

AMET-6: SOCIETY, ENVIRONMENT & ENGINEERING

1. DEFINITION AND SCOPE OF SOCIOLOGY:

Introduction, History of Sociology, Meaning of Sociology, Definition of Sociology, Nature of Sociology, Scope of Sociology, Specialistic OR Formalistic School, Synthetic School of Thought, Conclusion on Scope of Sociology, Differences between Social Sciences and Physical Sciences, Sociology and Other Social Sciences, Sociology and Psychology, Sociology and Anthropology, Sociology and Political Science, Advantages of Study of Sociology, Utility of Study of Sociology to Engineers, Study of Sociology and Democracy, Study of Sociology in India, Methods of Predicting: Preferred and Expected Future.

2. BASIC SOCIOLOGICAL CONCEPT:

Introduction, Society, Basic Characteristics of Society, Factors affecting Social Life of a man, Social factors, Biological factors, External factors, Industrial societies/Technological society, Community, Characteristics of a Community, Comparison between Society and Community, Association, Characteristics of Association, Comparison between Association and Community, Institution, Characteristics of Institution, Significance of Institution, Distinction between Institution and Community, Customs, Difference between Institution and Customs, Customs in Indian Society, Habit, Types of Habits, Difference between Customs and Habits, Folkways, Mores. Distinction between Folkways and Mores, Fashions, Social Utility of Fashion, Factor which cause Fashion to spread in Modern Society, Crowd, Characteristics of Crowd, Theories of Crowd behaviour, Comparison between Crowd and Public, Audience, Mob, Social groups, Classification of Social group, 'Cooley's' classification: Primary v/s Secondary group, Difference between Primary and Secondary group, Social Structure, Role Systems, Role Conflict and Role Strain, Tribe.

3. SOCIAL INSTITUTION:

Introduction, Types of social institution, Origin of society, Theory of Divine origin, Force theory, Patriarchal and Matriarchal theories, theory of social contract, Organic theory, Group mind theory modern theory, Socialization, Types of socialization process of socialization, Factors responsible to socialization, Advantages of socialization. Family characteristics of a family, classification of family, Functions of family, changing characteristic of modern family, future of family, joint family, characteristics of joint family, Advantages of joint family, Disadvantages of joint family system. Future of joint family, Nuclear family or conjugal family, Marriage forms of marriage, Advantages of monogamy, selection of marriage. Partners. Divorce Reasons for Divorce, Marriage system in India, Hindu marriages Act. Divorce under marriage act 1955. Marriage and family in India – some recent trends, dowry, how to curb this customs, religion, characteristics of religion, Religion and morality, Distinction between Religion and morality. Education functionalist aspects of Education – Role of social control. Challenges to Education, Reforming Educational system – practical measures to remove illiteracy. Measures to reduce illiteracy – full Literacy, Multiplicity of Language – 3 language formula. Write in diversity.

4. SOCIAL CHANGE

Factors of social change, social movements, Types of social movements. Theories of social change, Resistance to social change. General continues responsible for social change. Causes responsible for opposition to social changes. When are changes favoured ? Conflicts, causes of conflict, forms of conflict, co-operation social advantages of co-operation. Conflict and co-operation, competition, Distinction between competition and conflict, social progress, social invention, social evolution, characteristics of social evolution, difference between social evolution & social progress, social evolution & social change, Effects of conflict in social change, role of sociologists in Promoting social change, Social disorganization, Causes of social disorganization, Symptoms of social disorganization, Difference between social organization and Disorganization.

5. SOCIAL CONTROL:

Social control and self control necessity of social control , means of social control informal means of social control formal methods of Social control . Agency of social control , person's views about systems, cybernetic communication and control

6. SOCIAL PROBLEMS:

Deviance , social problems classification of social problems, causes of social problems some important social problem , major social problems.

7. CULTURE:

What culture is ? , characteristics of culture. Concept connected with culture characteristics of lag, causes of culture lag , civilization .

Difference between culture and civilization .Acquired behaviour, culture Diffusion.

8. CAPITALISM, MARXISM AND SOCIALISM:

Some important features of capitalism. Advantages of capitalism, Disadvantages of capitalism , communism or Marxism. Basic features of communism, Difference between capitalism of communism, socialism, silent features of socialism. Difference between socialism and communism.

9.SOCIOLOGY AND TECHNICAL CHANGES:

Science and society , Advantages of science and technology in the economic Development , Technology and women , Influence of Technology on social Institutions , Influence of family systems, Demerits, Influence of technology on religion influence of technology on rural life. Influence of Technology on Urban life, social effects of technology, Technology and planning process of nation.

10. HISTORICAL PERSPECTIVE:

Introduction, phases in development of Technology , Science & technology in India after independence . Technology policy statement 1983. Role of Science and technology in development. Super conductivity programme , Instrument development program. Natural

resources date management systems, Nuclear power program, Indian space program. Technology. Development in Electronics, Results of planning , science policy resolution of 1958, manpower Development , Impact of Science & Technology in various sectors.

11. TECHNOLOGY ASSESSMENT AND TRANSFER:

Introduction , meaning of Technology Assessment and Transfer what Technology is information Technology , Technology Assessment , Importance of Technology, Technology forecasting and up gradation, Appropriate. Technology, criteria for success of Technology Transfer,

Transfer of technology from laboratory to field.

