

# **University of Gour Banga**

# DRAFT

Syllabus for

# FOUR-YEAR UNDERGRADUATE (HONOURS/ HONOURS WITH RESEARCH) COURSE IN GEOGRAPHY

UNDER NEP- 2020

Semester (I+II+III+IV+V+VI+VII+VIII)

University of Gour Banga P.O. – Mokdumpur, Dist. – Malda West Bengal PIN - 732103



# Descriptive Type Question pattern

# For Major Core (MC) Skill Enhancement Course (SEC) and Discipline Specific Core (DSC)

# **Theory (Semester End Written Examination)**

# Full Marks = 25

(10 Marks x 1 Question) + (5 Marks x 3 Questions)

Question(s) containing 10 marks will be divided into three parts (6+3+1)

Question(s) containing 5 marks will be divided into two parts (3+2)

# **Internal Assessment**

Full Marks = 10

Attendance (4) and Assessment (6)

(As mentioned in the corresponding syllabus)

# Practical (Semester End Laboratory based Test)

Full Marks = 15

(07 Marks x 1 Question) + (05 Marks x 1 Question) + (03 Marks for Laboratory Note Book & Viva-voce)

# Word limits for descriptive type questions (Theory)

<b>Duration of I</b>	Examination
5 marks:	300 - 350
10 marks:	600 - 700

Theory paper of 25 marks: 2 hours Practical paper of 15 marks: 2 hours



Geography Honours/ Honours with Research

# **DETAILED SYLLABUS**

#### SEMESTER-I

Comment Themes	Course	Crea l'Ar		
Course Type	Theory	Practical	Creatts	Marks
Major Core (MC)	MC-1A: Geotectonic	MC-1B: Practical	04	50
	and Geomorphology (03)	(01)		
	MC-2A: Cartographic	MC-2B: Practical	04	50
	Techniques(03)	(01)		
Minor Core (MnC)	MnC-1A: Geotectonic	MnC-1B: Practical	04	50
	and Geomorphology (03)	(01)		
Skill Enhancement Course	SEC-1A Elementary	SEC-1B Elementary	03	50
(SEC-1)	Statistics (02)	Statistics (01)		
	15	200		

Note:

Minor Core (MnC) of this discipline will be opted by other disciplines and students of this discipline will have to opt Minor Core (MnC) from other discipline as per availability of the college and staying within the periphery of University guideline.

## MC-1A: Geotectonics and Geomorphology (Theory)

Total (	Credit	03	Credits
<b>Total</b> N	Marks	35	Marks
٠	Semester End Examination	25	Marks
			Mode: Written Examination
			Exam. Duration: 2 Hours
			Question Pattern: Students have to answer <i>One</i> question carrying 10 marks out of <i>Two</i> given questions; <i>Three</i> questions carrying 5 marks each out of given <b>Six</b> questions. Question carrying 10 marks will have at least three parts and question carrying 5 marks will have at least two parts
•	Internal Assessment	10	Marks Mode: Preparation of assignment on relevant theoretical aspects as directed by the Department

### Part 1: Geotectonics

- 1. Origin of Universe, solar system and Earth (Tidal hypothesis and Big Bang Theory).
- 2. Earth's tectonic and structural evolution with special reference to geological time scale
- 3. Earth's interior with special reference to seismology; Isostasy: theory of Airy and Pratt, Isostatic adjustments and distribution of gravity anomalies.
- 4. Continental Drifting (Alfred Wegener), Palaeo-Magnetism and Seafloor Spreading, Plate tectonics.
- 5. Earthquake, Folds and Faults and Volcanos.

