware (PGW)* sites because they were inhabited by people who used earthern bowls and dishes made of painted grey pottery. They also used iron weopons.

The texts show that the Aryans expanded from Punjab over the whole of western Uttar Pradesh covered by the Ganga-Yamuna doab. The Bharatas and Purus, the two major tribes, combined and thus formed the Kuru people. In the beginning they lived between the Sarasvati and the Drishvati just on the fringe of the doab. Soon, the Kurus occupied Delhi and the upper portion of the doab, the area called *kurukshetra* or the *land of the kurus*.

The vedic people succeeded in the second phase of their expansion because they used iron weapons and horse – drawn chariots.

Social and Political Institutions

Settled life resulted in further crystallisation of the four – fold division of society. This in turn led to the emergence of certain social norms. The two higher classes, the *Brahamanas* and the *Kshartriyas*, enjoyed privilege denied to the *Vaisyas* and the *Sudras*. The Vaisyas and Sudras could be oppressed at will. The Sudras were deprived of the sacred thread ceremony. They were regarded as impure. While marriage of the member of higher varnas with the lower orders was allowed, marriage of members of higher varnas with Sudra women was not much approved. Marrige between men of the lower orders and women of the higher classes was discountenanced. But rules restricting inter-dining between the higher and the lower classes has not yet evolved.

The family became much more patriarchal than before. The power of the father had increased considerable. The birth of son was more welcomed than that of a daughter, who was often regarded as a source of misery. The *institution of gotra* appeared in this period. People began to practise gotra exogamy. Polygamy was prevalent. Polyandry was known. There were instances of child marriages. The origin of the later practice of Sati can be traced to this period. As we hear of *remarriage of widow (niyaga)*, it may safely be assumed that Sati was symbolic. There was some deterioration in the position of women. Women was classed with dice and wine as one of the three great evils. Women ceased to participate in the deliberation of the sabha. Instances of women learning the Vedas in this period are rare.

As regard food, the eating of meat was being looked upon with disfavour. New kinds of social entertainment such as singing gathas and acting at public festival appeared in this period.

There is a reference to three stage of life (asramas) of an Aryan in Chandogya Upnishad — *Brahmacharya*, *Grihasta* and *Vanaprastha*. The fourth stage – *Sanyasin* – was not yet well-established, though ascetic life was not totally unknown.

Education began with Upanayana. It was confined to the first three social groups which was called *dvijas* (twice born). Though it was oretically open to all, the study of the Vedas tended to become an exclusive preserve of the Brahmanas. The *Vedas* consituted the main subject of study. Arithmetic, grammar and prosody were also taught. Education was imparted orally. The student was called upon to memorise, the scripture syllable by syllable. The Brahmanas developed a unique system of memory training.

Several kingdoms emerged in this period. The Kurus ruled form Hastinapura. The kingdom of Kosala existed to the east of the Ganga-Yamuna confluence. Kasi lying to the east of Kosala, was another important kingdom. The king of Videher is mentioned more than once in the later Vedic literature. The kingdom of Magadha was to the south of Videha.

The formation of the large kingdom led to the growth of the power of the King. Kingship was normally hereditary, though cases of election by the people were probably not rare. A glomour was created round the king by invoking many gods at the time of the coronation to endow him with their qualities. In the rituals, he was sometimes represented as a god. He was usually, though not always, a *Kshatriya*. He derived much support from the emerging Brahmana class. He is described in the Atharva Veda as the protector of the Brahmanas, and as also the eater of the people because he had to live on the taxes collected from the people. He was required to take on oath in front of the Brahmana priest that he would stand by law.

With the growth of the power of the king and with the collection of taxes made possible by the production of considerable agricultural surplus on account of settled life, the administrative machinery became elaborate. We come across new officials such as *bhagadugha* (collector of taxes) and *sangrahitri* (treasurer) in addition to other officials. These officers were under the direct control of the king and were maintained out of taxes collected from the people. The growth of royal entourage led to the growth of the power and prestige of the king. The increase in royal power in turn led to the gradual weakening of the Sabha and Samiti which lost some of their activities to new officials. References to *Sthapati* and *Satapati* indicate the emergence of a regular system of provincial government in this period.

Economic Conditions

From around 1000 B.C. iron was used in the Gandhara area in Pakistan. At about the same time the use of iron appeared in eastern Punjab, western Uttar Pradesh and Rajasthan. Excavations show that iron weapons such as arrow heads and spear heads came to be commonly used in western Uttar Pradesh from about 800 B.C. With iron weapons the vedic people may have defeated the few adversaries that they faced in the upper portion of the doab.

Towards the end of the vedic period, knowledge of iron spread in eastern Uttar Pradesh and Videha. Iron implements of the seventh century B.C. have been discovered in this area and the metal itseft is called *shyama* or *krishra ayas* in the later vedic texts. The objects which are found in the excavations are iron tipped arrow heads, spearheads *etc.*, i.e. weapons which show that the use of iron was restricted to making weapons.

Although very few agricultural tools made of iron have been found, undoubtedly agriculture was the chief means of livelihood of the later Vedic people. Progress in agriculture and pastoral pursuits was steady and continuous. The plough become large and heavy, having a sharp point and a smooth handle and sometimes required as many as 24 oxen to draw it. Manure was known. Different varieties of rice, barley, beans, sesame and wheat were grown. Fruit trees were cultivated. Two crops were harvested in a year. Among dangers to crops, drought, excessive rain and pests are mentioned.

Industrial life witnessed remarkable development and a variety of new occupations—those of fishermen, hunters, firerangers, charioteers, washermen, dyers, door-keepers and footmen, among others came into existence. Specialisation had gone very far, distinction for instance was made between the chariot maker and the carpenter, the tanner and the hidedresser and the maker of bows and the maker of arrows. Women worked as dyers, embroiderers and basket makers.

