SWAMI RAMA HIMALAYAN UNIVERSITY
Ph.D. COURSE WORK, END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: ADVANCES IN BIOCHEMISTRY　　　　　　**Subject Code: PHDBC110**

Time allotted: 3 Hours　　　　　　　　　　　　　　　　**Max Marks: 60**

Note: Attempt all Questions

Q.1.

a.	What are the effects of sodium dodecyl sulphate on proteins?	2 Marks
b.	Explain the terms Native PAGE, denaturing PAGE and reducing PAGE	4 Marks
c.	Discuss principle of SDS-PAGE in detail	6 Marks

Q.2.

a.	Define shuttle vectors.	2 Marks
b.	Write a short note on cosmids, and explain their uses.	4 Marks
c.	How will you prepare RNA from bacterial cell? Explain the process in detail.	6 Marks

Q.3.

a.	Write the relationship equation of energy and wavelength of an EMR.	2 Marks
b.	Write a note on Bremsstrahlung x-rays and its applications.	4 Marks
c.	Explain the properties and applications of γ-rays.	6 Marks

Q.4.

a.	What is genome-wide association study?	2 Marks
b.	Give a critical analysis of the statement "Genomic study can be applied in human personalized medicine".	4 Marks
c.	Describe the methods to locate genes on genomes of an organism.	6 Marks

Q.5.

a.	What is 2 D gel electrophoresis and when do you apply it?	2 Marks
b.	What is protein microarray analysis? Explain the procedure.	4 Marks
c.	Discuss the protein sequencing technique in detail.	6 Marks

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SWAMI RAMA HIMALAYAN UNIVERSITY

Ph.D. COURSE WORK, END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: ADVANCES IN BIOTECHNOLOGY **Subject Code: PHDBT110**

Time allotted: 3 Hours **Max Marks: 60**

Note: Attempt all Questions

Q.1.

   a. Write the names of four food mushrooms. — 2 Marks

   b. What are the sources of solid wastes in Dehradun? Explain how Dehradun city can be made into a green and clean city. — 4 Marks

   c. What are biopesticides? Explain their importance in clean agricultural practices. — 6 Marks

Q.2.

   a. Differentiate between plasmid and cosmid. — 2 Marks

   b. Why is pBR327 better than pBR322? — 4 Marks

   c. Discuss in detail the pedigree of pBR322. — 6 Marks

Q.3.

   a. Comment on interferon through cloned genes. — 2 Marks

   b. Describe the different available methods for the production of vaccines using cloned genes. — 4 Marks

   c. Discuss the uses of molecular probes in medicine with particular emphasis on their use in the diagnosis of disease in human beings. — 6 Marks

Q.4.

   a. What is a transcriptome? — 2 Marks

   b. Discuss transcriptome study through sequence analysis. — 4 Marks

   c. Discuss in detail the transcriptome study by microarray. — 6 Marks

Q.5.

   a. What is the most challenging issue facing genome sequencing? — 2 Marks

   b. Can you apply the knowledge of an individual's genetic information in providing personalized medical treatment? Explain in brief. — 4 Marks

   c. What are protein biomarkers? Explain how they are applied in cancer research and medicine? — 6 Marks

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SWAMI RAMA HIMALAYAN UNIVERSITY
Ph.D. COURSE WORK, END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: ADVANCES IN BRAIN & MIND SCIENCES   Subject Code: PHDBM110

Time allotted: 3 Hours   Max Marks: 60

Note: Attempt all Questions

Unit I

Q.1.

    a. Enumerate the structures involved in limbic system.   2 Marks

    b. Enumerate the various hormones released by anterior pituitary, also briefly mention their role.   4 Marks

    c. Discuss the role of pineal gland in maintenance of sleep cycle.   6 Marks

Unit II

Q.2.

    a. How many mudras are described in Hatha Yoga Pradipika?   2 Marks

    b. Briefly describe the types of kleshas.   4 Marks

    c. Write the theory of Satkaryada.   6 Marks

Unit III

Q.3.

    a. Write a note on the laws of learning.   2 Marks

    b. Explain about the acquired motives with suitable examples.   4 Marks

    c. Describe the relation of emotion with autonomic nervous system.   6 Marks

Unit IV

Q.4.

    a. Write 4 points about alpha waves found in normal human EEG.   2 Marks

    b. Explain unimodal and multimodal association areas of brain and its role in perception.   4 Marks

    c. Describe consciousness, levels of consciousness and write about RAS.   6 Marks

Unit V

Q.5.

