

## SYLLABUS FOR M.Phil. ENTRANCE TEST

### Selection (A) Research Methods

**30 Marks**

- I. a Characteristics of research worker.
- b Types of research –basic, applied and action research.
- II. a Formulation of research problem.
- b Location and criteria of selection a research problem.
- c Limitations and delimitations.
- III. a Meaning and definition of Hypothesis.
- b Significance of Hypothesis.
- c Types of Hypothesis.
- IV. Non-Laboratory research.
  - 1. Historical research-meaning, historical sources and their evaluation.
  - 2. Survey studies-Questionnaire, Interview and case studies.
- V. Laboratory research.
  - 1. Experimental research.
  - 2. Meaning designs and control of experimental factors.
  - 3. Experimental designs and control of experimental factors.

### Section (B) Applied Statistics

**30 Marks**

- I. Statistical processes and their application in research.
- II. a Probability – Meaning and methods of computing probability.
- b Binomial expansion and computing probability for the obtained scores, problems on dice.
- c Normal curve-definition and properties of normal curve.
- d Divergence from normality – Skewness and kurtosis.
- e Development of norms in the form of grading scales – Hull, sigma T and percentile scales.
- III. a Meaning and definition of Hypothesis.
- b Why sample is preferred over population.
- c Size of sample.
- IV. a Testing of Hypothesis null and alternative Hypothesis.
- b Degree of freedom.
- c Type I and type II errors.
- d One and two tailed tests.
- e Level of significance.

**1. Sports Psychology**

- I. Motor Learning
  - a. Meaning of motor learning.
  - b. Factors affecting motor learning.
  - c. Motor development in various periods of childhood and Adolescence.
- II. Psychological aspects of Competition
  - a. Defining of competition.
  - b. Determinates of competitive behaviour.
  - c. Characteristics-pre-competition, and post competition state.
  - d. Selected psycho-regulative techniques for relaxation and activation.
- III. Psychological aspects of long term and short-term preparation for competition.

**1. Exercise Physiology**

- I.
  - a. Fuel for muscular work (ATP.)
  - b. Energy of muscular contraction.
  - c. Various changes during muscular contraction.
  - d. Aerobic and anaerobic muscular activity.
  - e. Aerobic and anaerobic muscular activity.
- II. Physiological changes due to exercise.
  - a. Immediate effect of exercise/work on various systems of body, cardio-respiratory muscular and thermo-regulatory system,
  - b. Effect of conditioning and training:
    - (i) Heart and circulatory training.
    - (ii) Respiratory system.
    - (iii) Brief discussion on other system during rest, sub-maximal and work.
  - c. Oxygen debt, forced expiratory volume, breathing capacity, recovery rate.
  - d. Blood supply to skeletal muscle and regulation of blood flow during exercise.

**2. Sports Biomechanics**

- I. Linear, angular and general motion
  - a. Distance and displacement (linear and angular)
  - b. Speed and velocity (linear and angular)
  - c. Acceleration for linear and angular motion.
  - d. Relationship for linear and angular.
  - e. Centrifugal and centripetal forces.
  - f. Newton's laws of motion as applicable to linear and angular motion.

- II. a. Force – meaning, units of force, effects of force, sources of force, components and resultant.
- b. Work, power and energy.
- c. Projectiles, momentum and Impulse
- d. Stability (Static and Dynamic)
- e. Spin, impact and elasticity.
- III. Mechanical analysis of fundamental movements.

### **3. Evaluation Techniques in Physical Education**

- I. Selection and construction of tests.
  - a. Criteria of test Selections- Selections authenticity, (Reliability, validity, objective, norms) administrative feasibility and education application.
  - b. Classification of tests: Standardized and teacher made tests (Objective and subjective tests)
  - c. Construction of test: Knowledge tests (Written test) and skill tests.
- II. Critical evaluation of tests for Physical fitness, motor fitness and sports skill tests.
- III. Anthropometric measurement.
- IV. Social & Psychological testing.
- V. Health related Physical fitness.