Religious and Philosophical Ideas

The two outstanding Rigvedic gods, *Indra* and *Agni*, lost their former importance. On the other hand, *Prajapati*, the creator, came to occupy the supreme position in the later Vedic pantheon. *Rudra*, the god of animals, became important in later Vedic and *Vishnu* came to be conceived as the preserver and protector of the people who now led a settled life instead of a semi-nomadic life as they did in Rigvedic times.

Prayers continued to be recited, but they ceased to be the dominant mode of placating the gods. Sacrifice, became far more important, and they assumed both public and domestic character.

Sacrifices involved the killing of animals on a large scale and specially the destruction of cattle wealth. The guest was known as *goghna* or one who was fed on cattle.

Brahamanas were only one of the sixteen classes of priests. The priests who officiated at sacrifices were rewarded generously and given *dakshinas* or *gifts*.

In adition to cows, which were usually given on sacrificial gifts, gold, cloth and horses were also given. Sometimes, the priests claimed portion of territory as *dakshina*, but the grant of land or sacrificial fee is not well established in the later Vedic period.

In the Upanishads, we came across a clear expression of belief in the migration of human soul from one life to another. Soul was thought of as being born to happiness or sorrow according to their action in the previous life. From this originated the theory of *Karma*.

1.3 EMERGENCE OF JAINISM AND BUD-DHISM

Jaininsm

Vardhamana Mahavira was born in 540 B.C. in a village near Vaishali, which is identical with Basarh in the district of Vaishali, in north Bihar. His father Sidhartha was the head of a famous Kshatriya clan, and his mother was named Trishala, sister of the Winchhavi cheif Chetaka, whose daughter was wedded to Bimbisara. Thus Mahavira's family was connected with the royal family of Magadha. High connections made it easy for Mahavira to approach prince, and nobles in the course of his mission.

In the beginning, Mahavira led the life of a house holder but in the search for truth he abandoned the worldly life at the age of 30 and became an ascetic. He kept wandering for 12 years from place to place. During the course of his long journey, it is said, he never changed his clothes for 12 years, and abandoned them altogether when he attained *Omniscience* (Kaivalya) at the age of 42. Through Kaivalya he conquered misery and happiness. Because of this conquest he is known as *Mahavira* or the *great hero of Jina*, i.e., the conqueror, and his followers are known as *Jainas*. He propagated his religion for 30 years, and his mission took him to Koshala, Magadha, Mithila, Champa *etc*. He passed away at the age of 72 in 468 B.C. at a place called *Pavapuri* near modern Rajgir.

Jainism has great antiquity. The Jainas believe that their most important religious teacher, Mahavira has twenty-three predecessors who were called *Tirthankaras*. The name of two Jain Tirthankaras, *Rishabha* and *Arishtanemi*, are found in the Rigveda.

Doctrines of Jainism

Jainism taught five doctrines :

- (i) do not commit violence
- (ii) do not speak a lie
- (iii) do not steal
- (iv) do not acquire property; and
- (v) observe continence (brahmacharya)

According to Jainism, the sole purpose of life is the purification of the soul, which could be achieved only through *right knowledge, right faith* and *right action*, which are considered to be the *three jewels* (*Triratna*) of *Jainism*. Right knowledge is comprehension of the theory that there is no God. Jainism is thus essentially asthestic. It regards the concept of God as irrelevant. But it accepts a group of trithankarans (Prophets) who were divine men. Right faith is the firm belief in omniscience and in fallibility of Mahavira. In later times, Jainism was divided into two sects — *Svetambaras* (white-clad) and *Digambaras* (sky-clad). In order to spread the teachings of Jainism, Mahavira organised an order of his followers.

Jainism spread to many parts of India — Karnataka, Orissa, Tamil Nadu, Gujarat and Rajasthan. The early Jainas

adopted Prakrit, the language of the masses, to preach their doctrines and thereby helped the growth of Prakrit language and literature. With Prakrit, many regional languages such as Marathi developed. In early medieval times, the Jains made a good use of Sanskrit and produced many works in the language. They also contributed to the growth of Kannad and Tamil literature. Jains were interested in art. When at a later date, they began to worship Mahavira and the twenty-three tirthankaras, they sculpted, for the purpose of worship, beautiful and sometimes massive images in stone. In South India, there are many monolithic images of Jain Saints. 'Gomateswara' at Sravanabelogola in Karnataka is the most notable one. They also built temples for the purpose of worship. There are marble temples in Mount Abu in Rajasthan. *Palitana* and *Girnar* in Gujrat are known as Jain temple cities.

Causes of Decline of Jainism

With the passage of time many evils entered the Jain faith. It was no longer a pure and pious religion. Most of its enthusiastic workers withered away. Secondly, the royal patronage was not forthcoming. Thirdly, the Jain church was split again and again. Fourthly, the caste system was revived with all its ills. Fifthly, the foreign invaders, first the Shukas and the Hunas and later the Muslims gave it a serious setback. Lastly, the revival of Hinduism sounded the death bell of Jainism.

Buddhism

Budhism was the movement that gave the greatest challenge to Brahmanism. It was started by *Gautama Buddha*. Gautama Buddha or Siddhartha was a contemporary of Mahavira. He was born in 563 B.C. in a Shakya Kshatriya family at *Lumbini, Kapilavastu,* which is situated in the foot hills of Nepal. Gautama's father seems to have been the elected ruler of Kapilavastu, and headed the republican clan of the Shakyas. His mother was a princess from the Koshalan dynasty. Thus, like Mahavira, Gautama also belonged to a noble family. Born in a republic, he also inherited some egalitarian sentiments.

From his early childhood Gautama showed a meditative bent of mind. He was married early, but married life did not interest him. He was moved by the misery which people suffered in the world, and thus started looking for solution. At the age of 29, like Mahavira, he left home. He kept on wandering for about seven years and then attained knowledge at the age of 35 at Bodh Gaya under a Pipal tree. From this time onwards he started to be called as Buddha or the enlightened.

