

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN.

Ph. D. (Nursing) Entrance Examination Syllabus

Structure of Question Paper for Ph. D. Entrance Examination

Total 100 Multiple Choice Questions with Four Options (a, b, c, d) Structure of Entrance Examination

The Entrance Examination shall be of objective type with 100 Multiple Choice Questions as per the scheme given below:

Section: I (50 Marks)

- Research Methodology (Subject Wise): 35 MCQ Questions of 35 Marks
- English Proficiency: 5 MCQ Questions of 5 Marks
- Reasoning Ability: 5 MCQ Questions of 5 Marks
- Basic Computer Skill: 5 MCQ Questions of 5 Marks

Section: II (50 Marks)

- Subject Specific 50-MCQ Questions of 50 Marks

Section: I (50 Marks)

Research Methodology

1. CONCEPT OF RESEARCH

- Research – meaning and importance of research, Scientific method, Introduction, scope, characteristics, types, aims and objectives Scope and limitations, Structure of research project.
- Review of literature: methods of preparing literature review; methods of making systematic review
- Research Question – Formulation of Research Problem: Problem identification, formulation and statement of the problem, criteria of selecting a research problem, limitations and delimitations.
- Introduction and scope of research - Definition (objectives, advantage, disadvantage and steps of various Research designs in health sciences
- Various types of epidemiological studies
 - a. Observational studies (descriptive studies, cross sectional studies, longitudinal studies, case study, case control studies, cohort study – retrospective – prospective)

- b. Experimental research: randomised controlled trial; brief introduction to clinical testing (phase 1,2,3,4) Meaning and Nature of Experimental Research
- Applied research tool construction.
Sample – Introduction, type of sampling, advantage and disadvantage of various types of sampling.

Calculation of sample size

2. DEVELOPMENT OF RESEARCH PROPOSAL

- Steps in research proposal
- Selection and statement of problem
- Review of literature
- Hypothesis formulation
- Research design
- Material and methods
- Sample size calculation
- Criteria of subject selection – inclusion and exclusion criteria
- Sample selection
- Statistical analysis: tests of significance
- Sample subject allocation
- Informed consent
- Measurement variables – dependent and independent variables
- Protocol of intervention
- Pilot study
- Statistical analysis: tests of significance

3. CONDUCT OF RESEARCH

- Literature review: need, importance, steps of performing a good literature review identification of types of literature, search strategy, data base, levels of evidence, primary & secondary research.
- Sampling & Data collection: types of data – primary, secondary; presentation of data; tools of data collection: brief description, method of construction, validity, reliability advantage and disadvantage of following.
- Methods Of Data Collection:- Schedule, Questionnaire, Interview, content analysis Observation, case study, use of instruments, case study, self reports other.
- Measurement Scales –Nominal, Ordinal, Interval, Ratio scale
 - ❖ Criteria for good measurement
 - ❖ Attitude measurement (Likert, Semitic, comparatives, non comparatives scale, Thurstone equal appearing Interval Scale
 - ❖ Ranking and rating scales

- ❖ Development of scale – Reliability, Validity, Pilot studies
- ❖ Formation and standardization of scales / tools / questionnaire
- Sampling – Types, Frames, Sample size, Sample errors
- Sampling selection Methods – Random, Non-Random, Otherwise
- Qualitative and quantitative methods (Observation, Focused group discussion, case studies, content analysis, Narrative, Ethnography)

Data collection in experimental research: outcome measures, intervention, experimental protocol, steps of establishing a research laboratory – instrumentation and documentation, standard operating protocol

4. Element of scientific writing

- Structure & components of scientific writing area, types of report, different steps in thesis and synopsis preparation
 - Art of scientific writing – deference between ordinary writing and scientific writing language uses, steps for better writing, organization of material, prewriting consideration.
 - Citation and referencing: citation system – note system – Parenthetical referencing introduction to different citation styles – Harvard style, Vancouver style, judging the quality of publication by citation index, H index, impact factor, ISBN ISSN
 - Structure of various scientific communications for publication: abstract, original article, structure of reports and proposals – research proposal for grants, technical report, progress report, inspection report, feasibility report
 - Writing review paper, evaluation of quality of published paper
 - Presentation of research – poster presentation, platform presentation, graphical presentation, pictorial presentation
- Common reason of paper publication rejections