## Part 2: Geomorphology

- 1. Geomorphology: Nature, Scope and Approaches, Fundamental concepts in Geomorphology: Thornbury
- 2. Denudation processes (weathering, mass movement and erosion) and resultant landforms,
- 3. Models on landscape evolution: Davis, Penck, and Hack

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#### Geography Honours/ Honours with Research

- 4. Development of river networks and landforms on uniclinal and folded structures.
- 5. Slope development and evolution of slope (Davis and King)
- 6. Geomorphic processes and landforms: Fluvial, Glacial, Fluvio-glacial, Aeolian, Fluvio-aeolian, Coastal and Karst.

#### References

- 1. Bloom, A. L. (2001): Geomorphology A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.
- 2. Bridges, E. M. (1990): World Geomorphology, Cambridge University Press, Cambridge.
- 3. Christopherson, Robert W. (2011): Geosystems An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
- 4. Kale, V. S. and Gupta A. (2001): Introduction to Geomorphology, Orient Longman, Hyderabad.
- 5. Knighton, A. D. (1984): Fluvial Forms and Processes, Edward Arnold Publishers, London.
- 6. Selby, M.J. (2005): Earth's Changing Surface, Indian Edition, OUP
- 7. Skinner, Brian J. and Stephen C. Porter (2000): The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons.
- 8. Thornbury, W. D. (1969): Principles of Geomorphology, Wiley.

## MC-1B: Geotectonics and Geomorphology (Practical)

<b>Total Credit</b>	0	01	Credit
<b>Total Marks</b>	1	15	Marks
• Seme	ester End Examination 1	15	Marks
			Mode: Laboratory based Examination
			Exam. Duration: 2 Hours
			Question Pattern:: Students have to perform One
			Practical carrying 7 marks; Another <b>One</b> Practical
			carrying 5 marks. 3 marks for submission of Laboratory
			Note Book duly signed by the Teacher followed by the
			performance in a viva-voce

## List of Practical

- 1. **SOI topographical maps:** Construction and interpretation of relief profiles (serial, superimposed, projected and composite.
- 2. **Drainage Basin Morphometry:** Delineation of watershed, Stream ordering (Strahlar) and Morphometric analysis: Relative Relief (after Smith), Dissection Index (after DovNir), Average Slope (after Wentworth).

#### **References:**

- 1. Billings, M.P. (1971). Structural Geology, Pearson.
- 2. Bennison, G.M. (1990): An Introduction to Geological Structures and Maps (5th Ed.), Springer.
- 3. Bolton, T. (1989): Geological Maps Their Solution and Interpretation, Cambridge University Press.
- 4. Borradaile, Graham (2014): Understanding Geology through Maps, Elsevier, Inc.
- 5. Maltman, A. (1990): Geological Map: An Introduction, Open University Press.
- 6. Platt, J.I., Selected Exercises upon Geological Map, Part I, Unwin, Londan.
- 7. Roy, A. K. (1966): Introduction to the study of geological maps, World Press Private Ltd.
- 8. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
- 9. Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub.
- 10. Spencer, Edger W. (2006): Geologic Maps A Practical Guide to Preparation and Interpretation, Waveland Press, Inc.



#### MC-2A: Cartographic Techniques (Theory)

Total Credit	03 Credits
Total Marks	35 Marks
• Semester End Examination	25 Marks
	Mode: Written Examination
	Exam. Duration: 2 Hours
	Question Pattern: Students have to answer One question
	carrying 10 marks out of Two given questions; Three
	questions carrying 5 marks each out of given <b>Six</b> questions. Question carrying 10 marks will have at least three parts and question carrying 5 marks will have at
	least two parts
Internal Assessment	10 Marks
	Mode: Preparation of assignment on relevant theoretical aspects as directed by the Department)

#### **Cartographic Techniques**

- 1. Introduction to Cartography: Nature, scope and development, elements, and applications.
- 2. Concept and application of map scale: Plain, comparative, diagonal and Positive Vernier
- 3. Coordinate systems: Grid, concept of geoid, spheroid, rectangular and geographical coordinate system,
- 4. Map projections: concept, classification, properties and uses; Concept and significance of UTM projection.
- 5. Concept of map, components, classifications, importance and uses.
- 6. Geographical data and Cartograms: Techniques, advantages, and disadvantages of Line, Bar, Dot and Sphere, Proportional circles, Isopleths, and choropleth.

