Syllabus for the Post of Dy.Planner

Total Marks:- 100 **Exam. Duration :- 90 minutes**

1. **Aptitude Test (25 Marks)**
   - Questions of general interest and importance acquired by general observation or reading without specific text book study; subjects of national importance.
   - The standard of general knowledge may not be more rigorous than 12th standard.

   Aptitude test will consist of following topics of 5mark each-

   1. Numeric ability
   2. General awareness
   3. General intelligence
   4. English
   5. Marathi

2. **History &Theory of Urban Planning (75 Marks for Domain Questions)**

   2.1 **Brief History**

   - Brief history of human settlements, from Stone Age and milestones, in prehistoric to historic period. Evolution of physical forms as a result of geographical, geological, climatic, social, economic, political, and technological aspects of human settlements.
   - Ancient river valley civilizations (Egyptian, Mesopotamian, Indus valley and Chinese).

   2.2 **History of Indian Town Planning**

   - Settlements in prehistoric, Vedic, Harappan (Dholavira, Lothal, Surkotada, Banawali, Kalibangan, Mohen Jo Daro etc.) unto invasion of Turks in 1206 AD, Types of plans Described in Vedic Scripts (Swastika, Karmukh, Dandaka, Padmaka etc.)
   - Settlements and their physical forms during various dynasties upto 18th century and during colonization (Case studies - Jaipur, New Delhi etc.), Town planning after independence (Case studies - Chandigarh, Gandhinagar etc.
     Human Settlements and Physical Form
   - Town plans, during Sumerian, Egyptian, Crete - Minon and Mycenean, Greek, Roman, Mediaeval, Byzantine, Renaissance and Baroque period. (Case studies - Deir El Medine, Kahun, Ur, Uruk, Tape Gawrs, Tel, El Amarna, Babylon, Gournia, Knossos, Palaikastro, Athens, Miletus, Olynthus, Prine, Rome, Pompeii and Thebes etc.)

   3.3 **Town Planning in 18th Century**

   - Industrial revolution, Transition to the industrial city.
   - Evolution of towns as per the functions of the towns, Constraints on city form
   - Elements of urban structure - Networks, Buildings, open spaces etc.
   - The form of the modern city in the age of automobile - Inner city & Suburban area.
   - Utopian Concepts and Contribution of Planners

   Robert Owen, James Silk, Don Arturo, Soria y Mata, Patrick Geddes, Patrick Abercrombie, Tony Garnier, Le Corbusier, Clarence Perry ,Frank Lloyd Wright. (Case studies - Garden Cities, Satellite Towns, first generation Towns and New Towns).

   3.4 **Theory of Urban Planning**

   - Scope, purpose and methods of Planning, the nature and purpose of Town and Country Planning at National, Regional and local levels.

- The physical planning process and the relation between surveys and plan.
- Land-use planning, determinants of Land Use and of spatial patterns of urban land uses, Concentric Zone model, Sector model, Multiple Nuclei model etc.
- Economic base of the city, sectors of the urban economy and base identification etc.
- Various surveys for physical planning and techniques of Analysis realization of the plan.
- The parts of the town and their relationship, planning standards, site layout and development, zoning and density control.

3.5 **Spatial Aspects**

- Settlements–rural and urban settlements in their regional setting hinterlands. Towns and cities their geographical characteristics.
- Urban concentrations and growth characteristics factors, historical, administrative, location, economic, socio-economic consequences. The essential characteristics of city/town, importance of morphological aspects in town planning.
- Geological factors affecting urban development. Urban geological factors governing the growth of ancient cities.

3.6 Urban Models

- Classification of towns by form, function,
- The city and its region, Dickson, Smailes, Location, spacing and size of urban settlements, Christaller Theory, etc.

