

SCHOOL OF MARINE SCIENCES
Department of Oceanography and Coastal Area Studies
ALAGAPPA UNIVERSITY, THONDI CAMPUS – 623409
OCEANOGRAPHY AND COASTAL AREA STUDIES
PH.D. ENTRANCE EXAMINATION SYLLABUS

Unit - I

Fundamentals of Oceanography: History of Oceanography – Ocean Exploration: Methods of exploring ocean floor, SONAR, SCUBA diving and Under water photography. Geomorphologic mapping on various Coastal landforms, Application of remote sensing in Oceanography, GIS applications, Coast, Estuaries, Beach and Sea level changes, Waves, Tides, Currents and meteorology. Chemical and Physical properties of seawater. Ocean Management- Developmental Activities and Impacts - Coastal zone management issues, Land sea interactions

Unit – II

Marine Ecosystem: Trophic structure of marine ecosystem – Ecological complexity and stability in food chain metabolites and their significance. Habitat and ecology: Marine, estuarine-seaweeds, Seagrass and mangrove ecosystem. Primary and secondary productivity of the coastal environment. Marine and Coastal biodiversity, conservation and management, ecosystem restoration and rehabilitation.

Unit – III

Fisheries and Coastal Aquaculture: Capture fisheries of India. Principle methods of exploitation of fishes. Indigenous and modern Craft and Gears. Fisheries Biology. Conservation, Management and Fishery Extension. Fish Reduction Industry and Fishery by Products, Quality control and Inspection of fish products, Farm Design and Structure, Culture and Hatchery Management, Handling, Icing and Freezing of Fish. Role of live feed organisms in aquaculture.

Unit- IV

Classification of Microbes – conventional and modern methods. Structure of marine microorganism, collection, preservation enumeration, isolation, culture and identification using morphological, physiological and biochemical characteristics. Introduction to marine pharmacology. Identification of bioactive compounds containing marine organisms.

Unit- V

Major Pollutants of Marine Environment. Mechanism of dispersion of different pollutants, Biological and Chemical transport of pollutants in marine environment. Bio-accumulation and bio-magnification. Heavy metal pollution, Oil pollution Monitoring strategy, Pollution monitoring and Management.

References:

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3. Riley, P and Chester, 1971. Introduction to marine chemistry. Academic press, New York.
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6. Chapman, V.J., 1976. Mangrove vegetation. J. Graner, Berlin.
7. Lodish H.A. Bertk, S.L. Zipursky, Paul Matsudaria, D. Baltimore and J. Darneal, 1999. Molecular and Cell biology. 4th Edition, N.H. Freeman and Co.
8. Cooper, J.E.F.E. Bloom and R.H. Roth, 1990. The biochemical basis of neuropharmacology, Oxford University press.
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10. Hoar, S. 1975. General and comparative physiology – 2nd Edition, Pentice Hall.
11. Prosser, C.L. 1991, Comparative animal physiology 4th Edition., Saunders Co. Philadelphia.
12. Blaxter, J.H.S., 1974. The early life history of fish. Springer verlag, New York.
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