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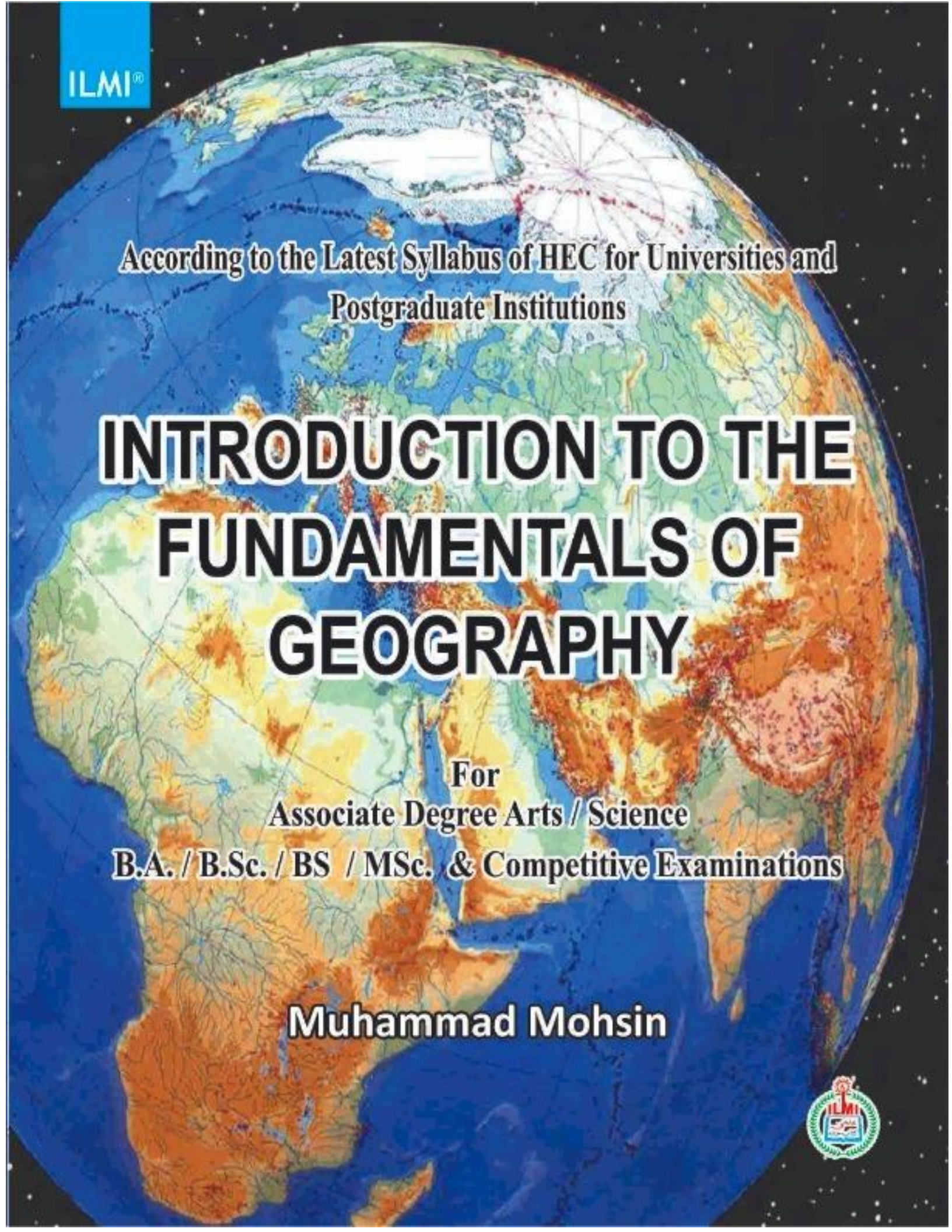
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INTRODUCTION TO THE FUNDAMENTALS OF GEOGRAPHY
For
Associate Degree Arts / Science
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Muhammad Mohsin

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First Edition

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INTRODUCTION TO THE FUNDAMENTALS OF GEOGRAPHY

For the students:

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Dedicated

To my

Beloved Parents

(Late)

