Syllabus for the post of Skill Assistant Professor

Section A: Skill Aptitude Test (Common for All) 50 Marks

Syllabus: Annexure I

Section B: Domain Test (For the Applied Post) 50 Marks

Syllabus: -

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Skill Aptitude Test

Section-A

50 Marks

The syllabus for part A: teaching / training aptitude in skilling related to Technical and Vocational Education Training (TVET).

Introduction:
Frameworks of skill based learning/teaching; Role of a trainer in skilling environment, pedagogy/andragogy curriculum development and effective delivery; workshops, entrepreneurship and placement, soft skills classroom and seminar management. The aptitude of the candidate to steer industry engagement, using various educational tools, case study methods, skill assessment method, developing curricula for various levels, exposure of online tools, teaching & training and research exposure.


Knowledge, Skill and Attitude: - A Classification Schema for Skilled Performance (Dimension 1: The Domains of Performance, Dimension 2: The Reproductive/Productive Scale, Distinction between Factual knowledge and conceptual knowledge, The Structuring of Knowledge in the Mind)

Quantitative statistics: - Data gathering, Hypothesis testing, Result Presentation and application tools of Basic Statistical Analysis and variance (Measures of Central Tendency, Measures of Variability, Correlation)

Instruction Design: - Broad Levels of decision Making with instruction designing on skilling (Course level, Lesson level, Instructional event level, Learning step level), The Control of Instructing, Prescriptive and Student Controlled systems, IT Enabled Intelligent Systems like LMS etc. Organising Course Materials: - Lecture notes, View graphs, Free run videos, Web based lecture notes, Interactive CBT, MOOCs.

Knowledge and Skill: - Knowledge management, Comparison of Expositive & Experiential strategies, teaching methodologies for the teaching of knowledge & skills, selecting strategies for delivering and implementation of chosen strategy. Methods specific to the objectives of sub-category; the content and the students, Identifying critical sub-skills, research temperament.

CRITERIA FOR SELECTION TO THE POST OF REMOTE SENSING/GEOGRAPHIC INFORMATION SYSTEM (GIS)

Section-A

Domain Knowledge


Unit-IV. Basics of Geostats: Meaning and objectives of measures of central tendency, different measure viz. arithmetic mean, median, mode, geometric mean and harmonic mean. Measure of variation viz. range, quartile deviation means deviation and standard deviation, co-efficient of variation and skewness, Histograms, Distributions and density. Meaning of correlation, types of correlation – positive and negative correlation, simple, partial and multiple correlation, methods of studying correlation; scatter diagram. Introduction to regression, lines of regression, co-efficient of regression, coefficient of determination, standard error of estimate. Existing statistical models, comparison and significance of different statistical technique, application of Geostats to satellite imagery.


Geostats for spatial and spatio-temporal data: Spatial variations and sampling plans, spatio-temporal reference parameters, Introduction to geo-stats, implications of applying geo-stats, geostatistical mapping. Types of models. Selecting the right spatial prediction technique, example of regression krigging, spatial prediction of categorical variables, geostatistical simulations, fields of applications, probability maps. Usage of R software for statistical computing, libraries required for running simulation, reading KML files to R, exporting raster and vector maps to KML. Sampling optimization algorithms, exploratory data analysis: sampling design, automated mapping. R package required for implementing point patterns, density estimation using kernel smoothing and covariates, point pattern analysis.
CRITERIA FOR SELECTION TO THE POST OF PUBLIC HEALTH

Section-A

Domain Knowledge


Conflict – Definition, Traditional Vs Modern view of conflict Types of conflict- intra personal, interpersonal, organizational;

Leadership –Definition, Importance, qualities of leaders, types of leaders – autocratic, democratic, free – rein; Personality- Attributes of personality, Type, Ego state, Johari window. Time Management

Modern Management Techniques.

Unit-II. Health Informatics & Health Technology: Scope and history of health information technology, electronic medical records (EMRs), overview of healthcare delivery, clinical workflow analysis. Advancements in field of health IT, data collection and transmission by the help of technology, use of mobile phones and smart bands. Introduction to healthcare, ethics, challenges, standards & future, important healthcare/medical laws in India medical professional. Redesign, security, privacy, and confidentiality of patient data, as well as mandatory policies regarding data handling and reporting.