Gautama Buddha delivered his first sermon at *Sarnath* in *Banaras*. He undertook long journeys and took his message far and wide. He had a very strong physique which enabled him to walk 20 to 30 km a day. He kept on wandering, preaching and meditating continuously for 40 years, resting only in the rainy season every year. During this long period he encountered many staunch supporters of rival sects including the Brahmanas, but defeated them in debates. His missionary activities did not discriminate between the rich and the poor, the high and the low, and the men and women. He preached most of his sermons at Sravasti. Gautama Buddha passed away at the age of eighty in 483 B.C. at a place called

Kusinagar, identical with the village called *Kasia* in the district of *Deoria* in eastern Uttar Pradesh.

Buddhist Doctrines

According to the Buddha, life is full of suffering; and the cause of suffering is desire. If desires are conquered, Nirvana will be attained. That is, man will be free from the cycle of birth and death. Buddha recommended an eight-fold path for conquering desires. It comprises :

- (i) Right view
- (ii) Right resolve
- (iii) Right speech
- (iv) Right conduct
- (v) Right livelihood
- (vi) Right effort
- (vii) Right mindedness; and
- (viii)Right concentration

Buddha organised the Sangha to spread his doctrines. The monastic system introduced by Buddhism has served as a model to other religions.

In the field of art, its legacy is remarkable. The magnificent Stupas, Viharas and Chaityas found in places like Sanchi, Bharhut, Bodh Gaya, Amaravati and Nalanda, speak about the great contribution made by the Buddhists. The *Stupa* at *Sanchi* is a masterpiece of Buddhist architecture. The Buddhist cave temples at *Ajanta* and *Ellora* are monuments of typical Buddhist art and depict Buddha's life in paintings. The first human statues worshiped in India were those of the Buddha. The various events in the life of the Buddha were portrayed on stone. The Buddhists enormously enriched Pali language by their writings.

Certain features are common to Jainism and Budhism. Both Jainism and Budhism accepted the theory of Karma. Both rejected the authority of the Vedas and Brahmanas, as the spiritual guide to attain salvation. Both, opposed animal sacrifice. Both Mahavira and Buddha preached in the language of the people and organised Sangha for propagation. Though neither sought to abolish the caste system, both adopted a liberal attitude towards the lower castes. Both tried to improve the position of slaves in some ways. But the Buddha differed from Mahavira with regard to the soul theory of Jainism and its attachment to severe asceticism.

Buddhism declined in India because of the following reasons : Buddhism gradually succumbed to rituals and ceremonies, which it had originally denounced. On the other hand, Hinduism became more reformed religion, to meet the challenge of Buddhism. The Brahmanas stressed the need for preserving cattle wealth and assured women and Sudras of entry into heaven.

The Buddhist monks were gradually cut off from the main stream of people's life. They gave up Pali, the language of the people and took to Sanskrit, the language of the intellectuals. There was corruption in the Buddhist Sangha. The enormous wealth in the monasteries with women living in them, led to further degeneration. Several rulers like Pushyamitra Sunga persecuted the Buddhists. In South India, it was bitterly opposed by the Saivites and the Vaishnavites. The Turkish invaders chose the Buddhist monasteries for their attack, as they were found in possession of vast wealth.

1.4 MAHAJANAPADAS

Around 6th century B.C., North India was divided into a number of states both big and small. The rise of large states with towns as their base of operation strenghtened the territorial idea. Sixteen of these were referred to as '*Mahajanapadas*'. These were located over a major part of the Ganga Valley with a few to the north-west and south-west of it. Of these Magadha, Koshula, Vatsa and Avanti seem to have been considerably powerful.

Magadha embraced the modern districts of Patna, Gaya and parts of Shahabad, and grew to be the leading state of the time. The early history of Magadha commences with the famous Bimbisara of the Haryanka Kula.

1.5 RISE OF MAGADHA

Magadha came into prominence under the leadership of *Bimbisara*, who belonged to the *Haryanka* dynasty. He was a contemporary of Buddha. He started the policy of conquests and aggression which ended with the Kalinga war of Ashoka. Bimbisara acquired Anga and placed it under the viceroyalty of Ajatashatru at Champa. He also strengthened his position by marriage alliances relations with the different princely families which gave enormous diplomatic prestige and paved the way for the expansion of Magadha westward and northward.

Bimbisara made Magadha the paramount power in the sixth century B.C. His kingdom is said to have consisted of 80,000 villages, which is a conventional number.

Nobody exactly knows the religion in which Bimbisara believed. Some say that he believed in Jainism, others say that he was a Buddhist. The Brahmanas claimed that he was a follower of Brahmanism.

The earliest capital of Magadha was at Rajgir, which was called Girivraja at that time. It was surrounded by five hills, the openings in which were closed by stone-walls on all sides. This made Rajgir impregnable.

According to the Buddhist chronicles, *Bimbisara* ruled for 52 years, roughly from 544 B.C. to 492 B.C. He was succeeded by his son *Ajatashatru* also known as *Kunika* (492 – 460 B.C.). *Ajatashatru* killed his father and seized the throne for himself.

Magadha also had another capital called *Patiliputra*, which was situated at the confluence of the Ganga, the Gandak and the Sone and a fourth river called the Saryu joined the Ganga not far from Patliputra.

In terms of expansionist policies the new Magadh King followed a decisively more aggressive policy. He gained complete control over Kashi and broke the earlier amicable relations by attacking his maternal uncle Prasenjit, the King of Koshala. The Vajji confederation of people whose Mahajanapada was to the north of the Ganga was Ajatashatru's next target of attack.

Ajatashatru is said to have ruled from 492. B.C. to 460

B.C. He was succeeded by Udayin (460 - 444 B.C.). During Udayin's reign the Magadha kingdom extended in the north to the Himalayan ranges and in the south to the Chhota Nagpur Hills.