Preface

Geography is a very diverse field of science. This book 'Introduction to the Fundamentals of Geography' is the output of more than three and half years and accomplished by the grace of Allah almighty. This is the brief discourse of Geography's history, basic concepts, main physical and environmental elements. I have faced lot of hurdles and difficulties in the course of this work as twice the whole manuscript of the book had been corrupted by virus. But my objective and enthusiasm once again insisted and inspired me to resume this tedious task again. The main objective of this book is to provide a handbook for the students of BS-4 Years course work 'Fundamentals of Geography' being taught in universities and postgraduate colleges and as per the recommended syllabus from HEC as well as it covered many topics of Foundation II 'Physical Geography'. Simultaneously, it would also be proved a useful key source for other BS Geography courses, general readers, other competitive examinations (CSS, PMS, Lectureship, Subject Specialist, Assistant Professor of Geography etc.) and preparing of various entry examinations. The salient features of this edition are:

1. Easy to read and comprehend the main concepts of General Geography, Geographic History, Geographic Techniques, Physical and Human Geography.
2. Simple and to the point way of expression with ease language.
3. Short and long review questions at the end of every chapter.
4. Images, diagrams and illustrations of various concepts and land features.
5. Concise description of more than 80 major geographic theories, concepts, laws and rules.
6. A rich glossary of main terms.
7. For further reading, useful World Wide Web sources and Textual Bibliography is enlisted.

Last but not least, during the writing/ compiling of this book, many books, articles and websites were studied and proper citations made. A lot of care has been taken during write up of this book yet any omission or error observed is accepted and your opinions/ queries are highly welcomed.

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15 January, 2021
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Syllabus Outlines of Foundation 1: Fundamentals of Geography by HEC 2009 and 2013 for BS (4 Years) Geography

Syllabus Outline 2009

Foundation-I GEOG 101 Fundamentals of Geography

Objectives:

To create awareness about Geography and Geographical knowledge

Course outline

- Introduction & Definitions of Geography
  - Themes of Geography
  - Roots of the discipline & basic geographic concepts
  - The evolution of geography from ancient to modern period
  - Branches of Geography and its relations with other disciplines.
- The universe
  - Galaxies and Solar system
  - Origin of the Earth,
- Earth as a planet and celestial positions its Shape and size.
  - Rotation and revolution and related phenomena
  - Earths' Satellite Moon
  - Lunar and solar Eclipses
- Positions on Map and Globe,
  - Geographical coordinates and its characteristics,
  - World time zones standard and local time
- Geological time scale,
  - Internal Structure of the Earth & Rocks.
  - Distribution of land and water,
  - Major Landforms (Mountain, Plateau and Plain)
- Atmospheric Structure and Composition,
  - Elements of Weather and climate.
- Ocean and its Configuration
  - Movement of Oceans
  - Biomes

Lab work outline

Comprehension of atlases, maps, location of places features and relevant work related to topics of the theoretical section.

Books Recommended

Christopherson, R.W. (2000), Geo-systems, Prentice-Hall, Inc, USA.

De Blij, H. J and Muller, P.O. (1996), Physical Geography of the global Environment, USA, John Wiley and Sons Inc.

Diwan A.P. & D.K. Arora (1995), Origin of the Ocean, Anmol Publisher, Delhi.

Gabler, R.E, Sager, R.J and Wise, D.L. (1997), Essentials of Physical Geography, Saunders College Publishing, New York.

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King, CAM (1980), Physical Geography, Oxford, Basil Blackwell

McIlveen, J.F.R. (1992), Fundamentals of Weather and climate, Prentice Hall New Jersey

Miller, E.W. (1985), Physical Geography, Columbus, Charles E. Merrill

Miller, G.T. (1996), Living in the Environment, Principles, connections and solutions, Wadsworth

Monkhouse, F.J. (1996), Principles of Physical Geography, Hodder & Stoughton, London

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Scott, R.C. (1996), Introduction to physical geography, West Publishing Co, New York. I

Small, R. J. (1989), Geomorphology and Hydrology, London, Longman.

Strahler, A.N., Strahler, A.H. (2004), Physical Environment, John Wiley,. New York

Stringer, E.T. (2004), Modern Physical Geography, New York: John Wiley.

Taylor, J. (1993), Integral Physical Geography, London Longman

Thompson, R.D. et. Al. (1986), Process in Physical Geography, London, Longman.

Thornbury, W.D. (1969), Principles of Geomorphology, John Willy & Sons. New York.

Thurman, H.V. & Mexrill (1996), Essentials of Oceanography, Menson, London

Shepherd (latest edition) Oceanography

Pakistan Geographical Review (Lahore)

Pakistan Journal of Geography (Peshawar)

Journal Geography (Karachi)

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Syllabus Outline 2013

Foundation-I GEOG 101 Fundamentals of Geography

Objective:

To expose students with the founding principles of Geography and geographical knowledge.