4 Environment & Land Use Planning

- Introduction to Environment, Ecology, Man-Environment relationship, Multidisciplinary approach to Environmental studies, scope and necessity of Environmental Management in town planning.
- Interaction with Man – Systems approach to environmental management, factors of environment-physical, social, aesthetic, Economic and technological environment. Modification in natural environment causes & consequences,
- Impact of advanced agricultural methods Urbanization & industrialization on nature. Ecological balance and ecological degradation in urban areas.
- Environmental Issue – Global issues (1) Global warming (2) Ozone depletion (3) Biodiversity. International agreements and protocols related to these issues.
- Air & noise Pollution; Definition, terminology, Air pollutants effects of air pollution on plants, animals and property, global effects. Climatologically aspects of air pollution, status of air quality in Indian cities, Land use planning & traffic planning as control of noise & air pollution – Air (Prevention & Control) pollution control act. 1981
- Land use planning, principles, strategies and land use planning definitions, framework for LUP, need for LUP, land use control, natural resource base, land use impacts, zoning regulations, land use planning process
- The relationships between economic development and environmental protection; open space and farmland preservation; brownfield redevelopment; transboundary environmental issues; and environmental justice
  Natural Features Protection/ /Engineering Fundamentals: on how the development of land is regulated: how natural features are protected including: storm water management, woodland/wetland/floodplain protection and landscaping
- Engineering geological investigation and interpretation of data for the need of City Planning, designing and construction, terrain evaluation, use of engineering geological maps.
- Problems associated with groundwater, hydrology of cities, Salt water intrusion recharging of Groundwater.
- Foundation of cities, foundation problems with rocks, problems with filled ground etc.

- Materials of city construction, Excavation beneath cities, Volcanicity, seismicity and cities.
- Environmental concerns in town planning - traffic, garbage, sewage, water supply, residential, industrial and commercial zones, etc. Environmentally compatible regional development, Environmental impact assessment and its importance in planning.

5 Transportation & Infrastructure System Planning

5.1 Transportation Systems

- Transport Systems: National, Regional and Local requirements for Transport by road, rail, water and air both for passengers and goods.
- Traffic Engineering: Urban road hierarchy, Road geometric and cross-sectional elements of urban roads, Traffic surveys and their interpretation, traffic capacity, level of service concept, traffic regulation and control, requirements of different types of traffic moving and stationary.
- Design of Urban Roads in relation to different types of traffic, segregation of traffic, etc.
- Parking needs, on and off street parking, estimation of short term and long term parking demand and planning including planning of terminals.
- Planning, engineering and management criteria for road junction
- Traffic management, principles, methods
- Traffic operation plan, its scope and objective.
- Non-Motorise transportation
- Transport and Environment: Detrimental effects of traffic on human life, traffic noise, noise abatement measures.
- Analytical Transport Planning: The quantitative transport planning process, surveys, zoning and network building. Transport model, prediction of future use of transportation systems, transport policy and evaluation.

5.1 Planning for Urban Infrastructure

- Concepts of basic needs, formation of objectives, norms and standards, data requirements for program planning of urban networks and services, feasibility planning studies for structuring the infrastructure systems.
- Planning water supply, resource analysis, quality of water, system design, technological choices and alternatives. Required norms for municipal water supply, water quality modelling.
- Waste generation processes in cities, waste water disposal systems including storm water drainage system types and environmental considerations. water pollution in Indian cities
- Biological concepts in environmental sanitation, low cost sanitation technologies and concepts as related to Indian context.

5.2 Utility Services

- Solid waste disposal , site selection and management
- Other services – planning for fire protection services and space standards, space standards for electricity networks, space standards for burial around cemetery etc.
- Urban Energy systems:- Energy Management, energy requirement, non conventional energy systems, management of solar energy, wind energy, tidal energy, biomass energy, energy from waste. Energy economics, impact of energy utilization on environment, energy efficient housing.

6 Economics of Land Development

6.1 Introduction

- Types of Economics, Positive & Negative Economics, Classical & Non-classical Economics, Macro & Micro Economics, etc.
- Economics & Planning: Land Economics, Urban Economics, Regional Economics, etc.

- Economic Development & Economic Growth: Definitions, Concepts, Characteristics, Comparisons, etc.
- Measurements of Economic Development: Gross National Product, Gross National Product per capita, Welfare, Social Indicators, etc.