#### References

- 1. Anson R. and Ormelling F. J. (1994): International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
- 2. Gupta K.K. and Tyagi, V. C. (1992): Working with Map, Survey of India, DST, New Delhi.
- 3. Kennedy, M., Kopp, S. (2001): Understanding Map Projections, Esri Press
- 4. Mishra R.P. and Ramesh, A. (1989): Fundamentals of Cartography, Concept, New Delhi.
- 5. Monkhouse F. J. and Wilkinson H. R. (1973): Maps and Diagrams, Methuen, London.
- 6. Rhind D. W. and Taylor D. R. F. (eds.) (1989): Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
- 7. Robinson A. H. (2009): Elements of Cartography, John Wiley and Sons, New York.
- 8. Singh R. L. and Singh R. P. B. (1999): Elements of Practical Geography, Kalyani Publishers.
- 9. Sarkar, A. (2015): Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi

#### MC-2B: Cartographic Techniques (Practical)

Total Credit	01	Credit
Total Marks	15	Marks
Semester End Exa	mination 15	Marks
		Mode: Laboratory based Examination
		Exam. Duration: 2 Hours
		Question Pattern: Students have to perform <b>One</b> Practical
		carrying 7 marks; Another One Practical carrying 5
		marks. 3 marks for submission of Laboratory Note Book
		duly signed by the Teacher followed by the performance
		in a viva-voce.

# List of Practical

- **1. Map Scale:** Scale conversion: Statement, RF, Graphical (Linear, Comparative, Diagonal, Positive vernier); Enlargement and reduction of scale.
- **2. Map Projections:** Cylindrical Equal Area, Mercator's, Simple conical with one standard parallel, Bonne's, Polar Zenithal Gnomonic.
- **3.** Geographical Data Representation and Interpretation: Line, Bar, Dot and Sphere, Proportional circles, Isopleth and choropleth.

#### References

- 1. Kennedy, M., Kopp, S. (2001): Understanding Map Projections, Esri Press.
- 2. Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. (2011): Map Use: Reading, Analysis, Interpretation, 7th ed, Esri Press.
- 3. Monkhouse, F.J., Wilkinson, H.R. (1971): Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata. Pearson II,
- 4. Pearson, F. (1990): Map Projections: Theory and Applications 2nd ed, CRC Press.
- 5. Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. (1995): Elements of Cartography, 6th ed, Wiley.
- 6. Sarkar, A. (2015): Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan Private Ltd.
- 7. Singh, R.L., Singh, R.P.B. (2008): Elements of Practical Geography, Kalyani Publishers.
- 8. Vaidyanadhan, R., Subbarao, K.V. (2014): Landforms of India from Topomaps and Images, Geological Society of India.

## MnC-1A: Geotectonic & Geomorphology (Theory)

#### [This will be opted by the students of other disciplines only]

Total Credit	03 Credits
Total Marks	35 Marks
Semester End Examination	25 Marks
	Mode: Written Examination;
	Exam. Duration: 2 Hours;
	Question Pattern: Students have to answer <i>One</i> question carrying 10 marks out of <i>Two</i> given questions; <i>Three</i> questions carrying 5 marks each out of given <b>Six</b> questions. Question carrying 10 marks will have at least three parts and question carrying 5 marks will have at least two parts.
• Internal Assessment	10 Marks Mode: Preparation of assignment on relevant theoretical aspects as directed by the Department

## Part 1: Geotectonics

- 1. Origin of Universe, solar system and Earth (Tidal hypothesis and Big Bang Theory).
- 2. Earth's tectonic and structural evolution with special reference to geological time scale
- 3. Earth's interior with special reference to seismology; Isostasy: theory of Airy and Pratt, Isostatic adjustments and distribution of gravity anomalies.
- 4. Continental Drifting (Alfred Wegener), Palaeo-Magnetism and Seafloor Spreading, Plate tectonics.
- 5. Earthquake, Folds and Faults and Volcanos.