### **4. Sport Management**

- I. a. Management of sports in schools, colleges and Universities.
- b. Inter- University, District, State and National levels.
- c. India and International Olympic association.
- d. Sports authority of India.
- II. a. Changed process for the future: Theory and technique, system's approach, marketing and sponsorship approach for competitive sports, successful management in future.
- b. Selected problems in management/administration, professional preparation, professional ethics, class discipline and students teaching.

### **5. Health Education**

- a. Concept of Health and Health education
- b. Various levels of Health
- c. Contents of Health education
- d. School Health services
- e. Nutrients and their role
- f. Balanced diet and malnutrition
- g. Housing and air programmes
- h. Family welfare programmes
- i. Sex education
- j. Drugs and alcoholism
- k. Communicable diseases: TB. Malaria, AIDS
- l. Non-Communicable diseases: Heart diseases and diabetes

**SYLLABUS FOR RESEARCH ELIGIBILITY TEST (Ph.D.)**

**UNIT-I  
RESEARCH METHODOLOGY**

1. 1.1 Need and importance of Research in General and with special reference to Physical Education & Sports.  
1.2 Characteristics of Research and Research Worker.  
1.3 Classification of Research in relation to Nature, Methods and Nature of data.
2. 2.1 Formulation of Research Problem.  
2.2 Location and criteria of selecting a Research problem.  
2.3 Limitations and Delimitations.
3. 3.1 Reasons for surveying related literature.  
3.2 Allied and critical Literature
4. 4.1 Hypothesis.  
4.2 Significance of Hypothesis.  
4.3 Types of Hypothesis.
5. 5.1 Historical Research – Meaning, Historical sources and their Evaluation.  
5.2 Survey Studies – Tools of Survey and Case Studies.  
5.3 Philosophical Studies - Meaning, Steps in Critical Thinking
6. 6.1 Experimental Research.  
6.2 Meaning and Nature of Experimental Research.  
6.3 Sources of Experimental Invalidity  
6.3 Experimental Designs: Pre, True and Quasi Experimental designs.
7. 7.1 Research proposal.  
7.2 Research Report.

**UNIT II  
APPLIED STATISTICS**

1. 1.1 Importance of Statistics in Physical Education and Sports.  
1.2 Statistical processes and their application in Research.
2. 2.1 Probability – Meaning and methods of Computing probability.  
2.2 Binomial Expansion and Computing probability for the obtained scores.  
2.3 Problems on disc.  
2.4 Properties of Normal Curve, problem on Normal curve.  
2.5 Divergence from Normality – Skewness and Kurtosis.

- 2.6 Development of Norms in the form of Grading scales – Hull, Sigma, T and percentile scales.
- 3. 3.1 Sampling and Methods of Sampling.  
3.2 Why Sample is preferred over population. Size of the sample.
- 4. Partial and Multiple Correlation, Regression Analysis.
- 5. 5.1 Estimation and concept of interval estimation.  
5.2 Computing reliability limits of mean and standard deviation at 0.05 and 0.01 level of Significance.  
5.3 Testing of Hypothesis – Null and Alternative Hypothesis.  
5.4 Degree of Freedom.  
5.5 Type I and Type II Errors.  
5.6 One and Two Tailed Tests.  
5.7 Level of Significance.
- 6. 6.1 Tests of significance – t test, z test and f Tests.  
6.2 Basic concept of one way analysis of variance.  
6.3 LSD and Scheffe's Tests.  
6.4 Concept to Interaction

**Note:-** Question may also asked on calculation of statistical concept involved in the syllabus.

### **UNIT III**

#### **COMPUTE APPLICATION AND GENERAL AWARENESS**

1. Operating system
2. Block Diagram of Computers
3. Classification of Computers
4. Flow Chart
5. Application and System Program
6. Generation of Languages
7. I/O Devices memory
8. Concept to PC, main frame and Super Computers
9. Compilers, Interpreters and Assemblers
10. Basics of MS-OFFICE