

**FURTHER DETAILS REGARDING MAIN TOPICS OF  
PROGRAMME NO. 05/2016/ONLINE (Item No. 5)**

**DEPUTY TOWN PLANNER**

**GREATER COCHIN DEVELOPMENT AUTHORITY**

**(CATEGORY No. 336/2014)**

**Module -1**

**Structural Engineering**

Stress and strain, failure theories, bending moment and shear force, simple bending theory, thin walled pressure vessels, torsion in solid and hollow circular shafts, open coiled and close coiled springs, buckling of column, combined and direct bending stresses.

Analysis of statically determinate trusses, arches, beams, cables and frames. Deflection of beams and trusses - double integration, moment area, conjugate beam, energy, virtual work methods, tension coefficient method. Analysis of statically indeterminate structures - slope deflection, moment distribution, Kani's methods, approximate methods. Influence lines for determinate and indeterminate structures. Matrix methods of structural analysis, basic finite element method. Free and forced vibration of single degree freedom systems.

Concrete Structures – Concrete technology, mix design. Concrete design - working stress and limit state design, design by limit state methods, limit state of serviceability. Prestressed concrete. Design of retaining walls, flat slabs, bridges and water tanks.

Steel structures – Plastic analysis of structures, working stress and limit state design concepts, design of members, design of connections. Design of plate girders, gantry girders, water tanks, bridges and trusses. Design of light gauge steel structures.

**Module-2**

**Geotechnical, Traffic and Transportation Engineering**

Soil mechanics – soil classification, field identification, soil properties, permeability and seepage, quick sand condition, consolidation, settlement, compaction, shear strength, liquefaction.

Foundation Engineering – Subsurface investigations, earth pressure theories, stability of slopes. Foundation types, shallow and deep foundations, pile foundations, well foundations, raft or mat foundations, machine foundations. Gabions. Ground improvement techniques.

Highway Engineering – geometric design of highways, highway materials, pavement design and construction, maintenance of roads, highway drainage. Traffic Engineering – traffic characteristics, intersection design, traffic signs and signal design, traffic control, traffic safety, traffic survey. Urban transportation planning. Traffic and environment.

Railway Engineering – points and crossing, signalling stations and yards. Harbour Engineering – break waters, docks. Airport – planning and design, wind rose diagram, runway design, terminal design.

### **Module-3**

#### **Hydraulics, Water Resources and Environmental Engineering**

Fluid mechanics and Hydraulics – properties of fluids, potential flow, laminar and turbulent flow, flow in pipes, flow in open channels, hydraulic jump. Forces on immersed bodies. Flow measurement in channels, tanks and pipes. Dimensional analysis and hydraulic modeling. Specific speed of pumps and turbines.

Hydrology and water Resources – unit hydrograph, reservoir capacity, well hydraulics, irrigation – duty, delta, crop water requirements. River engineering - design of lined and unlined canals. Gravity dams and spillways. Design of weirs on permeable foundations. Canal Head works, cross drainage works.

Water requirements - quality standards, basic unit processes and operation for water treatment. Drinking water standards. Water treatment. Sewerage treatment, sludge disposal, effluent discharge standards. Domestic waste water treatment - unit operations and unit processes of domestic wastewater. Environmental pollution - different forms.

### **Module-4**

#### **Surveying, Construction management, Quantity surveying and Valuation**

Surveying - measurement of distances and directions, levelling, contouring, computation of areas and volumes, traversing, theodolite and plane table, errors and adjustments. Curves – vertical and horizontal. Field astronomy. Tacheometric survey – stadia and tangential systems. Photogrammetry – vertical photograph, relief displacement. Hydrographic survey. Electromagnetic distance measurement. Total station – types, working principles, measurement techniques. Remot sensing. GPS

Construction Management – construction, planning and scheduling, Bar chart, CPM, PERT. Construction equipments, construction procedures – contract, tender documents. Building Planning – building bye laws, functional planning of buildings. Building materials – construction materials, properties, quality testing of materials, IS specifications, prefabricated structural elements.

Quantity surveying & valuation – detailed specification, preparation of data and analysis of rates for various items of work, bar bending schedule. Type of estimates – detailed estimate for buildings, abstract of estimate. Valuation - principles of valuation of old buildings and apartment structure, methods of valuation. Depreciation- current rates of depreciation and net values. Fixation of rent ,gross and net rent, methods.

## **Module-5**

### **Early Human Settlements**

History and Evolution of human settlements, Relevance of the study of settlements, Human settlements as an expression of civilization, Settlement planning in ancient periods; Eg: Indus Valley & Mesopotamia

Effects of Industrial revolution on human settlements, Post industrial age. Planned cities, Planned Indian cities, Chandigarh and contributions of Le Corbusier, Contribution of Ebenezer Howard & Patric Geddes to Housing, Nature and magnitude of the housing problem in India, Housing Shortage as a result of Population Explosion, Urbanisation and Poverty issues in the Indian context, Role of Housing in the National level with a study on the changing priorities in the housing policies and the major housing programmes carried out in the various five year plans.