The great achievement of the dynasty of Shishunagas was the destruction of the power of Avanti with its capital at Ujjain. This brought to an end the 100-year old rivalry between Magadha and Avanti. From now onwards Avanti became a part of the Magadha empire and continued to be so till the end of the Maurya rule. The rule of the Shishunaga dynasty too was of short duration and gave way to the rule of the Nanda dynasty headed by the usurper Mahapadama.

The *Nandas* proved to be the most powerful rulers of Magadha. So great was their power that Alexander, who invaded Punjab at that time, did not dare to move towards the east.

The *Nandas* were fabulously rich and enormously powerful. It is said that they maintained 2,00,000 infantry, 60,000 cavalary and 6000 elephants. Such a huge army could be maintained only through an effective taxation system. It was because of these considerations that Alexander did not advance against them.

The later Nandas turned out to be weak and unpopular. Their rule in Magadha was supplanted by that of the Maurya dynasty under which the Magadhan empire reached the apex of glory.

1.6 MACEDONIAN INVASION AND ITS EFECTS

Shortly after the death of Mahapadma Nanda, India was invaded by the famous conqueror, Alexander the Great of Macedonia in May 326 B.C. He was welcomed by Ambhi, the Indian ruler of Taxila and this ignoble example was followed by a few other Indian Chiefs, but most of the Indian kings and non-monarchial clans offered a stiff resistance.

When he reached the Jhelum, Alexander met Porus the first and the strongest resistance. Although Alexander defeated Porus, he was impressed by the bravery and courage of the Indian prince. So, he restored his kingdom to him and made him his ally. Then he advanced as far as the Beas river. He wanted to move still further eastward but his army refused to accompany him. The Greek soldiers had grown warweary and disease-stricken. The hot climate of India and ten years of continuous campaigning had made them terribly home sick. They had also experienced a taste of Indian fighting qualities on the banks of Indus, which made them desist from further progress.

Alexander continued his march to the Beas. But his army was not prepared to go any further particularly when the soldiers were told of the formidable power of the Ganges. He stayed in India for 19 months which were full of fighting. Alexander left India in 325 B.C.

Though he had barely any time to organise his conquests, he still managed to make some arrangements. He restored most of the conquered states to their rulers once they offered their submission. The remaining parts of his conquests were divided into three and placed under three Greek Governors. He also established a number of cities to maintain his power in this area. Alexander's invasion provided the first occasion when ancient Europe came into close contact with ancient India. It produced certain important results. The Indian campaign of Alexander was a triumphant success. He added to his empire an Indian province which was much larger than that conquered by Iran, though the Greek secessions in India was soon lost to the Mauryan rulers.

The most important outcome of this invasion was the establishment of direct contact between India and Greece in different fields. Alexander's campaign opened up four distinct routes by land and sea. It paved the way for Greek merchants and craftsmen and increased the existing facilities for trade.

Alexander's historians have left valuable geographical accounts. They also have clearly dated records of Alexander's campaign, which enable us to build Indian chronology of subsequent events on a definite basis. Alexander's historians also give us important information about social and economic conditions. They tell us about the *Sati* system, the sale of girls in market places by poor parents, and the fine breed of oxen sent to Macedonia for use in Greece. The art of carpentary was the most flourishing craft in India, and carpenters built chariots, boats and ships.

By destroying the power of petty states in north-west India, Alexander's invasion paved the way for the expansion of the Mauryan empire in that area. According to tradition Chandragupta Maurya, who founded the Mauryan empire, had seen something of the working of the millitary machine of Alexander and had acquired some knowledge which helped him destroying the power of the Nandas.

2. HISTORY OF INDIA FROM 4TH CENTURY B.C. TO 3RD CENTURY A.D.

2.1 FOUNDATION OF THE MAURYAN EMPIRE

The foundation of the Mauryan Empire is a unique event in Indian history, its glory enhanced by the circumstances in which it was achieved. Alexander's victorious campaigns in the Punjab during 326-325 B.C., had established a formidable foreign rule in the country, the six regions of Greek India being governed by Satraps appointed by Alexander himself. The battle of India's independence against these heavy odds called for a leader of exceptional ability and vision who could infuse new life and enthusiasm into the drooping spirits of defeated people, and organised a fresh rational resistance against alien domination. Fortunately, the country produced such a leader in young Chandragupta who had been prepared in advance for his great mission in life by the Brahmin Chanakya, better known as Kautilya. Chanakya's superior vision and insight led him to discover in this youth the disciple who would be able, under his direction, to free the fatherland of foreign rule.

A flood of source material is available for the study of the Mauryan period in various forms — literary, epigraphical, numismatic and archaeological. Literary source consists of both indigenous and foreign. The indigenous literary sources are either religious or secular. Religious literary source consists of Brahmanical, Jaina and Buddhist literature. The Puranas representing Brahmanical literary source throw light on the chronological sequence of the Mauryan rules. The Jaina sources refer to a famine during Chandragupta's reign. The Buddhist scriptures, such as the Digha Nikaya are helpful in determining the influence of Buddhist ideas on the political sphere of the secular literature. The most important single source is the Arthasastra given by Kautilya, who is sometimes described as the Indian Macchiavelli. The Arthasastra gives a clear methodical analysis of economic and political thoughts prevalent at that time. The Mudrarakshasa, a Sanskrit drama written by Visakhadatta speaks of the Mauryan revolution. Among the foreign literary sources, the Ceylonese chronicles, the Dipavamsa and the Mahavamsa in particular, described the part played by Asoka in spreading Buddhism, more particularly in spreading it in Ceylon. There are accounts gathered from classical writings in Greek and Latin of the impressions of travellers who visited India in this period. Foremost among these is the Indica of Magasthenes, who visited the court of Chandragupta and remained at the capital, Pataliputra for some time.