6.2 Land Economics

- Value of Commodity, Perfect Market Conditions, etc.
- Land Characteristics: Immobility, Divisibility, Modification, Non-standardised Commodity, etc.
- Attributes of Land: Location, Area, Configuration, Permissibility, Restriction, etc.
- Effect of Govt. Policies & Taxation on Land as Resource, etc.

6.3 Land Uses and Land Values

- Determination of Price of Land: Ricardian Theory of the Land Market, Agricultural Land Rent Theory by Von Thunen, Alonso's Bid Rent Function Theory, etc.
- Determination of Location of Land Uses: Types of Land Uses, Factors Determining Land Uses, Locational Choices, Pattern of Land Use, Invasion & Succession, etc.
- Approaches to Industrial Location Theory: Least Cost Approach, Market Area Analysis, Profit Maximization Approach, etc.

6.4 Nature of Indian Economy

- Stages of Development: Undeveloped, Underdeveloped, Developed, etc.
- Different Criteria of Underdeveloped: Poverty, Ignorance, Diseases, Mal-distribution of National Income, Administrative Incompetence, Social Disorganisation, etc.
- Characteristics of Underdevelopment Country: Poverty, Dualistic Economy, Unemployment & Disguised Unemployment, Backwardness, etc.
- Obstacle to Economic Development: Vicious Circles of Poverty, Market Imperfection, etc.

6.5 Valuation

- Approaches to Valuation
- Cost approach – Land and Building method and Reinstatement / Replacement method.
- Market Approach – Direct comparison, Hypothetical development (layout / building) method, Belting Method. Investment or Income Capitalization approach; Benefit approach (Valuation of Infrastructure Projects).
- Valuation of Properties for various purposes, Sale, Lease, Mortgage, Municipal Taxation, Direct Taxes, Insurance, Assessment of Compensation for Land Acquisition including severance, injuries affection, loss of business etc.
- Compensation – Betterment problem in relation to Planning.

6.6 Public Finance

- Revenue and Expenditure: Sources of Revenues, Taxation Principles, Fees & Charges, Ratable Value, etc.
- Tariff Structure & Cross-subsidization, Cost Recovery; Borrowings, Long Term Development Finance, Servicing & rescheduling, etc.
- Intergovernmental Fiscal Relationship; Fiscal Equalization and Finance Commissions; General & Specific Grants, Assigned & Shared Taxes, etc.
- Public Expenditure: Principles, Revenue & Capital Expenditure; Project Appraisal & Budgetary Techniques, etc.

7 Demography and Statistical Applications

- Sources of demographic data in India, Settlement type, growth pattern and structure: Urban settlement analysis, Concentration: spatial, vertical and size, peri-urban sprawl, economic base, Rural Settlements- size,

occurrence, and character, transformation, Policies towards various size class settlements.

- Population structure and composition- Age, sex, gender, marital status, caste, religion, literacy level etc, Age- sex ratio, structure, pyramid; dependency ratio, occupational structure, Fertility, mortality, migration analysis, natural growth of population, migration and its implications in spatial planning.

8 Housing

- Understanding housing as an important land use component of city plan/master plan, considerations for carrying out city level housing studies, projections, land use provisions,
- Suitability of land for housing, housing stress identification, projecting Housing requirements, calculating housing shortages,housing allocation.

9 Planning Techniques

7.1 Advanced Planning Theory

- Theories of Spatial Concentration, Dispersal, Organization. Contributions of Weier, Christaller, Dosch, etc.
- Types of Regions.
- Delimitation of Regions.
- Techniques of Understanding: Spatial Structure of Regions. Nodes, Growth poles, Hierarchy, Nesting Functions, Rank size Rules, Multiplier Effects Etc.

9.1 City Planning Development Models

- Element of Statistics for Data Analysis, Database Management Systems and G I S. a tool for resource surveys, application in land use, land cover analysis and town planning
- Models as representation of Real World Situations. classification of models, Physical and Abstract, Descriptive, Predictive, Planning Models.
- The rule of Models in the planning process.

