

University Post graduate Practical Examination 2026
M.D. (Biochemistry)
SET-1

- 1) (225)
- a) Visit Ward _____, Bed Number _____, UHID Number _____
- Do not use any patient identification/name while writing your answer.
 - Take history from existing case papers.
 - Do not disturb patient unnecessarily.
 - Do not examine patient.
 - Note down key points of history, physical examinations.
 - Note down radiological and laboratory findings.
 - Perform necessary investigations in the patient sample given to you (Do not collect sample).
 - Perform necessary qualitative investigations in the patient urine sample given to you to find abnormal constituents present (Do not collect sample).
 - Prepare dummy patient report in LIS.
 - Prepare a computer presentation emphasizing:
 - biochemical basis of pathogenesis,
 - biochemical basis of clinical features,
 - biochemical basis of investigation results, biochemical basis of treatment given.
- b) Measure ABG in sample provided, Prepare patient report ,Visit patients in wards/ICU. Prepare computer presentation of your findings and interpretation.
- 2) (225)
- a) Evaluate EQAS report of pO₂, Bicarbonate and pH of August 2026 for ABL 9 ABG analyzer. Also calculate Measurement uncertainty of these parameters. Prepare a detailed presentation (50)
- b) Write Principle of BCG method. Prepare Albumin reagent and do calibration in Erba XL 1000(Old). Prepare your answer in spreadsheet. (50)
- c) A patient is having history of severe anemia. Perform Hemoglobin electrophoresis in given sample. What is role of biochemistry laboratory in evaluation of such cases? Perform necessary investigations available at the laboratory in the serum sample of the patient. Prepare a presentation of your findings and interpretations. (75)
- d) Perform competency check for Needle stick injury management with 3 technical staff of Stem OPD. Prepare a presentation of your findings. (50)
- 3) (150)
- a) Prepare for micro-teaching on eGFR by CKD-EPI.
- b) Grand Viva

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SET-2

- 1) (225)
- a) Visit Ward _____, Bed Number _____, UHID Number _____
- Do not use any patient identification/name while writing your answer.
 - Take history from existing case papers.
 - Do not disturb patient unnecessarily.
 - Do not examine patient.
 - Note down key points of history, physical examinations.
 - Note down radiological and laboratory findings.
 - Perform necessary investigations in the patient sample given to you (Do not collect sample).
 - Perform necessary qualitative investigations in the patient urine sample given to you to find abnormal constituents present (Do not collect sample).
 - Prepare dummy patient report in LIS.
 - Prepare a computer presentation emphasizing:
 - biochemical basis of pathogenesis,
 - biochemical basis of clinical features,
 - biochemical basis of investigation results,
 - biochemical basis of treatment given.
- b) Measure ABG in sample provided, Prepare patient report ,Visit patients in wards/ICU.Prepare computer presentation of your findings and interpretation.
- 2) (225)
- a) Evaluate EQAS report Cholinesterase, Total bilirubin, CK of May 2026 for Mindray BS 600M. Also calculate total error of these parameters. Prepare a detailed presentation (50)
- b) Perform comparison of glucose measurement between Erba XL -1000 (new) and Mindray BS 600M (Minimum sample size 20). (50)
- c) A patient with multiple fractures with minor trauma and loss of weight was Suspected of multiple myeloma. What is role of biochemistry laboratory in evaluation of such cases? Perform necessary investigations available at the laboratory in the serum sample of the patient. Prepare a presentation of your findings and interpretations. (75)
- d) Interview laboratory personnel involved in sample receiving at kidney OPD . Describe difficulties faced by them,. Suggest steps for improvement. (50)
- 3) (150)
- a)Prepare for micro-teaching on Isoenzyme of CK.
- b) Grand Viva

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SET-3

1) (225)

a) Visit Ward _____, Bed Number _____, UHID Number _____

- Do not use any patient identification/name while writing your answer.
- Take history from existing case papers.
- Do not disturb patient unnecessarily.
- Do not examine patient.
- Note down key points of history, physical examinations.
- Note down radiological and laboratory findings.
- Perform necessary investigations in the patient sample given to you (Do not collect sample).
- Perform necessary qualitative investigations in the patient urine sample given to you to find abnormal constituents present (Do not collect sample).
- Prepare dummy patient report in LIS.
- Prepare a computer presentation emphasizing:
 - biochemical basis of pathogenesis,
 - biochemical basis of clinical features,
 - biochemical basis of investigation results,
 - biochemical basis of treatment given.

b) Measure ABG in sample provided, Prepare patient report ,Visit patients in wards/ICU.Prepare computer presentation of your findings and interpretation.

2) (225)

a) Evaluate EQAS report of Free T3, Free T4 and TSH of January 2026 of Vitros 3600 immunoassay analyzer. Also calculate total error of these parameters. Prepare a detailed presentation (50)

b) Do calibration of 500 ml volumetric flask. Prepare calibration certificate with metrological traceability. (50)

c) prepare 10mmol/L phosphate buffer of pH 7. Calibrate pH meter and measure pH of buffer prepared by you.(pK value of phosphate buffer 6.8) (50)

d) Perform internal audit of biochemistry section of NCHSLS as per ISO 15189:2022 and updated NABL 112 of clause 7.3 and 7.4. Prepare internal audit report with required immediate, corrective and preventive actions (75)

3) (150)

a) Prepare for micro-teaching on Glucose 6 phosphatase deficiency.