We have a number of inscriptions throwing considerable light on the history of the Mauryas, the bulk of which belong to the reign of Asoka who inscribed his edicts on rocks and pillars. The Junagarh Rock inscription of Rudradaman, dated 150 A.D., refers to a provincial governor of Chandragupta Maurya.

We have many silver and copper punch-mark coins and silver bar coins of the period. They help us to know the extent of Mauryan empire.

Over the last fifteen years, many excavations have been conducted in north-west India and the Ganga basin, in addition to the earlier ones at Taxila. They have revealed the interesting phenomenon of the *Northern Black Polished Ware* (NBPW), which was widespread throughout the Mauryan empire with the exception of its southernmost parts.

Chandragupta Maurya

Chandragupta, the founder of the *Mauryan* dynasty, belonged to the *Moriya* tribe. According to some scholars, he was a man of low origin. Some others represent him as belonging to a Kshatriya ruling class. He was the protege of the Brahmin Kautilya, who was his guide and mentor both in securing the throne of Magadha from the Nandas and in keeping it intact. He inherited from the Nandas a huge army, which he strengthened by some addition. The army comprised 80,000 cavalry, 9,000 elephants, 60,000 infantry and a number of chariots. With the help of this big army, Chandragupta Maurya brought all the northern states up to the Narmada in the south under his authority.

Seleukos Nikator, one of the generals who followed Alexander the Great during his invasion of India, wanted to reestablish the Greek satraps of India. In 305 B.C., Seleukos Nikator crossed the Indus and tried to imitate the victorious march of Alexander. This led to a war between Seleukos and Chandragupta. The detail of the campaign is not known but the result of the war is clear. In 303 B.C. a treaty was concluded. The terms of the treaty were favourable to Chandragupta Maurya. The Mauryan emperor gave 500 elephants to Seleukos and obtained from him the satrapies of Aria, Arochosia, and Paropanisadai. *Kabul* was the capital of Paropanisadai. *Herat* and *Kandahar* were the capitals of Aria and Arochosia respectively. Gedrosia was also ceded by Seleukos. The peace was ratified by a matrimonial alliance. Seleukos gave one of his daughters in marriage to his Indian rival. Soon after the treaty, Seleukos sent his representative, Megasthenes, to the court of Chandragupta Maurya as his ambassador.

According to Jaina tradition, Chandragupta embraced Jainism towards the end of his life and stepped down from the throne in favour of his son Bindusara. Accompanied by Bhadrabahu and several other Jaina monks, he is said to have gone to Sravanabelagola near Mysore, where he deliberately starved himself to death in the approved Jaina fashion.

2.2 ASOKA AND HIS DHARMA ASOKA (273–232 B.C.)

Asoka ruled over a vast empire which was bounded on the south by approximately a line drawn from Nellore to the mouth of the Kalyanpuri river in the western coast with the probable exception of Assam, nearly all of India and Pakistan, together with Afghanistan was included in his empire. One write in the same language and script ran from Sindhu river to Mysore. Nothing like it was witnessed again.

Asoka died about 232 B.C. and with him departed the glory of the Mauryan Empire. The Vishnu Purana gives the names of his seven successors. Internal dissensions and foreign invasion destroyed the power and prestige of the Mauryan empire till *Brihadratha*, the seventh king in succession from Asoka who was killed by his commander-in-chief *Pushyamitra* who ascended the throne in about 185 B.C.

Kalinga War

The only major war which Asoka fought was the Kalinga war. In the thirteenth year of his reign, Asoka embarked upon the only aggressive war of his life against Kalinga, the strip of territory extending along the coast of the Bay of Bengal from the Mahanadi to the Godavari. The cause of the war is not known. The kingdom of Kalinga maintained a huge army of 60,000 infantry, 1,000 cavalry and 700 war elephants. The resistance from Kalinga was so stubborn that the conquest involved immeasurable suffering. The terrible slaughter on the battlefield filled Asoka with remorse. The Kalinga war was a turning point in Asoka's life. Asoka was drawn to the teachings of the Buddha who is described in the Amarakosa, as an ocean of wisdom and compassion. The old view that he was dramatically converted to Buddhism immediately after the battle, is not acceptable. Asoka states in one of his inscriptions that only after a period of two and a half years did he become a great devotee of Buddhism. It led him in due course of time, to abandon digvijaya in favour of dharmavijaya.

Asoka and Buddhism

Gradually, Asoka introduced the Buddhist spirit into his administration and resolved to change his foreign policy in the direction of peace. He became a *Sakya-Upaska*, *i.e.*, Buddhist by disciple and in course of time, he became a *bhikshu (monk)*.

Asoka gave up hunting. Special officers, called *Dharmamahamatras* to speed up the propagation of Dhamma were appointed. He declared that the 'real conquest' was that

won by the law of piety. He desired his descendants to give up the notion that conquest by army was the duty of kings. He decided to utilize his unlimited authority over his vast empire, in the teaching, propagation and enforcement of the law of piety, *i.e.* Dhamma. In order to spread Buddhism, he organised Buddhists, missions to places within and without India. Rock Edict XIII says that the Buddhist missionaries were sent to Syria, Egypt, Epirus and Macedonia, to the Cholas and Pandgas and to the north-western and southern parts of his empire including the Maratha and Andhra countries. The Ceylonese Chronicles give a list of the missions organised by the Sangha. The mention of the Buddhist country in the Chronicles clears up the doubtful references to it in the edicts.

Asoka made a solemn pilgrimage to the most sacred spots in the Buddhist Holy Land. He started from Pataliputra, and advanced towards Nepal. From Nepal he visited the famous Lumbini Garden. Asoka was accompanied by his guide and preceptor *Upagupta*. A pillar was set up by Asoka to preserve the memory of his visit to Lumbini Garden. From there, Asoka went to Kapilavastu, Sarnath, Sravasti, Bodhgaya and Kushinagar, where the Buddha attained nirvana.

