

MDC: Conservation Biology (Paper Code: UPOBMDC12026)

Paper Type: Theory [TH]

Credit: 3 (Theory)

Class Hours: 45 (Theory)

Full Marks: 75 (Theory 60 + Continuous evaluation 10 + Attendance 05)

Duration of end semester examination: (Theory 2 ½ hrs.)

Syllabus:

| Theory | Class Hour(s) |
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| Unit I: History of Conservation Biology | 02 |
| <ul style="list-style-type: none">• Ancient concepts and efforts.• Origin of 'Conservation Biology' as a new arena in the modern world. | |
| Unit II: Living kingdom of the world | 02 |
| <ul style="list-style-type: none">• Five Kingdoms classification (Whitaker, 1969), Three Domains concept (Carl Woese et al, 1990) (Basic concepts). | |
| Unit III: Classification of living organisms | 02 |
| <ul style="list-style-type: none">• Taxonomy and classification (definition)• Concepts of Biological species, Morphospecies. | |
| Unit IV: Elementary concepts associated with Conservation Biology | 05 |
| <ul style="list-style-type: none">• Biome, Biosphere, Ecosystem, Biodiversity, Ecological diversity, Genetic diversity (Definition and basic concept).• Biodiversity hotspots, Megadiverse countries. (Definition and basic concept). | |
| Unit V: Measurements for conservation | 03 |
| <ul style="list-style-type: none">• Elementary idea of Data and sampling.• Population abundance and density. | |
| Unit VI: Global patterns of diversity | 02 |
| <ul style="list-style-type: none">• Biogeographical realms (Terrestrial only). | |
| Unit VII: Values of biodiversity | 02 |
| <ul style="list-style-type: none">• Values of biodiversity.• Significance of conservation biology. | |
| Unit VIII: Loss of Biodiversity | 05 |
| <ul style="list-style-type: none">• Extinction (definition, reasons; concept of mass extinction, pseudoextinction, coextinction and Lazarus taxa).• Habitat fragmentation & degradation, overexploitation, invasive alien species, climate change.• Biodiversity loss in Indian context. | |

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| Unit VIII: Legal foundations of conservation | 04 |
| <ul style="list-style-type: none"> • Laws related to biodiversity conservation (Wildlife protection act 1972; Forest right act, 2006). • National and International organizations/ bodies/ programs (WWF, IUCN, CBD, CITES, MoEF). | |
| Unit IX: Idea of IUCN Red List | 02 |
| <ul style="list-style-type: none"> • Elementary idea of IUCN Red List (Conservation status of species by IUCN Red List categories). | |
| Unit X: Conservation Strategies | 14 |
| <ul style="list-style-type: none"> • Concepts of Reserve Forest, Biosphere reserve, Wildlife sanctuary, National Park, Sacred grove, Gene Bank, PBR. • Keystone species, Flagship species, Endemic species, Umbrella species. • Endemic and endangered species of India. • Concepts of <i>ex situ</i> and <i>in situ</i> conservation. • Major animal conservation projects in India (Project Tiger, Project Elephant, Project Rhino and Project Cheetah). | |
| Unit X: Technology in Conservation Biology | |
| <ul style="list-style-type: none"> • Modern technology in Conservation Biology (Camera trapping, Acoustic monitoring, Remote sensing with LIDAR). | 02 |

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| Suggested Readings |
| 1. Groom. (2005). Principles of Conservation Biology. III Edition, Sinauer. |
| 2. Joshi and Joshi. (2020). Textbook of Conservation Biology. Evincepub Publishing. |
| 3. Prasad, G. (2012). Handbook of Conservation Biology. Discovery Publishing. |
| 4. Primack. (2014). Essentials of Conservation Biology. VI Edition, Sinauer. |
| 5. Sodhi and Ehrlich. (2010). Conservation Biology for All. Oxford. |