## **Part 2: Geomorphology**

1. Geomorphology: Nature, Scope and Approaches, Fundamental concepts in Geomorphology: Thornbury

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Geography Honours/ Honours with Research

- 2. Denudation processes (weathering, mass movement and erosion) and resultant landforms,
- 3. Models on landscape evolution: Davis, Penck, and Hack
- 4. Development of river networks and landforms on uniclinal and folded structures.
- 5. Slope development and evolution of slope (Davis and King)
- 6. Geomorphic processes and landforms: Fluvial, Glacial, Fluvio-glacial, Aeolian, Fluvio-aeolian, Coastal and Karst.

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- 2. Bridges, E. M. (1990): World Geomorphology, Cambridge University Press, Cambridge.
- 3. Christopherson, Robert W. (2011): Geosystems An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
- 4. Kale, V. S. and Gupta A. (2001): Introduction to Geomorphology, Orient Longman, Hyderabad.
- 5. Knighton, A. D. (1984): Fluvial Forms and Processes, Edward Arnold Publishers, London.
- 6. Selby, M.J. (2005): Earth's Changing Surface, Indian Edition, OUP
- 7. Skinner, Brian J. and Stephen C. Porter (2000): The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons.
- 8. Thornbury, W. D. (1969): Principles of Geomorphology, Wiley.

## MnC-1B: Geotectonics and Geomorphology (Practical)

Total (	Credit	01	Credit
<b>Total</b> N	Marks	15	Marks
•	Semester End Examination	15	Marks
			Mode: Laboratory based Examination;
			Exam. Duration: 2 Hours
			Question Pattern: Students have to perform <i>One</i> Practical
			carrying 7 marks; Another One Practical carrying 5
			marks. 3 marks for submission of Laboratory Note Book
			duly signed by the Teacher followed by the performance
			in a viva-voce.

#### **List of Practical**

- 1. **SOI topographical maps:** Construction and interpretation of relief profiles (serial, superimposed, projected and composite.
- 2. **Drainage Basin Morphometry:** Delineation of watershed, Stream ordering (Strahlar) and Morphometric analysis: Relative Relief (after Smith), Dissection Index (after DovNir), Average Slope (after Wentworth).

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- 1. Billings, M.P. (1971). Structural Geology, Pearson.
- 2. Bennison, G.M. (1990): An Introduction to Geological Structures and Maps (5th Ed.), Springer.
- 3. Bolton, T. (1989): Geological Maps Their Solution and Interpretation, Cambridge University Press.
- 4. Borradaile, Graham (2014): Understanding Geology through Maps, Elsevier, Inc.
- 5. Maltman, A. (1990): Geological Map: An Introduction, Open University Press.
- 6. Platt, J.I., Selected Exercises upon Geological Map, Part I, Unwin, Londan.
- 7. Roy, A. K. (1966): Introduction to the study of geological maps, World Press Private Ltd.
- 8. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
- 9. Singh, R.L. (1979): Elements of Practical Geography, Kalyani Pub.
- 10. Spencer, Edger W. (2006): Geologic Maps A Practical Guide to Preparation and Interpretation, Waveland Press, Inc.