All this can be said on the basis of Asoka's inscriptions. If we rely on the Buddhist tradition, it would appear that he sent missionaries for the propagation of Buddhism to Sri Lanka and central Asia. As an enlightened ruler, Asoka tried to enlarge his area of political influence through propaganda.

Asoka propagated Buddhist tenets through edicts. An *edict* means a command from a legal superior enforced by penalties for its violation.

Asoka dharma was not a narrow dharma. It cannot be regarded as a sectarian faith. Its broad objective was to preserve the social order. It ordained that people should obey their parents, pay respect to the Brahmins and Buddhist monks and show mercy to slaves and servants. These instructions can be found in both the Buddhist and Brahmanical faiths.

Asoka taught people to live and let live. He emphasised compassion towards animals and proper behaviour towards relatives. He held that if the people behaved well they would attain heaven. He never said that they would attain nirvana, which was the goal of Buddhist teachings. Asoka's teachings were thus intended to maintain the existing social order on the basis of tolerance. He does not seem to have preached any sectarian faith.

2.3 MAURYAN ADMINISTRATION

The Mauryan administration can be studied under three headings, namely *central*, *provincial* and *municipal*.

The king was the head of the state and enjoyed enormous power. There was a *mantriparishad* to assist the monarch. The mantriparishad consisted of the prime minister, the purohit, the commander-in-chief and the yuvaraja (the crown prince). There were also two assemblies called the *Paura* representing the capital and *Janapada* representing the village. These assemblies more often met separately. To discuss important measures, they met in joint session.

The civil administration was divided among eighteen departments. Each department was under an *amatya* (minister). The finance department had two *amatyas*. Public revenue was

mainly derived from cultivated land (the state demand was on sixth of the produce), pastures, forests, mines *etc*. There were also receipts from customs and excise, and licence fees from workmen, artisans and traders. The other sources of public revenue were fines from law-courts, special taxes and pranaya.

Economy

If we rely on the Arthasastra of Kautilya it would appear that the state appointed 27 superintendents (adhyakshas) mostly to regulate the economic activities of the state. They controlled and regulated agriculture, trade and commerce, weights and measures, crafts such as weaving and spinning, mining and so on.

For the first time in the Mauryan period, slaves were engaged in agricultural work on a large scale. The state maintained farms on which numerous slaves and hired labourers were employed. 1,50,000 war captives brought by Asoka from Kalinga might have been engaged in agriculture.

The Mauryan period constitutes a landmark in the *system* of taxation in ancient India. Kautilya names many taxes to be collected from peasants, artisans and traders. This required a strong and efficient machinery for assessment, collection and storage.The Mauryas attached greater importance to assessment than to storage and depositing.

We have epigraphic evidence of the existence of rural store-houses, which show that taxes were also collected in kind and these granaries were meant for helping local people in times of famine, drought, *etc*.

It seems that the *punch-marked silver coins* which carry the symbols of the peacock, and the hill and crescent, formed the *imperial currency* of the Mauryas. They have been discovered in large numbers. Apparently, they contributed to the collection of taxes and payment of officers in cash. Further, because of its uniformity the currency must have facilitated market exchange in a wider area.

Art and Architecture

The Mauryas made a remarkable contribution to art and architecture. They introduced *stone masonry* on a wide scale. Megasthenes states that the Maurya palace at Pataliputra was as splendid as that in the capital of Iran. Fragments of stone pillars and stumps, indicating the existence of an 80-pillared hall, have been discovered at Kumrahar, on the outskirts of modern Patna.

Although these remains do not recall the magnificence mentioned by Megasthenes, they certainly attest the high technical skill attained by the Maurya artisans in polishing the stone pillars, which are as shining as Northern Black Polished Ware. It must have been a difficult task to carry the huge blocks of stone from the quarries and to polish and embellish them when they were placed erect. All these seem to be a great feat of engineering. Each pillar is made of a single piece of sandstone. Only their capitals, which are beautiful pieces of sculpture in the form of lion or bulls, are joined with the pillars, on the top. These polished pillars were set up throughout the country, which shows that technical knowledge involved in their polishing and transport had spread far and wide. Now, let us think of the several causes for the disintegration of the Mauryan empire.

(*i*) **Reaction of Brahmins:** The reaction of Brahmins began as a result of the policy of Asoka. There is no doubt that Asoka adopted a *tolerant policy* and asked the people to respect even the Brahmins. But, he prohibited killing of mammals and birds, and derided superfluous rituals performed by women. This naturally affected the income of the Brahmins. Hence in spite of the tolerant policy of Asoka the Brahmins developed some kind of antipathy towards him. Obviously they were not satisfied with his tolerant policy.

(*ii*) **Financial Crisis:** The enormous expenditure on the army and payment to bureaucracy created a financial crisis for the Mauryan empire. As far as we knows in ancient times the Mauryans maintained the largest army and the largest regiment of officers. Despite all kinds of taxes imposed on the people, it was difficult to maintain this huge structure. It seems that Asoka made large grants to the Buddhist monks which left the royal treasury empty. In order to meet expenses in the last stage they had to melt the images made of gold.

(*iii*) **Oppressive Rule:** Oppressive rule in the provinces was an important cause of the break up of the empire. During the reign of Bindusara, the citizens of Taxila bitterly complained against the misrule of wicked bureaucrats (*dushtamatyas*). When Asoka became emperor, a similar complaint was lodged by the same city. Kalinga edicts show that Asoka felt very much concerned about oppression in the provinces and therefore asked the mahamatras not to torture towsmen without due cause. For this purpose he introduced rotation of officers in Tosila (in Kalinga), Ujjain and Taxila.