12. CYBERNETICS:

Introduction, what cybernetics is ? control system

13. ENGINEER IN SOCIETY:

Introduction, optimization, Limitations of optimization , concepts of optimization . Advantages of optimization, Methods of optimization operation research , optimization of Human Resources . Important of Human Resources, Human Resources planning, Needs and strategies for Human Resources planning, factors affecting manpower planning . Responsibility for Human Resource planning , work rules , wage , factors affecting wages , methods of wage fixation optimum use of capital resources, capital , Types of capital , capitalization , Banking

Classification of bank: Credit instruments optimum utilization of material resources , material Handling , Principles & functions of materials Handling material Handling Devices , manual handling , mechanical handling, conveying equipment , Transportation and transferring equipment , Lifting, lowering or elevating equipment , Productivity , Labour productivity, importance of productivity, Benefits of productivity measures of increase of productivity, Automation , formulation of problem , formulation of problems and alternative solution. Strategies, Alternative solution strategies ; The principle of limiting factor, the basic process of Evaluation; maintenance of Public system, Defense & Security requirements.

14. INFLATION AND POVERTY:

Inflation, causes of Inflation in India, measures to control inflation and deflation; poverty, Industrialization of country; conclusion.

15. ENVIRONMENTAL DEGRADATION AND CONTROL:

Meaning of Environment ; Environment pollution, pollution, classification of pollutants; Effects of pollution on Living systems, causes of Environmental pollution , Kinds of pollution, suggestion for improving , atmospheric pollution , Environmental control monitoring of environmental pollution , Air pollution, classification of air pollutants, sources of Air pollutants, Geographical factors affecting air pollution , Effects of Air pollution ,prevention

and control of Air pollution, water pollution, sources of water pollution, Effect of water pollution , water Analysis, waste water; its treatment and Environments, waste water treatment , stages of waste , water treatment , treatment and disposal of sewage, treatment of sewage. Industrial waste treatment and Disposal , Treatment of Effluent, Standards for drinking water, water treatment process, some suggestions for reducing water pollution , Role of Engineer in Environmental protection , Ecological imbalance and its Effects,

16.PLANT LAYOUT AND SITE SELECTION:

Introduction , Nature of location decisions, choice of site for location, Urban Area, selection of Site in Rural Area, Suburban Area, Comparison of site for location of facilities , models of location of service facilities, Economic survey for site selection , plant layout , Advantages of good layout , Principles of plant layout, Types of plant layout , Fixed position Layout process layout, product layout, combination layout, Selection of space requirement in layouts.

17. PERSONAL MANAGEMENT:

Defination of personnel management, importance of personnel management, principle of personnel management objectives of personnel management functions of personnel management , Recruitment and selection of employees. Manpower planning ; objectives of manpower planning , Types of manpower planning , steps in manpower planning , Procedure of appointing an employee in a factory , Training and Development, principles of Training ,methods of Training , Industrial safety , Accident Human causes, Effect of accidents, Effect to the Industry , Effect on worker, cost of society, Types of Accidents , Safety procedures.

Ways to prevent or minimize Accidents , Accident reporting and Investigation, Investigation of causes Precautionary measures for maintaining . Industrial Health, Incentives premium OR Incentive Bonus system, Essential s of a Good Incentive systems, Understanding duties of other officials in Department. Duties of Maintenance Engineer. Duties of safety officer, Duties of Security officer.

18.INDUSTRIAL ACTS:

Introduction, Indian Boiler Act 1923, The Indian factories Act 1948, Health provisions. Important provisions of the factory Act regarding safety of workers, welfare provisions , penalties for breach of provisions of the act, Indian Electricity Act, Supply & Use of Energy, The Employee's State Insurance Act 1948, Workmen's compensation Act, The Industrial Dispute Act,1947, Strikes and Lockouts, The payment of wages Act 1936 , The Indian Trade Union Act, 1926 , Minimum Wages Act 1948.

19. STANDARDS:

Indian standard Institution, BIS Publications, ISO-9000 Quality systems.

20.FUNCTIONS OF MANAGEMENT:

Difference between Management , Administration, Organization, Functions of management , Planning , Production planning and control , steps in production planning and control , Routing procedure of Routing , Scheduling & Loading scheduling and loading , Advantages of planning. Management by objectives, forecasting , Types of forecasting , organizing , meaning of organization, purpose of organizing, Advantages of organization. Classification of organization , Hirarchy systems of organization, Advantages & Disadvantages of scalar systems , Types of organization structures, functional organization, communication objectives of communication, communication process model superior subordinate communication ,

Types of communication systems , Advantages of oral communication systems , Disadvantages of oral communication systems, written communication, Directing , Nature of Directing, Principles of Direction, controlling , characteristics of Good control systems, co-ordination, Tools of co-ordination, Types of co-ordination, principles of co-ordination, co-ordination Vs co-operation. Motivation Importance of motivation, Techniques of motivation, Methods of participation, Extent of worker's participation in management, worker's participation in Indian Industries, Human needs, Importance of fulfillment of needs, maslow's theory of motivation, Leadership, leadership Style.