#### SEC-1A: Elementary Statistics (Theory)

Total Credit	02 Credits
Total Marks	35 Marks
Semester End Examina	tion 25 Marks
	Mode: Written Examination;
	Exam. Duration: 2 Hours;
	Question Pattern: Students have to answer One question
	carrying 10 marks out of Two given questions; Three
	questions carrying 5 marks each out of given <b>Six</b> questions. Question carrying 10 marks will have at least three parts and question carrying 5 marks will have at
	least two parts.
Internal Assessment	10 Marks
	Mode: Preparation of assignment on relevant theoretical aspects as directed by the Department

- 1. Concepts and significance of statistics in Geography.
- 2. Collection of Data: Primary and secondary.
- 3. Classification and Tabulation of Data: Frequency Distribution (Simple and cumulative) and Diagrammatic representation.
- 4. Data measurement scales: Nominal, Ordinal, Interval and Ratio.
- 5. Sampling: Needs, types, and significance. Method of random sampling.
- 6. Central tendency: Mean, median, mode.
- 7. Measures of dispersion: range, quartile deviation, mean deviation, standard deviation; coefficient of variation (CV).
- 8. Correlation and regression: Rank correlation, product moment correlation; linear regression.

#### References

- 1. Berry B. J. L. and Marble D. F. (eds.) (1968): Spatial Analysis A Reader in Statistical Geography, Prentice Hall.
- 2. Ebdon D. (1977): Statistics in Geography: A Practical Approach.
- 3. Gupta, S.P. (2003): Statistical Methods (31st Edition), S. Chand & Sons.
- 4. Hammond P. and McCullagh P. S. (1978): Quantitative Techniques in Geography: An Introduction, Oxford University Press
- 5. King L. S. (1969): Statistical Analysis in Geography, Prentice-Hall.
- 6. Mahmood A. (1977): Statistical Methods in Geographical Studies, Concept Publishing Company, Delhi.
- 7. Pal S. K. (1998): Statistics for Geoscientists, Tata McGraw Hill, New Delhi.
- Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations. Orient Black Swan Private Ltd., Orient Blackswan Pvt. Ltd, New Delhi
- 9. Silk J. (1979): Statistical Concepts in Geography, Allen and Unwin, London.
- 10. Spiegel M., Lindstorm, D. (1999): Statistics, Schaum's Outline Series.
- 11. Yeats M. (1974): An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York.

#### SEC-1B: Elementary Statistics (Practical)

Total Credit	01	Credit
Total Marks	15	Marks
Semester End Examination	15	Marks
		Mode: Laboratory based Examination;
		Exam. Duration: 2 Hours
		Question Pattern: : Students have to perform One
		Practical carrying 7 marks; Another <b>One</b> Practical
		carrying 5 marks. 3 marks for submission of Laboratory
		Note Book duly signed by the Teacher followed by the
		performance in a viva-voce.



#### **List of Practical**

- 1. Construction of histogram and frequency curve; measures of central tendency; computation of mean (arithmetic and geometric), median and mode.
- 2. Measures of dispersions: Mean Deviation, Standard deviation and coefficient of variation
- 3. Computation of correlation (Pearson) and Linear regression (Least square method).

#### References

- 1. Berry B. J. L. and Marble D. F. (eds.) (1968): Spatial Analysis A Reader in Statistical Geography, Prentice Hall.
- 2. Ebdon D. (1977): Statistics in Geography: A Practical Approach.
- 3. Gupta, S.P. (2003): Statistical Methods (31<sup>st</sup> Edition), S. Chand & Sons.
- 4. Hammond P. and McCullagh P. S. (1978): Quantitative Techniques in Geography: An Introduction, Oxford University Press
- 5. King L. S. (1969): Statistical Analysis in Geography, Prentice-Hall.
- 6. Mahmood A. (1977): Statistical Methods in Geographical Studies, Concept Publishing Company, Delhi.
- 7. Pal S. K. (1998): Statistics for Geoscientists, Tata McGraw Hill, New Delhi.
- 8. Sarkar, A. (2013): Quantitative Geography: Techniques and Presentations. Orient Black Swan Private Ltd., Orient Blackswan Pvt. Ltd, New Delhi
- 9. Silk J. (1979): Statistical Concepts in Geography, Allen and Unwin, London.
- 10. Spiegel M., Lindstorm, D. (1999): Statistics, Schaum's Outline Series.
- 11. Yeats M. (1974): An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York.