

M.Sc 3rd Semester Examination , 2009

**BIOMEDICAL LABORATORY SCIENCE
AND MANAGEMENT**

(Cytotechnology and Cytogenetics/ Histotechnology)

PAPER—IX (U - 18)

Full Marks : 40

Time : 2 hours

Answer all questions

The figures in the right-hand margin indicate marks

*Candidates are required to give their answers in their
own words as far as practicable*

Illustrate the answers wherever necessary

MODULE—1

(Cytotechnology and Cytogenetics)

(Turn Over)

1. Answer any *five* of the following : 1 × 5

(a) Write the formula for the determination of resolution of a microscope.

(b) What is the utility of oil immersion lens in microscope ?

(c) What do you mean by 'Stringency' in hybridization technique ?

(d) Write the full form of ISNT

(e) Write the full forms of TBP and CRE.

(f) What are the sources of *Taq* and *Tth* polymerase.

(g) Write any two health hazards noted in cytology laboratory.

(h) Write any two limitations of proteomics.

2. (a) What do you mean by pre-apoptotic and anti-apoptotic proteins in cell ?

(b) Discuss the mitochondrial pathway for the activation of caspases in connection with apoptosis.

(c) State the principle of ISEL. 2 + 4 + 2

Or

(a) Discuss the signal transduction of protein/enzyme synthesis by mobile model receptor.

(b) State the Cytochemical technique for the detection of dehydrogenase in semiquantitative aspect. 5 + 3

3. (a) Write the principle of the detection of cell surface antigen following 'Avidin-Biotin' method in immuno cytochemical technique with diagram.

(b) State the advantages of Avidin-Biotin method over PAP method. (3 + 2) + 2

Or

- (a) Write in brief the extraction of DNA from cell.
- (b) State any two applications of PCR in bio-medical laboratory science. 5 + 2

MODULE—2

(Histotechnology)

4. Answer any *five* questions : 1 x 5

- (a) Write the use of alcohol-iodine solution in histology.
- (b) Write one merit and one demerit of Zenker fixative.
- (c) What do you mean by infiltration ?
- (d) Write the full forms of PTAH and PAF stains.
- (e) What do you mean by decalcification of bone ?

- (f) Write the names of any two fluorescent molecules used in immunofluorescence histochemistry.
- (g) Write any two features of a dye molecule used in histotechnology.
- (h) Write the advantages of freezing microtome over ordinary microtome.
5. (a) Write the reagents used in PTAH staining.
- (b) State the steps of PTAH staining of the supplied section, and the specific colours of the targets after the staining the tissue. 3 + (4 + 1)

Or

- (a) State the principle of PAS staining.
- (b) Write the steps of PAS staining.
- (c) Write the shape of the glycogen molecule after PAS staining. 3 + (4 + 1)

(6)

6. (a) Write the fundamentals immunofluorescence histotechnology with diagram.
- (b) State the applications of immunofluorescence technique in histotechnology with special reference to laboratory medicine. 4 + 3

Or

- (a) Discuss the decalcification protocol of bone tissue in histology laboratory.
- (b) State the staining technique for the semiquantification of calcium in tissue section. 4 + 3