(2½ Hours) [Total Marks : 60

N.B. : (1) **All** questions are **compulsory**.
(2) **All** questions carry **equal** marks.
(3) Draw **neat** labeled **diagrams** wherever **necessary**.

1. Answer any **two** of the following :— **12**
   (a) Schematically explain chromosome analysis by FISH.
   (b) Justify: Malfunctions in meiosis and mitosis result in aneuploidy.
   (c) Describe the X- chromosomal abnormalities.
   (d) Discuss the chromosomal defecis in the following
       (i) Chronic myeloid leukemia   (ii) Cat's eye syndrome.

2. Answer any **two** of the following :— **12**
   (a) Explain the pathogenesis of Pseudomonas
   (b) Discuss the classification and causative agents of pneumonia.
   (c) Describe the immunological tests used for diagnosis HBV infections in the laboratory.
   (d) Discuss the pathogenesis and clinical picture of tuberculosis.

3. Answer any **two** of the following :— **12**
   (a) How would you carry out identification of candida species by RFLP.
   (b) Comment on: Identification and detection of drug resistance in tuberculosis.
   (c) Elaborate on the use of microarrays in the diagnosis of pneumonia.
   (d) Describe the molecular methods used for detection of HCY.

4. Answer any **two** of the following :— **12**
   (a) Elaborate on the general features and advantages of microbial growth as a biofilm.
   (b) Justify: Biofilms respond poorly to antibiotics and cause collateral damage to neighbouring healthy tissues.
   (c) Explain the biofilm formation Helicobacter pylori.
   (d) With respect to diseases caused by micro organisms residing in biofilms explain—
       (i) Periodontitis   (ii) Otitis media

5. Write short notes on any **three** of the following :— **12**
   (a) Treatment of candidiasis
   (b) b DNA
   (c) Mixed culture biofilms
   (d) Spectral karyotyping
   (e) Pathogenesis of HIV
   (f) Laboratory diagnosis of HAV infections

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