COURSE CODE (CREDITS): 21MS1MB312 (3)　　　　　　MAX. MARKS: 25
COURSE NAME: DIAGNOSTIC MICROBIOLOGY AND VACCINES
COURSE INSTRUCTORS: Dr. Rahul Shrivastava　　　MAX. TIME: 1 Hour and 30 Minutes
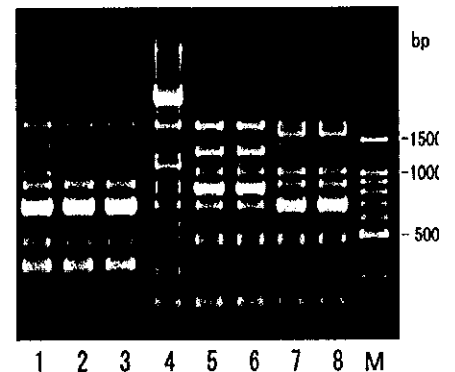
Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1.A. Restriction profile of Wild type and Mutant strains of an organism are provided. Suggest with reason which restriction sites can be used as RFLP marker site(s) for detection of SNP in the strains.　　[2]

	EcoRI	BamHI	NotI	TaqI	SmaI	XbaI	HindIII	PstI	KpnI
Wild Type	+	-	+	+	+	+	+	+	-
Mutant	-	-	-	+	+	+	+	-	-

B. List steps used for RFLP analysis of a sample, taking the above example.　　[3]

Q2.　A. Provided is a gel pattern obtained after RAPD analysis of eight rice varieties. Interpret the given data, predicting the similarity / dissimilarity of the varieties. (M = Marker / Ladder).　　[2]

B. Differentiate between VNTR and SSR and describe their applications in diagnostics.　　[3]

1 2 3 4 5 6 7 8 M

Q3. Write short notes on the method and applications of the following in diagnostics:　　[3+ 2+2 = 7]
　i.　Nested PCR
　ii.　Multiplex PCR
　iii.　Hot-start PCR

SECTION – B (Attempt ANY TWO)

Q4. Draw a histogram plot depicting different phases of human cell cycle obtained in a flow cytometry experiment. Draw peak for cells undergoing apoptosis in the histogram. How it can be used for diagnosis of clinical conditions.　　[4]

Q5. Wearable Biosensors along with Telemedicine & Remote Patient Monitoring is revolutionizing the complete domain of patient diagnostics and treatment. Justify the statement with examples.　　[4]

Q6. Treatment of cancer may be tailored to the needs of that individual's gene expression profile. Provide a flow chart for classification of Tumours using a microarray based technique.　　[4]