(*iv*) **Neglect of the North-West Frontier:** Since, Asoka was mostly preoccupied with missionary activities at home and abroad, he could not pay attention to the safeguarding of the passage on the north-western frontier. This had become necessary in view of the movement of the tribes in Central Asia in the third century B.C.

The result of all this was that the various parts of the Mauryan empire became independent and ultimately the Mauryan empire disappeared. The Mauryan empire was finally destroyed by *Pushyamitra Sunga* in 185 B.C.

(v) Weak Successors of Asoka: Another cause of the downfall of the Mauryan empire was the weak successors by a progency of pigmies whose shoulders were not fit to bear the weight of his mighty monarchy. They could not stop the disintegrating forces which were working after the death of Asoka.

2.4 THE SANGAM AGE

The farther southern India, which is separated from the Deccan by the rivers Krishna and Godavari, had a history generally independent of that of the rest of India. It was essentially the land of the Tamil race and speech. Therefore it was known in ancient times as Tamil country. The Tamils had developed an advanced civilisation of their own, wholly independent of northern India. We get information about the early Tamils from Sangam literature. The term *Sangam literature* is generally applied to early Tamil works, which are eight

anthologies such as *Purananuru, Ahananuru,* and *Kurunthogai*; ten idyllss such as *Mullaippattu, Nedunalvadai*, and *Madurai Khanchi*; eighteen minor works such as *Tirukkural* and epics such as *Silappadikaram, Manimeghalai* and *Kundalakesi*. The age of these compositions has not yet been determined conclusively by the scholars.

The Sangam was a college or assembly of Tamil poets held probably under royal patronage. Sangam literature is a collection of Tamil heroic poems which were the products of Tamil folk but were collected and compiled by the Sangam. These poems signify the tradition of bards who roamed about singing in praise of their patron chiefs.

The Sungas

Pushyamitra Sunga, who slew his master, Brihadratha, usurped the throne of Magadha and established the Sunga dynasty in 188 B.C., by crowning himself as sovereign. Bana refers to Pushyamitra as *Anarya*. The Sungas were closely connected with Vidisa (near Ujjain), which was probably their original home. We get information about Sungas from the Malavikagnimitra of Kalidasa, the grammarian Patanjali, the Agadhya Sanskrit inscription of Dhanadeva and the Hathigumpha inscription of Kharavela.

Pataliputra continued to be the capital city under the Sungas also. In or about 168 B.C. *Kharavela*, the king of Kalinga, invaded Magadha and defeated Pushyamitra. The treasures of Pataliputra were seized by Kharavela. He also took the statue of the first Jaina (Rishabhadeva) which had been taken from Kalinga by the Nanda king some three centuries back.

During the later part of his reign, Pushyamitra had to face a Greek army under the lead of King *Menander*. But the Greek king was forced to retire. Pushyamitra is said to have performed an Asvamedha yajana which has been mentioned by Patanjali. Pushyamitra was succeeded by his son, *Agnimitra*, who assisted his father as his viceroy at Vidisa. Agnimitra, the hero of *Malavikagnimitra of Kalidasa*, ruled for a short time and was succeeded by *Sujyeshtha*. But the next important ruler Bhaga ruled for about 32 years. During the time of Bhaga, a Garuda monolith was erected at Besnagar by Heliodorur. The last ruler of this dynasty was Devabhuti, who was murdered by his Brahmin minister, Vasudeva Kanva, who proclaimed himself as sovereign.

The Satavahanas

The Satavahanas were also called the Andhra dynasty. During the reign of Chandragupta Maurya, the Andhras occupied the deltas of the Godavari and Krishna rivers. They possessed a strong military force which, according to V.A. Smith, was second only to the army of the Mauryan emperor, Chandragupta. The capital of the Andhras is believed to have been Srikakulam. We come to know of the Andhras from Asoka's edicts. According to those edicts, the Andhras were the residents in or adjoining the outer circle of the Mauryan empire. After the death of Asoka, the Andhras asserted their independent power under the government of a king called Simuka. The next king was his brother Krishna. He extended his power upto Nasik, including the Konkan. The inscription at Nanaghat mentions the statues of *Simuka*, Krishna and Satakarni I and of Queen Naganika. The Andhras must have defeated the Marathas and their conquests were consolidated by Satakarni I's (the third ruler) marriage with Naganika. Satakarni is said to have performed two horse-sacrifices. One of his predecessors slew the last of the Kanvas. About the Andhras, the Malavikagnimitra of Kalidasa and the Kamasutra of Vatsyayana give some information. The Saka conquest of Malwa and Maharashtra eclipsed for some time the power of the Andhras. But their fortunes were re-established by Gautamiputra Satakarni.

The Kushans

The Kushans were one of the five clans into which the Yuechi tribe was divided. A nomadic people from the Steppe of North Central Asia, living in the neighbourhood of China, the Kushans first occupied Bactria or north Afghanistan where they displaced the Sakas. Gradually, they moved to the Kabul valley and seized Gandhara by crossing the Hindukush, replacing the rule of the Greeks and Parthians in these areas. Finally, they set up their authority over the lower Indus basin and the greater part of the Gangetic basin. Their empire extended from the Oxus to the Ganga, from Khorasan in Central Asia to Varanasi in Uttar Pradesh. A good part of Central Asia, now included in the former USSR, a portion of Iran, a portion of Afghanistan, almost the whole of Pakistan, and almost the whole of northern India were brought under one rule by the Kushans. This created a unique opportunity for the co-mingling of people and cultures, and the process gave rise to a new type of culture which embraced five modern countries.

The chief of the Kushana sect, by name *Kadphises I*, imposed his authority successfully on his colleagues and established himself as the sole monarch of the *Yueh-Chi nation* in about 40 A.D. He defeated the Greeks and the Parthians, who were controlling the north-western frontier of India. He occupied Kabul and issued coins in his name. He called himself *king of kings*. He followed Buddhism. He was succeeded by his son, *Kadphises II*, also known as *Wima Kadphises*. Kadphises II followed his father's policy of conquering India. He penetrated as far as Varanasi and annexed the country as far as Mathura. He assumed titles, like 'the lord of the whole world'. His bilingual (Greek and Indian) gold and copper coins indicate that he worshipped Shiva.