Unit-III. Medical Tourism & Health Insurance: Introduction to healthcare and medical tourism, ethics, challenges, standards. Future of medical tourism important healthcare/medical laws in India medical professional. Health Insurance, Contract, various laws of Insurance, fundamentals of health insurance. Social health insurance, Voluntary health insurance, Third party administrators, Community health insurance, Government insurance schemes, Indian healthcare case laws. Challenges in health insurance, limitations of various schemes, Future of health insurance in India.

Unit-V. Epidemiology and National Health Program: Definitions, Basic concepts and overview of terms in use, Natural history of a disease, Steps in natural history of a disease, Application of natural history in disease control, Levels of prevention for specific diseases, Modes of intervention in public health, Overview of descriptive epidemiology, Time place and person, Descriptive designs, Measurement of disease frequency, Person-time exposure, Cumulative Incidence, Incidence density, Point prevalence, Period prevalence, Rate and proportion. Epidemiological study designs Overview of study designs Descriptive studies Ecological studies, Analytical studies, Disease surveillance, Remerging and emerging diseases and containment measures/ controls. Objectives for Randomized control trials:
1. Understand the design features of randomized controlled clinical trials.
2. Understand strengths and limitations of a randomized clinical trial.
3. Understand the use of random allocation and blinding in RCTs.
4. Be able to identify the most suitable study design to use to investigate a given exposure/disease relationship.

Evolution of National Health Programmes, various national health programmes, Evaluation of a health programme, their role and effectiveness.


Unit-VII. Survey Design Methods, Health Communication and Promotions: Pre survey formative research Conduct of surveys Quality control and assurance in surveys Survey data analysis Ethical issues in surveys Sampling and sample size calculations Tool development. Identify appropriate research designs for a range of questions in health Describe the steps involved in planning and conducting a research project Evaluate the strengths and weaknesses of various data collection methods. Communication: Process, Types, Barriers to effective communication; Health communication and health promotion: Functions of Heath Communication, distinguish health-related behaviour by health-related needs; Behaviour change communication vs. Risk communication; Social and cultural factors affecting the health of populations: Socio-economic and demographic factors Individual, interpersonal and community behaviour; Social Marketing, Community engagement and Participatory Models, Behaviour change communication. Introduction to health promotion, Foundations for health promotion, Social determinants and health promotion, Communication strategies for health promotion and Overview of current national health policies, national health program their health promotion strategies. Steps in Planning, Strategy Development and Implementation; Mass communication strategies for health promotion, Entertainment Education & Infotainment; Technology and Health Communications. Drunken driving: social and personal responsibilities and control measures, Stigmatization of health conditions, Behavioural issues in children and teens: substance abuse, suicide patterns, TV and other media as influencers of healthy/non healthy lifestyle, Setting based approach – Ottawa charter. Developing messages; Effectively communication to the masses; Targeted and target-free communication approaches; Examples and practices in communication. Use of ICT and E-health platforms; Rationale and use of ICT platforms, Discussion of ongoing efforts, understanding implementation strategies, Group exercise using case studies from India and other countries.
Unit-VIII. Healthcare systems and Urban health: Introduction to Health Systems and the building blocks of a Health System, Overview of urbanization and development challenges in India. Urban health problems, indicators, prevention, socio-economic disparities and interventions. Understanding the individual components: Part 1 Human Resources in Health, Understanding the individual components: Part 2 Service Delivery: Health care at low cost. Introduction to Health Sector Reforms, Health problems in special groups – Urban Migrants, Urban poverty and magnitude of under nutrition, Health indicators in urban India, Urbanization and chronic diseases. First Referral Units, Existing urban health programs and policies in India. Government Health care delivery structure in urban areas. Review National urban renewal mission, 12th five-year plan and challenges in addressing urban health issues in India Class presentations.