## **Module-6**

### **Town Planning Theories**

Contribution of Ebenezer Howard, Development of Planning concept through ages, Emerging concepts in Planning theories, Aldo Rossi, Spatial theories: Bill Hillier: place theories, linkage theory, social theories in planning: Daniel Harvey-right to the city, Social urbanism-Jane Jacobs, Political theories David Harvey, Landscape urbanism

73<sup>rd</sup> & 74<sup>th</sup> amendments of constitution, Participatory Planning Process, Preparation of IDDP, LDPs

## **Module-7**

### **Planning Concepts**

Master Plan, Development Plan, Town planning schemes, Regional planning, land development techniques, land acquisition acts, Urban Design basics, Planning components like Urban land use & zoning, CBD, urban nodes, fringe area and suburbs, Visual structuring, urban design survey, preparation of local area planning

## **Module-8**

### **Environmental impacts of cities**

Environmental problems like Ozone depletion, Global warming, Carbon dioxide concentration, etc., Sustainable Development, Brundtland Commission's report (1983), Earth Summit & Rio Declaration (1992), Kyoto Protocol (1997)

Recent developments, Sustainable & Green building constructions, Ecology and city, Sustainable settlements, Waste management issues, Waste recycling, Solid Waste Management, House hold waste, Recycling techniques, Composting at home, Town/ city level recycling, Water conservation issues, Reasons for water scarcity, Needs of water conservation, Ground water depletion, Water efficient landscaping, Gray & Black water, Water recycling, Water conservation, Rain Water Harvesting, Rain data of Kerala, Capacity calculations for water harvesting tanks, Conservation of other natural resources, Ecological Footprint, Carrying capacity, Impact of urbanization on cities, Urban environmental problems, Land use, traffic and road network, Environmental Impact Assessment

## **Module-9**

### **General Knowledge, Current Affairs & Renaissance in Kerala**

#### **Salient Features of Indian Constitution**

Salient features of the Constitution - Preamble- Its significance and its place in the interpretation of the Constitution.

Fundamental Rights - Directive Principles of State Policy - Relation between Fundamental Rights and Directive Principles - Fundamental Duties.

Executive - Legislature - Judiciary - Both at Union and State Level. - Other Constitutional Authorities.

Centre-State Relations - Legislative - Administrative and Financial.

Services under the Union and the States.

Emergency Provisions.

Amendment Provisions of the Constitution.

#### **Social Welfare Legislations and Programmes**

Social Service Legislations like Right to Information Act, Prevention of atrocities against Women & Children, Food Security Act, Environmental Acts etc. and Social Welfare Programmes like Employment Guarantee Programme, Organ and Blood Donation etc.

### **RENAISSANCE IN KERALA**

#### **Towards A New Society**

Introduction to English education - various missionary organisations and their functioning- founding of educational institutions, factories, printing press etc.

#### **Efforts To Reform The Society**

##### **(A) Socio-Religious reform Movements**

SNDP Yogam, Nair Service Society, Yogakshema Sabha, Sadhu Jana Paripalana Sangham, Vaala Samudaya Parishkarani Sabha, Samathwa Samajam, Islam Dharma Paripalana Sangham, Prathyaksha Raksha Daiva Sabha, Sahodara Prasthanam etc.

##### **(B) Struggles and Social Revolts**

Upper cloth revolts. Channar agitation, Vaikom Sathyagraha, Guruvayoor Sathyagraha, Paliyam Sathyagraha. Kuttamkulam Sathyagraha, Temple Entry Proclamation, Temple Entry Act. Malyalee Memorial, Ezhava Memorial etc.

Malabar riots, Civil Disobedience Movement, Abstention movement etc.

### **Role Of Press In Renaissance**

*Malayalee, Swadeshabhimani, Vivekodayam, Mithavadi, Swaraj, Malayala Manorama, Bhashaposhini, Mathnubhoomi, Kerala Kaumudi, Samadarsi, Kesari, AI-Ameen, Prabhatham, Yukthivadi, etc*

### **Awakening Through Literature**

Novel, Drama, Poetry, *Purogamana Sahithya Prasthanam, Nataka Prashtanam*, Library movement etc

### **Women And Social Change**

Parvathi Nenmenimangalam, Arya Pallam, A V Kuttimalu Amma, Lalitha Prabhu.Akkamma Cherian, Anna Chandi, Lalithambika Antharjanam and others

### **Leaders Of Renaissance**

Thycaud Ayya Vaikundar, Sree Narayana Guru, Ayyan Kali.Chattampi Swamikal, Brahmananda Sivayogi, Vagbhadananda, Poikayil Yohannan(Kumara Guru) Dr Palpu, Palakkunnath Abraham Malpan, Mampuram Thangal, Sahodaran Ayyappan, Pandit K P Karuppan, Pampadi John Joseph, Mannathu Padmanabhan, V T Bhattathirippad, Vakkom Abdul Khadar Maulavi, Makthi Thangal, Blessed Elias Kuriakose Chaavra, Barrister G P Pillai, TK Madhavan, Moorkoth Kumaran, C. Krishnan, K P Kesava Menon, Dr.Ayyathan Gopalan, C V Kunjuraman, Kuroor Neelakantan Namboothiripad, Velukkutty Arayan, K P Vellon, P K Chathan Master, K Kelappan, P. Krishna Pillai, A K Gopalan, T R Krishnaswami Iyer, C Kesavan. Swami Ananda Theerthan , M C Joseph, Kuttippuzha Krishnapillai and others

### **Literary Figures**

Kodungallur Kunhikkuttan Thampuram, KeralaVarma Valiyakoyi Thampuram, Kandathil Varghese Mappila. Kumaran Asan, Vallathol Narayana Menon, Ulloor S Parameswara Iyer, G Sankara Kurup, Changampuzha Krishna Pillai, Chandu Menon, Vaikom Muhammad Basheer. Kesav Dev, Thakazhi Sivasankara Pillai, Ponkunnam Varky, S K Pottakkad and others

### **GENERAL KNOWLEDGE AND CURRENT AFFAIRS**

General Knowledge and Current Affairs

***NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.***