Course outline:

- Introduction
  - Definitions, scope and branches of Geography
  - Roots of the discipline and basic geographic concepts
  - Themes and traditions of Geography
  - Tools of Geography
- The Universe
  - Galaxies and solar system
- The Earth as a planet
  - Celestial positions, its shape and size
  - Rotation, revolution and related phenomena
- Spheres of the earth
  - Lithosphere
  - Atmosphere
  - Hydrosphere
  - Biosphere
- Man-environment interaction
  - Population
  - Major Economic activities
  - Settlements
  - Pollution

Lab. work:

Comprehension of atlases, map reading skills, location of places, features and relevant work related to topics of the theoretical section.

Recommended Books:

Arbogast, A. F. (2007) Discovering Physical Geography, John Wiley and Sons, London.

Christopherson, R. W. (2009) Geo systems: An introduction to Physical Geography, Pearson Prentice Hall, New Jersey.

De Blij, H. J and Muller, P. O. (1996) Physical Geography of the Global Environment, USA, John Wiley and sons Inc., New Jersey.

Guinness, J. P. & Nagle, G. (2011) Geography, Hodder Education, London.

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Miller, G. T. (2008) Living in the Environment, Principles, connections and Solutions, Wadsworth, USA.

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Thompson, R. D. (1986) Process in Physical Geography, Longman, London.
Thornbury, W. D. (2004) Principles of Geomorphology, John Willy & Sons, New York.
Thurman, H. V. & Trujillo, A. P. (2013) Essentials of Oceanography, Prentice Hall Inc., USA.

CONTENTS

Chapter 7

APPENDICES

Appendix-A

International System of Units (SI)

g/m^3	grams per cubic meter
g/kg	grams per kilo grams
lb	Pound
psi	per square inch
lb/in^2	pounds per square inch
mb	millibars
cm^2	square centimeter
km^2	square kilometer
mi^2	square mile
km/hr	kilometer per hour
m/h	mile per hour
W/m^2	Watts per square meter
ha	hectares
$\mu g/m^3$	milligrams per cubic meters
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
pph	parts per hundred
mm	millimeters
cm^2/min	square centimeter per minute
hr	hour
sec	second

Appendix-B

Acronyms/ Abbreviations

i.e.	(Latin) 'id est' means 'that is'
e.g.	(Latin) 'exempli gratia' means 'for example'
n.d	No Date/ Date is unknown
2D	Two Dimensional
3D	Three Dimensional
AAG	American Association of Geographers
AAG	American Geographical Society (AGS)
ALOS	Advanced Land Observation Satellite
AQI	Air Quality Index
BIPM	The International Bureau of Weights and Measures
BWMC	Bahawalpur Waste Management Company
CBD	Central Business District
CBR	Crude Birth Rate
CCD	Central Commercial District
CDR	Crude Death Rate
CIA	Central Intelligence Agency
DART	Deep-ocean Assessment and Reporting of Tsunami
EOLSS	Encyclopedia of Life Support Systems
EPA	Environmental Protection Agency
ESAs	Environmental Sensitive Areas
ETM	Enhanced Thematic Mapper
GA	Geographical Association
GDP	Gross Domestic Product
GIS	Geographic Information System
GMT	Greenwich Mean Time
GNP/ GNI	Gross National Product/ Gross National Income
GPS	Global Positioning System
GOES	Geostationary Operational Environmental Satellite
IAU	International Astronomical Union
IPCC	Inter-governmental Panel on Climate Change
ITCZ	Inter-tropical Convergence Zone
IRS	Indian Remote Sensing
IWM	Integrated Waste Management
	Landsat Land Satellite
LCL	Lifting Condensation Level
LCL	Least Cost Location

LDCs	Less Developed Countries
LEDC	Less Economically Developed Country
LEO	Low Earth Orbits
Lidar	Light detection and ranging
LPG	Liquefied Petroleum Gas
MDCs	More/ Most Developed Countries
Mt.	Mount
MSS	Multispectral Scanners
NASA	National Aeronautics and Space Administration
NCGE	National Council for Geographic Education
NEPA	National Environmental Policy Act
NGS	National Geographic Society
NI	Natural Increase
NLR	Normal Lapse Rate
NOAA	The National Oceanic and Atmospheric Administration
PCBs	Polychlorinated biphenyls
PMD	Pakistan Meteorological Department
Radar	Radio detection and ranging
RGS	Royal Geographical Society
RNA	Ribonucleic Acid
RS	Remote Sensing
SARS	Severe Acute Respiratory Syndrome
SPOT	Système Pour l'Observation de la Terre
SRS	Satellite Remote Sensing
TFR	Total Fertility Rate
TIROS-1	Television and Infrared Observation Satellite-1
TM	Thematic Mapper
UTC	Universal Time Coordinated or Coordinated Universal Time
UN	United Nations
UNESCO	United Nations Economic
UNDP	United Nations Development Programme
WHO	World Health Organization
ZPG	Zero Population Growth
ZWS	Zero Waste Strategy

Glossary

Abiotic: A term meaning 'without life', commonly used to describe some components of an ecosystem. Examples of abiotic factors include climate, geology and mineral matter in soils.