2.5 SANGAM ADMINISTRATION

The Kushans strengthened the idea of the divine origin of kingship. The *Kushan kings* were called *sons of god*. This title was adopted by the Kushans from the Chinese, who called their king the *son of heaven*. It was used in India naturally to legitimatise the royal authority. Similar ideas are found in the work of the Brahmana law giver, Manu.

They also introduced the Satrap system of government. The kingdom was divided into provinces each under a military governor called *Mahakshatrapa*. Governors with lower status were called *kshatraps*. These governors issued their own inscription and also minted their own coin.

The foreigners also introduced the practice of military

governorship. This was done by the Greeks, who appointed their governors called *Strategos*. Military governors were necessary to maintain the power of the new rulers over the conquered people.

Religion

Some of the foreign rulers were converted to *Vaishnavism*, which means the *worship of Vishnu*, the god of protection and preservation. The Greek ambassador Heliodorus set up a pillar in honour of Vishnu near Vidisa in Madhya Pradesh around the middle of the second century B.C. A few other rulers adopted Buddhism.

The Kushana rulers worshipped both Shiva and the Buddha, and the image of these two appeared on the Kushana coins. Several Kushana rulers were worshippers of Vishnu. This was certainly the case with the Kushana ruler Vasudeva, whose very name is a synonym for Krishna, who was worshipped as an incarnation of Vishnu.

Trade, Commerce and Economy

The movement of foreigners into India established firmly the basis of regular trade contact between Central Asia and India. As a result, India received a good deal of gold from the Altai mountains in Central Asia. Gold also may have been received in India through trade with the Roman empire. The Kushans controlled the *Silk Route*, which started from China and passed through their empire in Central Asia and Afghanistan to Iran, and Western Asia which formed part of the Roman empire in the eastern Mediterranean zone. This route was a source of great income to the Kushans, and they built a large prosperous empire because of the tolls levied from the traders. It is significant that the Kushans were the first rulers in India to issue gold coins on a wide scale.

Society and Culture

The Sakas and Kushans added new ingredients to Indian culture and enriched it immensely. They settled in India for good and completely identified themselves with its culture. Since they did not have their own script, language or religion, they adopted these elements of culture from India. They became an integral part of Indian society to which they contributed considerably.

Art and Architecture

Indian craftsmen came into contact with Central Asia, the Greeks and the Romans, especially in the north-western frontier of India in Gandhara. This gave rise to a new kind of art known as *Gandhara Art* in which images of the Buddha were made in the *Graeco-Roman style*. The hair of the Buddha was fashioned in the Graeco-Roman style. Mathura produced beautiful images of the Buddha, but it is also famous for the headless erect statue of Kanishka whose name is inscribed on its lower part. It also produced several stone images of Vardhamana Mahavira.

The Shaka-Kushana phase registered a distinct advancement in building activities. Excavations have revealed several layers of construction, sometimes more than half a dozen, at various sites in north India. In them we find the use of burnt bricks for flooring and that of tiles for both flooring and roofing. But the use of 'surkhi' and 'tiles' may not have

Literature

The foreign princes patronised and cultivated Sanskrit literature. The earliest specimen of *Kavya* style is found in the inscription of *Rudradaman* in *Kathiawar* in about 150 A.D. From now onwards inscriptions began to be composed in chaste Sanskrit, although the use of Prakrit in composing inscriptions continued till the fourth century A.D. and even later.

It seems that some of the great creative writers such as *Asvaghosha* enjoyed the patronage of the Kushans. Asvaghosha wrote the *Buddhacharita*, which is a biography of the Buddha. He also composed *Saundarananda*, which is a fine example of Sanskrit 'kavya'.

2.5 SATAVAHANAS' PATTERN OF ADMINIS-TRATION

The *Satavahana* rulers strove for the royal ideal set forth in the Dharmasastras. The king was represented as the upholder of dharma. To him were assigned a few divine attributes. The Satavahana king is represented as possessing the qualities of mythical heroes such as *Rama*, *Bhima*, *Kesava*, *Arjuna*, *etc*. This was evidently meant to attribute divinity to the Satavahana king.

The Satavahanas kept some of the administrative units found in Asoka times. Their district was called *ahora*, as it was known in the time of Asoka. Their officials were known as *amatyas* and *mahamatras*, as they were known in Mauryan times.

But, we noticed certain military and feudal traits in the administration of Satavahanas. It is significant that the Senapati was appointed provincial governor. The administration in the rural areas was placed in the hands of *gaulmika*, who was the head of a military regiment consisting of nine chariots, nine elephants, 25 horses and 45 foot soldiers.

The head of the army platoon was, therefore, posted in the countryside to maintain peace and order.

The Satavahana kingdom had three grades of *feudatories*. The highest grade was formed by the king who was called *Raju* and who had the right to strike coins. The second grade was formed by the *maha bhoja*, and the third grade by the *senapati*. It seems that these feudatories and landed beneficiaries enjoyed authority in their respective localities.

Religion

The Satavahana rulers claim to have been Brahamins, and they represented the march of triumphant Brahmins. Satavahanas referred to themselves as unique *Brahmins* who crushed the pride of the Kshatriyas. From the very beginning, kings and queens performed the Vedic sacrifice, such as the 'asvamedha, vajupeya', *etc*.

They also worshipped a large number of Vaishnava gods such as Krishna, Vasudeva and others. They paid liberal sacrificial fees to the Brahmins.

Satavahanas and Architecture

In the Satavahana phase, many Chaityas and monasteries were cut out of the solid rock in the north-western Deccan or