    a. Write a short note on mirror neuron.   2 Marks

    b. Discuss the current status of Artificial Intelligence and its utility in clinical neurosciences.   4 Marks

    c. Describe the techniques used in Brain Mapping and write in detail about any one technique.   6 Marks

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SWAMI RAMA HIMALAYAN UNIVERSITY
Ph.D. COURSE WORK, END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: ADVANCES IN EPIDEMIOLOGY

Subject Code: PHDEP110

Time allotted: 3 Hours

Max Marks: 60

Note: Attempt all Questions

Q.1.

a. Define the term incidence and prevalence duly illustrated with a suitable example. 2 Marks

b. Discuss the role of various types of errors in epidemiological studies. 4 Marks

c. Define Epidemiology. Discuss the core epidemiologic functions and uses of epidemiology. 6 Marks

Q.2.

a. Explain the types of bias in case control study. 2 Marks

b. Define risk. Prepare a 5 x 5 risk assessment matrix. 4 Marks

c. Enumerate and briefly discuss various types of analytical studies 6 Marks

Q.3.

a. When a factor is considered as an effect modifier, what is meant/ what can be said about this factor? 2 Marks

b. Differentiate between clinical trial register and a clinical trial registry. 4 Marks

c. Explain the criteria for evaluating secondary data sources. What are limitations of secondary data sources? 6 Marks

Q.4.

a. Enumerate the ethical principles that must be followed for conduct of clinical trial. 2 Marks

b. Discuss various models of causation in epidemiology 4 Marks

c. Discuss the ethical frameworks necessary for conduct of clinical trial on human participants as outlined by ICMR. 6 Marks

Q.5.

a. Enumerate different types of evaluation methods. 2 Marks

b. What gaps could be there in the data on diseases/disorders in a community if the data are collected through passive surveillance only. 4 Marks

c. Describe the steps of planning cycle, related to health care management. 6 Marks

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SWAMI RAMA HIMALAYAN UNIVERSITY
Ph.D. COURSE WORK, END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: ADVANCES IN IMMUNOLOGY **Subject Code: PHDIM110**

Time allotted: 3 Hours **Max Marks: 60**

Note: Attempt all Questions

Q.1.

a.	Write short note on PAMPs.	2 Marks
b.	Describe inflammasome.	4 Marks
c.	Describe structure and functioning of HLA-Class II molecules.	6 Marks

Q.2.

a.	Enumerate chemical mediators of type 1 hypersensitivity.	2 Marks
b.	Describe bacterial toxic shock syndrome.	4 Marks
c.	Discuss role of cytokines in obesity.	6 Marks

Q.3.

a.	Discuss principle of ligase chain reaction.	2 Marks
b.	Describe role of TUNEL assay as measure of apoptosis.	4 Marks
c.	Describe principle of confocal microscopy.	6 Marks

Q.4.

a.	Discuss febrile non haemolytic transfusion reaction.	2 Marks
b.	Discuss potential role of "graft vs leukemia effect" for cancer immunotherapy.	4 Marks
c.	Describe types of subunit vaccines.	6 Marks

Q.5.

a.	Explain MHC restriction.	2 Marks
b.	Discuss pathology of transfusion associated purpura.	4 Marks
c.	Discuss pathogenesis of transfusion associated acute lung injury (TRALI).	6 Marks

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SWAMI RAMA HIMALAYAN UNIVERSITY
Ph.D. COURSE WORK, END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: ADVANCES IN MICROBIOLOGY **Subject Code: PHDMB110**

Time allotted: 3 Hours **Max Marks: 60**

Note: Attempt all Questions

Q.1.

a. What is the meaning of composting? Is this a good procedure for dealing agricultural waste? 2 Marks

b. How can mycopesticides be useful as biocontrol agents? 4 Marks

c. Write about the main developments in microbiology field in last 70 years. 6 Marks

Q.2.

a. What do you understand by 'National Immunization Program'? 2 Marks

b. Describe and explain the method of bacterial adhesion during pathogenesis process. 4 Marks

c. Discuss in detail about the Kirby-Bauer's disc diffusion method. 6 Marks

Q.3.

a. Write a short note on microbial plastic. 2 Marks

b. What measures will you take in controlling global warming? 4 Marks

c. Illustrate the nitrogen cycle in biosphere with suitable examples. 6 Marks

Q.4.

a. Write a short note on pharmaceuticals produced by microbial fermentation process. 2 Marks

b. Discuss about recombinant antigen vaccines. 4 Marks

c. What do mean by synthetic peptide vaccines? How they are prepared? 6 Marks

Q.5.

a. What do you mean by probe labelling? Explain it. 2 Marks

b. Discuss the technique of western blotting and write its uses. 4 Marks

c. What are cloning vectors? Discuss their applications. 6 Marks

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SWAMI RAMA HIMALAYAN UNIVERSITY
Ph.D. COURSE WORK END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: ADVANCES IN NURSING SCIENCE　　　　　　　**Subject Code: PHDNS110**

Time allotted: 3 Hours　　　　　　　　　　　　　　　　**Max Marks: 60**

Note: Attempt all Questions

Q.1.