Ablation: The process by which ice and snow are lost from a glacier. It includes; (i) surface, internal and basal melting (ii) sublimation and (iii) calving of icebergs or smaller ice blocks.

Absolute Humidity: The amount of water vapour contained within a unit volume of air, commonly expressed in grams per cubic meters (gm^3). Absolute humidity is highest near the Equator, and least over the poles.

Absolute Location: The exact position of an object or place stated in spatial coordinates of a grid system (latitudes and longitudes) designed for the location purposes.

Abyssal Plain: The broad, deep plain on either side of the mid-oceanic ridge lie in the abyssal zone.

Acid Rain: Rain polluted by human-produced chemicals in the atmosphere, such as nitrogen and sulphur compounds, in addition to the normal carbon dioxide content of the rain.

Adiabatic Process: The temperature changes with rising or descending air. Normally it expands and cools by rising and compressing and heating by descending. Atmosphere gets heated by descending the air through compression. It is called adiabatic process.

Adiabatic Lapse Rate (ALR): The rate of change of temperature by an ascending or descending airmass. The expansion causes the parcel of air to cool and compression causes the temperature within the parcel of air to increase.

Aerial Photograph: A photograph taken from above the ground through an air craft. There are two types of aerial photograph, a vertical photograph and an oblique photograph.

Aerosols: The small solid particles or droplets present in the air and also serve as condensation nuclei for cloud formation are called Aerosols.

Air Mass: An Air Mass is a large body of air with similar temperature and humidity characteristics throughout.

Air Pollutant: The gaseous or liquid tiny particles present in the air that are generated through human activity and threatens living organism and environment are called Air Pollutant.

Accessibility: The ease with which one location may be reached from another or it is that quality possessed by a place as a result of its particular location within a Transport Network.

Albedo: The share or proportion of the solar radiation or insolation that is reflected back by a surface is called its Albedo.

Atmosphere: It is a gaseous envelope surrounding the earth and held in place by the planet's gravitational attraction.

Asthenosphere: A less rigid layer of the upper Mantle that is assumed down to lies 70 km to 250 km. It is the main source of magma that is erupted during volcanic eruption.

Atoll: A low island found in the tropical oceans consisting of coral reefs surrounding a central depression.

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World Wide Web Useful Links

The list of internet sources used with their title and date of accession is as follows that might be useful for further reading:

1. https://www.opengeography.org/ch-1-intro-to-geographic-science.html: Chapter 1: Introduction to Geographic Science (17 Feb. 2017).
2. https://www.pinterest.com/pin/177329304047571510: Ptolemy's World Map (12 Mar. 2017).
3. www.killinglyschools.org/cms/.../Five%20Themes%20of%20Geography%202012.doc: Five Themes of Geography (12 March, 2017).
4. https://spaceplace.nasa.gov/galaxy/en/: Galaxy (14 Sep. 2017).
5. http://www.moonchart.org/time-zones.html: World Time Zone Map (14 Sep. 2017).
6. https://www.quora.com/what-is-the-diamer-of-the-sun/: Diameter of the Sun (14 Sep. 2017).
7. https://www.pbs.org/../dp27bi: Big Bang Theory (14 Sep. 2017).
8. https://hubpages.com/education/Origin-of-the-Earth: Origin of the Earth (15 Sep. 2017).
9. https://www.en.wikipedia.org/wiki/landform: Landform (18 Sep. 2017).
10. https://www.eartheclipse.com/geology/what-a-landform: Landform (18 Sep. 2017).
11. https://www.reference.com/science/mountains-important-eda05929d8082b7d#: Mountains Importance (19 Sep. 2017).
12. https://en.wikipedia.org/wiki/Landscape_ecology: Landscape Ecology (10 Feb, 2018).
13. https://oceanservice.noaa.gov/facts/geodesy.html: Geodesy (10 Feb. 2018).
14. https://www.oxfordbibliographies.com/view/document/obo.../obo-9780199874002-0069.x: Behavioural Geography (10 Feb. 2018).
15. https://www.geolounge.com/tourism-geography: Tourism Geography (10 Feb. 2018).
16. https://sites.google.com/a/uwlax.edu/transp-geography/home: Transportation Geography (10 Feb. 2018).
17. http://www.yourarticlelibrary.com/population-geography/4-general-theories-of-migration-explained/43257: 4 General Theories of Migration (10 Feb. 2018).
18. https://www.yourarticlelibrary.com/geography/urban-geography-meaning-scope.../39922: Urban Geography: Meaning, Scope and Concepts (with statistics) (10 Feb. 2018).
19. https://www.brand2global.com/the-geography-of-marketing: Geography of Marketing (10 Feb. 2018).
20. https://www.onlinelibrary.wiley.com/doi/10.1002/9781118786352.wbieg0280/full: Military Geography (10 Feb. 2018).
21. https://www.healthcybermap.org/HGeo/pg1_1.htm: Medical Geography and Geography of Disease (10 Feb. 2018).