9.2 Planning Practice

- Regional Plan, its Implementation, priorities and resources. The problem of Regional Disparity and Diversity with particular reference to India and Maharashtra.
- The purpose and contents of Master Plans, Development Plans etc. planning and controls.
- Reports, Preparation and Presentation.
- Hearing of Objections and Appeals.
- Role of civil and voluntary bodies in Planning.
- Architecture and Urban Design Relationship. Urban Arts Commission, Its function and need in Urban Planning.

10 Laws in Relation to Planning

10.1 Concept of Law, source of Law (Constitution, custom, legislation & precedent - case law), meaning of norms of Law, legislation, ordinance bill, Act, President"s consent, Regulations and Bye-Laws etc.

10.2 Significance of law and its relationship to Urban Planning, Statutory basis for planning. Urban & Rural relationship in planning. Indian Constitution concepts and contents, provision regarding property rights, legislative competence of state and central governments to enact town planning legislation.

History of planning legislation in India and other countries, concept of structure, plans, local plan and action plan under the English Law. current planning Acts and current legal machinery.

10.3 Acts relating to slum clearance, improvements and rehabilitation, housing development authorities, Improvements Trusts, Urban Land Ceiling Act, 1976, urban conservation and restoration, historical monuments, archaeological monuments and sites and remains, landscape and traffic – transportation. Tree Preservation Act 1975, Transfer of Property Act, M.L.R. Code 1965, B. P. M. C. Act 1949, M. M. Council Act, 1965 etc.

10.4 Concept of Arbitration and its related law. Betterment levy and development charge-cess, public participation in statutory planning process.

Acts dealing with compulsory acquisition of lands for public purposes. Payment of compensation as per market value, enhancement of compensation by the Court etc.

10.5 Significance of land development control, objectives and legal tools, critical evaluation of zoning, sub-division regulations, building regulations and bye-laws. Law relating to peripheral development control. Coastal Area Development (C.R.Z.), T.D.R. concept and its legal status etc.

10.6 Statutory planning procedure and conduct of planning inquiries stipulated under M.R.T.P. Act 1966 or such other planning laws prevailing in the State.

10.7 73rd and 74th Amendment to the Constitution and its related impact on the planning process in the State

11 Planning Administration & Professional Practice

11.1 Professional Practice

- Aims and objects of the professional institute, sister bodies, role of professionals and planning consultants, code and conducts of professional ethics and scale of professional charges as laid down by the various Apex Bodies in the Country.
- Planning, Programming of proposals, their outline, management systems – application of PERT and CPM, O- error method and such other systems evaluated for the same. Executing consultancy agreements awarding contracts, inviting tenders, Management aspect.
- Role in inter-disciplinary groups, appreciation of the decision making process and the process in relation to varied consultancy agreements / assignments in planning.

11.2 Planning Administration

- System of Local Self Government in India.
- Planning related Acts in Maharashtra State and its Governance in relation to Planning Process.
- Planning and Development administration at National Level, State Level and District Level and local level of the country.
- Process of decision making, further implementation and execution and management process. Functions and powers, structure and funding resources to the local Government and their performance.
- Identification of other non-Government development organizations and their relationship with local Governments etc.
- Public relation and their effective participation in planning and implementation process. Citizens approach to the planning process and their effective participation in the process.
- Personnel management, manpower planning, performance appraisal, motivation, monitoring and improvement in moral etc.
- Organizational behaviour, organization theory, authority and conflict, leadership in administration, organizational changes.
- Organizational structure and plan implementation agencies.

9.3 Project Formulation

- Introduction to the plan preparation life cycle of the project, project identification, importance of the projects implementation timely, quick formulation of the project and its appraisal, monitoring and evaluation etc.
- Important role of PPM method i.e. planning, programming and its effective management for implementation and execution, costs saving etc. O-error methods, PERT and CPM application.
- Effective decision making by the Physical Planners in the process for the benefit of the public at large.

9.4 Project Evaluation

- Stages in Project Evaluation
- Methods in Project Evaluation
- Cost-Benefit Analysis
- Net Present Value Criterion (NPV)
- Internal Rate of Return (IRR)
- Relation Between NPV AND IRR