The Discipline of Nursing is comprised of two major components - A Conceptual or Substantial component and a Syntactical component:

　a. Briefly define each component.　　　　　　　　　　　　　　　　　　　　　2 Marks

　b. Choose a Nursing Theorist and define how the theorist viewed the four concepts of meta-paradigm
　　　in the conceptual component.　　　　　　　　　　　　　　　　　　　　　　4 Marks

　c. Briefly describe a middle range theory that was derived from Grand theories by your chosen theorist.　6 Marks

Q.2.

Nursing has evolved over many years and every day the body of knowledge is expanding. The teaching and learning in nursing has also undergone changes:

　a. Describe changes in the teaching learning process.　　　　　　　　　　　　　2 Marks

　b. What are the requirement criteria to be an educator in Nursing?　　　　　　　4 Marks

　c. Describe and critique the evolving role of the PhD nurse educator.　　　　　　6 Marks

Q.3.

You are assigned surgery ward for clinical supervision of nursing students. You observed that students are not able to correlate theory into practice. Answer the following:

　a. What do you mean by critical thinking in above situation?　　　　　　　　　2 Marks

　b. How does clinical reasoning help in correlating theory into practice?　　　　　4 Marks

　c. Briefly describe steps of clinical reasoning you will teach to students for application in patient care.　6 Marks

Q.4.

"Evidenced-based Nursing" is a key phrase used in Nursing Research:

　a. Define evidence-based nursing.　　　　　　　　　　　　　　　　　　　　2 Marks

　b. What are the facilitators and barriers to evidence based practice in nursing?　　4 Marks

　c. Give an example of some nursing research which has been verified through multiple replications
　　　and is being used in health care setting.　　　　　　　　　　　　　　　　6 Marks

Q.5.

Development of any profession depends on the vision of leaders at different levels:

　a. What is your vision of future of nursing in your specialty?　　　　　　　　　2 Marks

　b. Discuss the measures by which you will translate your vision.　　　　　　　　4 Marks

　c. What are the changes you recommend for advancement in nursing practice and education in your
　　　clinical specialty.　　　　　　　　　　　　　　　　　　　　　　　　　　6 Marks

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SWAMI RAMA HIMALAYAN UNIVERSITY
Ph.D. COURSE WORK END SEMESTER ASSESSMENT
SEPTEMBER - 2020

Subject Name: RESEARCH METHODOLOGY　　　　　　　　　　**Subject Code: PHDRM100**

Time allotted: 3 Hours　　　　　　　　　　　　　　　　　　**Max Marks: 60**

Note: Attempt all Questions

Unit I

Q.1.
   a. Explain what is a 'Pilot survey'?　　　　　　　　　　　　　　　　　　2 marks
   b. Explain research process with the help of flow chart/ diagram.　　　4 marks
   c. Explain the importance of literature review in research. How does Boolean query help in literature review?　　　　　　　　　　　　　　　　6 marks

Unit II

Q.2.
   a. Name the various types of Complex Experimental Designs.　　　　2 Marks
   b. In what conditions is a post-test only (with control) design used?　4 Marks
   c. What is a post-test only (with control) design? Elaborate with the help of an example.　　　　　　　　　　　　　　　　　　　　　　　6 Marks

Unit III

Q.3.
   a. What are the main components (parts) of a questionnaire?　　　　2 Marks
   b. Briefly explain the precautions to be taken while preparing a questionnaire.　4 Marks
   c. Explain in detail the process of designing a questionnaire. Illustrate your answer with an example.　　　　　　　　　　　　　　　　　　6 Marks

Unit IV

Q.4.
   a. What is convenience sampling, explain with an example.　　　　　2 Marks
   b. Draw out the difference between primary and secondary data sources using an example. What is the use of secondary data, and why is it used in research?　　4 Marks
   c. What is the difference between sample survey & census survey? Give real life examples of each. Explain why is the former generally preferred in research?　　6 Marks

Unit V

Q.5.
   a. What are the differences between 'References' and 'Bibliography'?　2 Marks
   b. Describe the principle of autonomy in human research ethics.　　　4 Marks
   c. What is 'H Index' and 'Impact Factor' of a journal? Explain in detail.　6 Marks

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