Govt. S.E. College Bahawalpur

BS Botany 4-years

3rd Semester (2018-22) Final Term Examination (2020)

Fundamentals of Geography (F–1) GEIG001106

Marks: 40	**Time Allowed: 90 Minutes**

Q.2: Answer/explain the following briefly: (2 × 10 = 20)

1. Define Geography.
2. What is Solar System?
3. What do you know about rotation of earth?
4. Define Geomorphology.
5. What do you know about the shape of the earth?
6. What is Prime Meridian?
7. What is time zone?
8. Write about formation of Tides.
9. Enlist the major layers of the atmosphere with relative height.
10. What is Asthenosphere?

Q.3: Write a detailed note on the Internal Structure of the Earth. (10)

Q.4: Write a comprehension on Indian Ocean Currents with suitable diagrams. (10)

THE ISLAMIA UNIVERISTY OF BAHWALPUR

BS Geography 4-years (Session 2015–19)

1st Semester Final Term Examination

Paper: Fundamentals of Geography Foundation–I (GEOG–101)

Marks: 40	Time Allowed: 90 Minutes

Q.2: Answer/explain the following briefly: (2 × 10 = 20)

(a) What is Insolation?

(b) What is normal lapse rate?

(c) What is inversion of temperature?

(d) What are isotherms?

(e) What is solar constant?

(f) What are ocean currents?

(g) What is condensation?

(h) What is atmospheric pressure?

(i) What are different layers of atmosphere?

(g) What are tides?

Q.3: Define atmosphere and explain its composition. (marks 10, time 25 minutes).

Q.4: Enlist and explain the fundamental themes at geography.

(marks 10, time 25 minutes).

THE ISLAMIA UNIVERISTY OF BAHWALPUR

BS 4 Year Botany, Chemistry, Economics

3rd Semester Final Term Examination 2016 (Session 2014–18)

Paper: Geography (Foundation–I)

Marks: 40	**Time Allowed: 90 Minutes**

Q.2: Answer/explain the following briefly: (2 × 10 = 20)

1. What is mesosphere?
2. Define ocean wave.
3. Define isobars.
4. What are folded mountains?
5. What do you know about Peru Current?
6. What is P–wave?
7. What are metamorphic rocks?
8. What do you know about Earth Core?
9. Define atmosphere?
10. What do you know about the mountains of Alpine Period?

Q.3: Define and classify and also give a detailed account of sedimentary rocks. (10)

Q.4: Name and explain various types of ocean tides along with their advantages and disadvantages. (10)

ABOUT THE AUTHOR

Mr. Muhammad Mohsin has graduated from The Islamia University of Bahawalpur (IUB). He completed M.Phil. Geography from the Department of Geography (IUB). Currently he is working as an Assistant Professor of Geography at Department of Geography, Govt. Sadiq Egerton College, Bahawalpur. He has over ten years teaching experience of Intermediate, Masters and BS-4 Years in Geography. He has also performed his duties as a In charge Admissions, Paper Setter, Evaluator, Practical Examiner, Tutor, Seminar Conveyor and Focal Person in his and outside the departments. He is also engaged in research projects and authored/ co-authored over 35 research articles in various HEC recognized National and International Journals. He is also an author of one book titled "Urban Growth and Conversion of Farmland in Bahawalpur City, Pakistan" published from Germany in 2014. Presently, he is also working on many projects of research and an objective book of Geography. His areas of interests are urban dynamics, solid waste, water quality and changing land use patterns of cities.

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