5. Biostatistics, Ethics and Computer Application in Research

Data analysis/statistics in research

- Measurement of central tendency – mean, mode, median, arithmetic mean, geometric mean
- Statistical test of significance
- Correlation, validity, reliability testing
- Normal distribution curve
- Measure of dispersion
- Parametric statistical testing – Pearson correlation, paired t-test, unpaired t-test, ANOVA, coefficient of variation
- Non- parametric statistical testing – Mann Whitney U test, Wilcoxon sign test, Kruskal Wallis test, Friedman test, Chi square test

- Hypothesis testing – null hypothesis, alternate hypothesis, acceptance/rejection of null hypothesis
- Probability Theories – Conditional Probability
- Correlation and regression analysis

6. Ethics and administration

- Importance of Ethics – Ethical issues in research, general principles & importance of governing research with human and essentiality, informed consent confidentiality, compensation, competence, accountability, transparency, responsibility, risk minimization, special groups as research subjects.
- Features of Helsinki declaration, ICMR code for biomedical research
- Mechanism for ethical regulation of research – ethical review committee – constitution, function
- Legal aspects of research: brief introduction to intellectual property rights, - patent, copyright, design, trademarks, plagiarism
- International frame work of patency, citation & acknowledgement, reproducibility and accountability, Reproduction of published material

Computer applications and Statistics

- Use of work processing,
- spread sheet and database software
- plotting of graphs
- Internet and its application: e mail, Web browsing, acquiring technical skills,
- Drawing inferences from data,
- Database searches on internet and compilation platforms for literature search
- MS-Excel – data entry in spread sheets, graph / histogram/linear graph making,
- Mean, mode, median calculation in MS-Excel, making comparative graphs using MS- Excel
- Presentation of data:- bar diagram, pie-chart, histogram, line diagram, scatter Diagram

Suggested reading:

1. Research methodology – methods and techniques CR Kothari, new age international publishers.
2. Clinical research made easy – Bgandari M Sancheti P, Jaypee Brothers.
3. Medical ethics – Francis Jaypee Brothers.
4. Park text book of social and preventive medicine.
5. Essentials of research methodology and dissertation writing – yelikar Jaypee Brothers

Section: II (50 Marks)

UNIT I: Infection control in Clinical settings: Nature of infection, Chain of infection transmission, Defenses against infection: natural and acquired, Hospital acquired infection, Concept of asepsis, Universal precautions, Transmission based precautions, Biomedical waste management, Nursing management of common Communicable diseases in clinical and community settings , National health and family welfare program, Delivery of community health services: rural, and urban, Health schemes: ESI, CGHS, Health insurance

UNIT II: Nursing Management of patients with respiratory and cardiovascular problems: Acute and chronic infections, Asthma, Chronic Obstructive Pulmonary Diseases, Bronchiectasis, Pneumonia, Tuberculosis, Lung abscess, Pleural effusion, pulmonary embolism, Tumors – Larynx and lung. Hypertension, Arteriosclerosis, Coronary artery diseases: Angina pectoris, Myocardial infarction, Endocarditis, pericarditis, Myocarditis, Valvular disorders, congenital disorders, Cardiac dysrhythmias, Congestive cardiac failure, Anaemia, Cardio Pulmonary Resuscitation, Leukemia

UNIT III: Nursing Management of patients with digestive system problems: Peptic and Duodenal ulcer, pyloric stenosis, Small and large intestinal disorders- inflammation and infection, enteritis, mal-absorption, obstruction, and perforation, Hernias, Liver: inflammation, abscess, cirrhosis, portal hypertension, hepatic failure, pancreatitis, Gall bladder: inflammation, obstruction, stones, Tumours - oral, stomach, colon, Liver

UNIT IV: Nursing Management of patients with genito-urinary problems: Urinary tract infections Nephritis, Nephrotic syndrome, Renal calculus, Acute and chronic renal failure, Dialysis, renal transplantation, Benign prostate hypertrophy, Tumours - Renal, Bladder, Prostate

UNIT V: Nursing Management of patient with disorders of endocrine system: Thyroid and Parathyroid Disorders, Diabetes mellitus, Adrenal disorders, Pituitary disorders

UNIT VI: Nursing Management of patient with musculoskeletal problems: Bones inflammation, infection, dislocation, fracture, Osteomalacia and osteoporosis, Arthritis, Amputation, Prosthesis, Congenital deformities, Spinal column- defects and deformities, Prolapsed inter vertebral disc, Rehabilitation

UNIT VII: Nursing management of patient with neurological disorders: Congenital malformations, Head injuries, Spinal injuries, Infections: Meningitis, encephalitis,