Research Methodology for Healthcare: Nature and Scope of Research- Conceptual Foundations; Over view of the research process; Introduction to the concepts and procedures of research in detail. Uses of research in public health, Formulation of research problems, writing research questions. Review of Literature - Literature review and its importance in research; theoretical framework for reviewing the literature; linking what it is proposed to examine and what has already been studied, Writing Research Proposal – Contents of Research Proposal, Measurement Procedures, Structure if the Report, Problems and Limitations Format and contents, Rationale of Research. 16 Hours Hypothesis Testing - What is a hypothesis? Characteristics of a good hypothesis; Null and alternate hypothesis, level of significance, decision rules, Type 1 & Type 2 errors and one tailed and two tailed tests; Hypothesis testing procedure; Choosing the statistical method; Types of tests; Basic tests on small and large samples; Applications based on Ztest, t-test, Chisquare tests, Applications based on Non-parametric tests, ANOVA (F-Test), Multiple Regression Analysis Unit VI: Report Writing, 5 Hours Research Report Writing - Basic requirements of report writing and report format; meeting the necessary assessment criteria; Citations-In-text citation and referencing, Bibliography; Impact Factor of the Journal. Data Collection Methods - Types of data – Primary data versus Secondary data; Methods of data collection-Survey methods {Focus Group Discussions (FGDs), In depth Interview, key in formant interviews, transact walk} Questionnaires, Personal Interview, Telephonic Survey, Electronic Media) Measurement and Scaling - Measurement –Types of data; Criteria for good measurement; Types of Measurement Scales; Attitude and Behavioural Scales. Research Design: Various approaches and Strategies - Main research approaches; Research Designs based on the nature of the problem/investigation; Techniques of data collection; Concepts of Validity and Reliability; Ethical issues implied in the research design Sampling Methods - Need for Sampling; Sample designing process; Sampling Techniques; Non-probability versus Probability Sampling Techniques.

Planning, Supervision, Supply Chain Management and Evaluation of Public Health Program: Planning in health, planning at various levels- SC, PHC, Block, District. Development of SCM concepts and Definitions – key decision areas – strategic; Supply Chain Management


Unit-IX Health Economics & Health Finance CODE: Key concepts of economics, micro and macroeconomics, Strategizing and prioritizing within scarce resources (decision making), Determinants of demand, supply and costs of production. Concepts of efficiency, effectiveness, equity, elasticity of demand, costing, production marginal cost analysis, and opportunity cost, Universal health coverage and role of health care financing. Principles and application of economic evaluation in healthcare including Cost Benefit Analysis (CBA) and Cost Effective Analysis (CEA), The application of benefit cost analysis to public health and family planning projects, value of output-loss due to no. of sick days. Economics of health Programme: - For nutrition, diet and population control, economics of abuse of tobacco and
alcohol, Environmental influences of health and its economic impact, economics of breast feeding. A review of per capita private and public expenditure on health services over time and in different parts of the country. An analysis of the sources of (public) finance for health. The need for a general health insurance due to failure of private health insurance markets. The need for a social health insurance for the poor, disabled and the aged. A comparative analysis of alternative payment systems such as health insurance. Global (especially US, UK, Canada, China, Sri-Lanka and Thailand) and Indian Scenario, Stakeholder Analysis.

CRITERIA FOR SELECTION TO THE POST OF MEDICAL LABORATORY TECHNOLOGY

Section-A  50 Marks

Domain Knowledge

Knowledge at the post-graduation level in following broad areas

1. Human Anatomy & Physiology
2. Clinical Biochemistry
3. Clinical Pathology
4. Clinical Microbiology
5. Physiology & Nutrition
6. Biostatistics & Hospital Management
7. Clinical Haematology
8. Advance Instrumentation & Maintenance
9. Lab Management
10. Blood Transfusion & immune haematology
11. Diagnostic Microbiology
12. Basic Cellular Pathology & Allied Technology
13. Biomolecules
14. Cellular pathology
15. Metabolism
16. Enzymology
17. Clinical Molecular Biology
18. Clinical Immunology
19. Medical Laboratory Techniques