TANTIA UNIVERSITY, SRI GANGANAGAR

Syllabus Entrance Examination for Ph.D.

Medical Physiology

Maximum Marks-100
Part A- 50 (Research Methodology)
Part B- 50 (Subject Wise)

PART-A
Research Methodology and Statistics

UNIT 1: Meaning of Research
Aims, nature and scope of research
Prerequisites of research

UNIT 2: Research Problem
Meaning of research problem Sources of research problem Characteristics of a good research problem
Hypothesis: Meaning and types of hypothesis. Research proposal or synopsis.

UNIT 3: Types and Methods of Research
Classification of Research
Pure and Applied Research
Exploring or Formulative Research
Descriptive Research
Diagnostic Research/Study
Evaluation Research/Studies
Action Research
Experimental Research
Historical Research
Surveys
Case Study
Field Studies

Unit 4: Review of Related Literature
Purpose of the review. Identification of the related literature. Organizing the related literature.

UNIT 5: Data Collection (Sampling) Sampling and Population Techniques of sampling Selection Characteristics of a good sample Types of data.

UNIT 6: Tools of Data Collection
Observation, Interview, Questionnaire, Rating scales, Attitude scales, Schedules, Characteristics of good research tools.

UNIT 7: Statistics

Concept of statistics, relevance in education, parametric and non-parametric data; graphical representation of data: histogram, frequency polygon, ogive and pie chart; Measures of Central Tendency: concept, computation and interpretation; measures of variability: concept, computation and interpretation; normal probability curve: concept, application and interpretation.

Correlation: concept, computation and interpretation- Product Moment, Rank Order, Biserial, Point Biserial, Phi, Contingency, Tetrachoric; significance of mean: concept, computation and interpretation of significance of t-test(correlated and uncorrelated, matched, paired-unpaired, matching- paired); ANOVA(One way) :concept, computation and interpretation, regression and prediction; chi square: concept, computation and interpretation (equal and normal probability).

UNIT 8: Research Report

Format of the research report Style of writing the report References and bibliography

Reference books:

1. Best John W. and James Kahn, V., 1989, Research in Education, Sixth Edition, Prentice-Hall of India Pvt.Ltd, New Delhi.
2. Sharma R.A., 1992, Fundamentals of Educational Research, Loyal Book Depot, Meerut, UP, India.
3. Kulbir Singh Sidhu, 1990, Methodology of Research in Education, Sterling Publishers Pvt. Ltd., New Delhi.
4. Lokesh Koul, 1997 Methodology of educational Research, third edition, Vikas Publishing House Pvt. Ltd. , New Delhi.
5. Kothari C.R., 1990, Research Methodology Methods and Techniques, Wiley Eastern Limited, New Delhi.
6. Borg Walter R., Gall Meridith D., 1983, Educational Research an Introduction, Fourth Edition, Longaman, New York &London.
7. Nitko Anthony J., 1983, Educational Tests and Measurement an Introduction, Harcourt Brace Jovanovich, Inc., New York.
8. Aggarwal Y.P., 1988, Statistical Methods Sterling Publishers Pvt. Ltd., New Delhi.
9. Garret Hnery E., 1985 Statistics in Psychology and Education, Viakils, Feffer and Simon, Bombay.
10. Guilford, J.P., and Benjamin Fruchter, 1982 Fundamentals of statistics in Psychology and Education, Fifth edition, Mc Graw-Hill Book Company, New York.
11. Gupta S.C. and Kapoor V.K., 1999, Fundamentals of Mathematical Statistics, Sultan Chand& Sons Educational Publishers, New Delhi.
12. Grewal P.S., Methods of Statistics Analysis, Sterling Publishers Pvt. Ltd., New Delhi.
13. Bruce W. Tuckman, Statistics in Psychology and Education.

Part-B (Subject Wise)

Medical Physiology

Bio-Physics and Bio-Chemistry and Physiology (Including Histology) of Muscles, Nerves, Circulation and Respiration. Physiology (Including Histology) except subjects included in the First Paper. Comparative Animal Physiology and History of Physiology, Genetics and Principles of Bio-statistics.

1. Fundamental phenomenon of life, cells, tissues and organization of body.
2. Blood – its composition and functions, blood volume, plasma proteins and its functions, coagulation of blood, Blood groups. Transfusions, haemorhage and shock, Origin of blood cells, Bone marrow, Haemoglobin and its derivatives.
3. Cardiovascular system: Properties of cardiac muscle, origin and initiation of heart beat, Cardia Cycle, Cardiac out-put, heart sounds, Regulation of the heart, general scheme of circulation. Blood pressure, Vasomotor control and Regional circulations.
4. Respiratory system: Mechanics of respiration, Uptake of Oxygen, caebondioxide carriage, Anoxia and Regulations of respiration.
5. Digestive system: Balanced diet, food, nutrition, Vitamins, various secretions of the digestive tracts, their functions, movements of the alimentary canal and obsorbtion.
6. Excretory system: Structure of kidney, formation of urine, Physiology of Micturation, body temperature regulation. Structure and functions of skin, Body fluids and their regulation.
7. Nervous System: General features of the nervous system, structure and functions of spinal cord, Posture and Equilibrium, Functions of brain system, Corpus Strirum, thalamus, hypothalamus, functions and connections of Cerebellum and Cerebrum, Autonomic Nervous System, Cerebo Spinal Fluid.
8. Special Senses: Physiology of vision, hearing, taste and smell.
9. Endocrines and Reproduction: Physiology of various endocrine glands, male and female sex hormones, menstruation, ovulation and physiology of pregnancy.
10. Muscles and Nerves: Structure, chemistry of muscular contraction.