Brain abscess, Brain tumours, Epilepsies, Cerebro Vascular Accidents (CVA), Management of unconscious patients, Rehabilitation

UNIT VIII: Nursing management of patient with disorders of reproductive system: Menstrual disorders, Pelvic Inflammatory Disease, Endometriosis, polyps, Tumours - Cervix, Ovary, Uterus and breast, Fibroids, uterine displacement, Cystocele, Urethrocele, Rectocele, Vaginal disorders; Infections, Fistulas, Diseases of breasts; Deformities, Infections, Cysts, Menopause and Hormonal Replacement Therapy, Infertility, Contraception

UNIT IX: Nursing management of patient in critical care units: Nursing assessment history and Physical assessment, Classification, Principles of critical care nursing, Organization: Physical setup, Policies, staffing norms, protocols, equipment and supplies, special equipments: ventilators, cardiac monitors, defibrillators, Resuscitation equipments, Nursing management of critically ill patient, CPR – Advance Cardiac Life support, Treatments and procedures

UNIT X: Nursing care of a normal neonate, Neonatal resuscitation, Low birth weight baby, Integrated management of neonatal and childhood illnesses (IMNCI), Nursing management of childhood diseases: Nutritional deficiency disorders, Respiratory disorders and infections, Gastrointestinal infections, infestations and congenital disorders, Cardio vascular problem: congenital defects, rheumatic fever, rheumatic heart disease, Genito-urinary disorders: acute glomerulo nephritis, Nephrotic syndrome, Neurological infections and disorders: convulsions, epilepsy, meningitis, hydrocephalus, spina-bifida, Orthopedic disorders: club feet, hip dislocation and fracture

UNIT XI: Nursing management of patient with Schizophrenia, Mood disorders: Bipolar affective disorder, Mania depression and dysthymia: neurotic, stress related and somatization disorders: Anxiety disorder, Phobias, Dissociation and conversion disorder, Obsessive compulsive disorder, somatoform disorders, post traumatic stress disorder, substance use disorders, mental retardation

UNIT XII: Assessment and nursing management of normal pregnancy, labour and puerperium, High risk pregnancy :abortion, ectopic Pregnancy, Ante-partum haemorrhage, Pregnancy induced hypertension & diabetes, Rh incompatibility, Multiple pregnancy, Intra-uterine growth-retardation, obstructed labour, postpartum complications

Recommended books:

1. Perry, A.G., & Potter, P.A. (2017). *Fundamentals of nursing* (9th ed.). Philadelphia: Elsevier.
2. Hinkle, L. J., & Cheever, H. K. (2015). *Brunner and Suddarth's textbook of medical surgical nursing* (13th ed.). Philadelphia: Wolters Kluwer Health/ Lippincott, Williams, & Wilkins
3. Park, K. (2015). *Park's textbook of social and preventive medicine (23rd ed.)*. Jabalpur: Bhanarsidas, Bhanot publishers
4. Hockenberry, M. J., & Wilson, D. (2013). *Wong's essentials of pediatric nursing* (9th ed.). St. Louis: Elsevier.
5. Townsend, M.C. (2014). *Psychiatric mental health nursing: Concepts of care in evidenced- based practice* (7th ed.). Philadelphia: F.A Davis Company
6. Dutta, D. C., & Konar, H. (2016, Reprint). *Text book of Obstetrics: Including perinatology and contraception* (8th ed.). Calcutta, India: New Central Book Agency

Reference books:

1. Taylor, C.R. ,Lillis, C., & Lemone, P. (2010). *Fundamentals of nursing: The arts and science of nursing care* (7th ed.). Philadelphia: Lippincott Williams & Wilkins
2. Lewis, L. S., Dirksen, R. S., Heitkemper, M. M., & Bucher, L. (2014). *Medical surgical nursing: Assessment and management of clinical practice* (9th ed.). Philadelphia: Elsevier
3. Bennett V Ruth, Brown Linda K.(2014.). *Myles Text Book for Midwifery*. (16th ed). Hongkong: Churchill Livingstone
4. Sreevani, R. (2016). *A guide to mental health and psychiatric nursing* (4th ed.). New Delhi : Jaypee
5. Perry, Anne griffin, Potter Patricia. (2013). *Clinical Nursing skills and Techniques*. (8th ed). St. Louis: C.V. Louis
6. Reeder, S. J., Martin, L. L., & Koniak, D. (2014). *Maternity nursing: Family, newborn, and women's health care* (19th ed.). Philadelphia: Lippincott.