[KD 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

(Revised Regulations)

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours Maximum : 100 marks

1. Define transcription. Write the various steps of transcription. Name two inhibitors of this process. What is post-transcriptional modification? Explain it with the formation of matured mRNA. (25)

2. What are the differences in regulation of gene expression in prokaryotes and eukaryotes? Mention briefly about the different ways of gene regulation in eukaryotes. (25)

3. Write short notes on : ($5 \times 10 = 50$)

(a) Polymerase chain reaction and its applications.

(b) Repairing mechanism of damaged DNA.

(c) Post-translational modifications with four examples.

(d) Southern blot technique and its two applications.

(e) Polypeptide growth factors.

November-2001

[KE 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours **Maximum : 100 marks**

Answer ALL questions.

1. Explain what is meant by recombinant DNA technology and add a note on its utility in medicine. (25)

2. Discuss in detail the importance of Biochemical markers in serum as an indicator of myocardial cell damage. (25)

3. Write short notes on : (5 × 10 = 50)

   (a) Human genome project.

   (b) Free radicals.

   (c) Omega–fatty acids.

   (d) Mutagenes.

   (e) Metabolism of xenobiotics.

March-2002

[KG 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe the process of transcription. What are the post transcriptional modifications? Add a note on antisense therapy. (25)

2. Explain the causes and consequences of various types of genetic mutations with examples. What are oncogenes? Add a note on mutagens. (25)

3. Write briefly on : (5 × 10 = 50)

   (a) Reactive oxygen species.

   (b) Restriction fragment length polymorphism.

   (c) Restriction endonucleases.

   (d) Tumor markers.

   (e) Protein kinases.

[KH 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. What is a plasmid? What is its application in recombinant DNA technology? What are the clinical applications of recombinant DNA technology? (25)

2. Discuss the synthesis and role of nitric oxide in the body. (25)

3. Write briefly on : (5 × 10 = 50)

(a) Replication

(b) G–proteins

(c) Post translational modifications

(d) Polypeptide growth factors

(e) Gene therapy.

April-2003

[KI 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe the steps of protein biosynthesis in Eukaryotics and its genetic regulation. (25)

2. Write in detail about biochemical aspects of Cancer. (25)

Write short notes on : (5 × 10 = 50)

(a) Cytokines

(b) Lac operon

(c) Applications of Genetic Engineering

(d) Restriction fragment Length polymorphisms

(e) Molecular basis of HIV infection.

[KJ 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the Answer Sheet provided as per the instructions on the first page of M.C.Q. Booklet.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

1. What is plasmid? Mention its application in recombinant D.N.A. technology. (15)

2. What are Proto–Oncogenes? Discuss the mechanism by which these proto–oncogenes are activated to oncogenes. (15)

3. Write short notes : (10 × 5 = 50)

(a) Okazaki pieces.

(b) Reverse transcription.

(c) Gene therapy.

(d) D.N.A. finger printing.

(e) Tumor suppressor gene.

(f) Laboratory diagnosis of AIDS.

(g) Human genome project.

(h) Nitric oxide.

(i) Southern blot technique.

(j) Hybridoma technology.

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[KM 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Explain the strategies employed in DNA finger printing. What are its applications?

(2) Describe in detail the regulation of gene expression. Illustrate with suitable examples.

II. Write short notes : (10 × 5 = 50)

(a) Mutagens.

(b) Exons and Introns.

(c) Chaperones.

(d) Oncogenes and tumour suppressor genes.

(e) Helper T cells.

(f) Post-translational modifications.

(g) Ribozyme.

(h) Operon theory and its applications.

(i) Biologically active free nucleotides.

(j) G-protein.

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[KO 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay questions : (2 × 15 = 30)

(1) Discuss the applications of DNA recombinant technology and add a note on various vectors used for it.

(2) Discuss the steps of protein biosynthesis. Add a note on its inhibitors.

II. Short notes on : (10 × 5 = 50)

(a) Oncofetal antigens

(b) Post translation modification

(c) Applications of PCR

(d) Isoenzymes of LDH

(e) Glycated Hb

(f) Microalbuminuria

(g) Insitu hybridisation

(h) Carbon dating

(i) Restriction Fragment Length Polymorphism (RFLP)

(j) Teletherapy.

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[KP 175] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

Paper IV — RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay questions :

(1) Write in detail about the biochemical aspects of CANCER. (20)

(2) Discuss in detail the regulation of gene expression. (15)

(3) Describe the principle and application of polymerase chain reaction. (15)

II. Write short notes : (6 × 5 = 30)

(a) Human genome project

(b) Changes in the brain cell after stroke

(c) PROGERIA

(d) MYTO CHONDRIAL MYOPATHIES

(e) Biochemical changes in MYASTHENIA GRAVIS

(f) OKAZAKI pieces.

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[KQ 152] **Sub. Code : 2074**

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Common to :

Paper IV — (Old/New/Revised Regulations)

(Candidates admitted from 1988-89 onwards)

And

Paper IV — (for Candidates admitted from 2004-2005 onwards)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

(1) Describe the steps of recombinant DNA technology and its applications. (20)

(2) Discuss in detail about mutations and diseases produced by mutations. (15)

(3) Give the role of Oncogenes in Cancer production. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Class Switching

(b) Reverse Transcriptase Polymerised Chain Reaction (RT–OPCR)

(c) Genetic code

(d) Genomic library

(e) Mass spectrometry

(f) Growth factors.

[KR 163] **Sub. Code : 2059**

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry

RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Common to

Paper IV — (Old/New/Revised Regulations)

(Candidates admitted from 1988-89 onwards)

and

Paper IV — (For candidates admitted from 2004—05 onwards)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay :

1. Explain in detail the analysis of gene expression. (20)

2. Discuss the different types of mutations with special reference to disease. (15)

3. Explain the term – "Transgenic animals" – uses, methods of production and applications. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Biochemical markers of osteoporosis.

(b) TIP-60

(c) Applications of bioinformatics

(d) DNA fingerprinting

(e) m-RNA splicing

(f) Oncogenic viruses.

MARCH 2008

[KS 151] **Sub. Code : 2046**

M.D. DEGREE EXAMINATION.

Branch XIII — Biochemistry.

RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

(Common to all Regulations)

Q.P.Code : 202046

Time : Three hours Maximum : 100 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 20 = 40)

1. Give a detailed account of the transcription process. How is it regulated? Discuss about the inhibitors of transcription.
2. Give an account of protein biosynthes. Add note on post translational modifications.

II. Write Short notes on: (10 × 6 = 60)

1. DNA Repair mechanisms.
2. Genetic code.
3. Mutations.
4. Tumour markers.
5. Telomeres and Telomerases.
6. Post–Transcriptional modifications.
7. Biochemistry of Aging.
8. Polymerase chain reaction.
9. Apoptosis.
10. Cytokines.