b) Grand Viva

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SET-4

- 1) (225)
- a) Visit Ward _____, Bed Number _____, UHID Number _____
- Do not use any patient identification/name while writing your answer.
 - Take history from existing case papers.
 - Do not disturb patient unnecessarily.
 - Do not examine patient.
 - Note down key points of history, physical examinations.
 - Note down radiological and laboratory findings.
 - Perform necessary investigations in the patient sample given to you (Do not collect sample).
 - Perform necessary qualitative investigations in the patient urine sample given to you to find abnormal constituents present (Do not collect sample).
 - Prepare dummy patient report in LIS.
 - Prepare a computer presentation emphasizing:
 - biochemical basis of pathogenesis,
 - biochemical basis of clinical features,
 - biochemical basis of investigation results,
 - biochemical basis of treatment given.
- b) Measure ABG in sample provided, Prepare patient report ,Visit patients in wards/ICU.Prepare computer presentation of your findings and interpretation.
- 2) (225)
- a) Evaluate EQAS annual report 2025 for Erba XL-1000 . Prepare a detailed presentation (50)
- b)Perform calibration of centrifuge ZEHN 25665. Prepare calibration certificate with metrological traceability.Write correction factor if required. (50)
- c) prepare 100mmol/L Tris buffer of pH 8.6 using tris base and tris acid. Calibrate pH meter and measure pH of buffer prepared by you. (pK value of phosphate buffer 8.06) (50)
- d) Perform internal audit of biochemistry section of NCHSLS as per ISO 15189:2022 and updated NABL 112 of clause 7.5, 7.6, 7.7 and 7.8. Prepare internal audit report with required immediate, corrective and preventive actions (75)
- 3) (150)
- a) Prepare for micro-teaching on role of Km on Glucokinase enzyme activity.
- b) Grand Viva

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SET-5

- 1) (225)
- a) Visit Ward _____, Bed Number _____, UHID Number _____
- Do not use any patient identification/name while writing your answer.
 - Take history from existing case papers.
 - Do not disturb patient unnecessarily.
 - Do not examine patient.
 - Note down key points of history, physical examinations.
 - Note down radiological and laboratory findings.
 - Perform necessary investigations in the patient sample given to you (Do not collect sample).
 - Perform necessary qualitative investigations in the patient urine sample given to you to find abnormal constituents present (Do not collect sample).
 - Prepare dummy patient report in LIS.
 - Prepare a computer presentation emphasizing:
 - biochemical basis of pathogenesis,
 - biochemical basis of clinical features,
 - biochemical basis of investigation results,
 - biochemical basis of treatment given.
- b) Measure ABG in sample provided, Prepare patient report ,Visit patients in wards/ICU. Prepare computer presentation of your findings and interpretation.
- 2) (225)
- a) Evaluate EQAS report of electrolytes of June 2026 for Jokoh electrolyte analyzer. Also calculate total error of these parameters. Prepare a detailed presentation (50)
- b) Perform linearity check of given Urea reagent in Erba XL 1000(new). Prepare your report and linearity curve in spreadsheet. (50)
- c) (75)
1. Find number of various inhouse reagent examination done at your laboratory in last month . Calculate amount of reagent required for each in a month. Prepare your answer in spreadsheet.
 2. List of major quality indicators observed by your laboratory. Prepare your presentation on performance of your laboratory in EQAS and IQC.
- d) Interview Laboratory 2nd year PG resident (any 2) regarding issue facing in Mindray BS600 as instrument is out of order since 2 month. Prepare a detailed presentation (50)
- 3) (150)
- a) Prepare for micro-teaching on definitions of uncertainty of measurement, trueness and precision.
 - b) Grand Viva

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SET-6

- 1) (225)
- a) Visit Ward _____, Bed Number _____, UHID Number _____
- Do not use any patient identification/name while writing your answer.
 - Take history from existing case papers.
 - Do not disturb patient unnecessarily.
 - Do not examine patient.
 - Note down key points of history, physical examinations.
 - Note down radiological and laboratory findings.
 - Perform necessary investigations in the patient sample given to you (Do not collect sample).
 - Perform necessary qualitative investigations in the patient urine sample given to you to find abnormal constituents present (Do not collect sample).
 - Prepare dummy patient report in LIS.
 - Prepare a computer presentation emphasizing:
 - biochemical basis of pathogenesis,
 - biochemical basis of clinical features,
 - biochemical basis of investigation results,
 - biochemical basis of treatment given.
- b) Measure ABG in sample provided, Prepare patient report ,Visit patients in wards/ICU.Prepare computer presentation of your findings and interpretation.
- 2) (225)
- a) Evaluate EQAS report Glucose and ALP of May 2026 for Mindray BS 600M. Explain different mean for comparison and graphs (Four graphs) provided in EQAS result report. Prepare a detailed presentation (50)
- b) Perform comparison of Creatinine measurement between Erba XL -1000 (new) and Erba XL - 1000 (Old)(Minimum sample size 20). (50)
- c) A 25 year old man came to hospital for pre- employment check up. Perform lipid profile of a person using given sample. Prepare and print dummy patient report for the person. Discuss your findings. (75)
- d) Immunoassay tests were not done from March 2026 to April 2026 in clinical biochemistry laboratory. Interview Laboratory 2nd year PG resident (any 2) regarding issue and do RCA. Prepare a detailed presentation (50)
- 3) (150)
- a)Prepare for micro-teaching on Suicide inhibition with one example.
- b) Grand Viva

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SET-7

- 1) (225)
- a) Visit Ward _____, Bed Number _____, UHID Number _____
- Do not use any patient identification/name while writing your answer.
 - Take history from existing case papers.
 - Do not disturb patient unnecessarily.
 - Do not examine patient.
 - Note down key points of history, physical examinations.
 - Note down radiological and laboratory findings.
 - Perform necessary investigations in the patient sample given to you (Do not collect sample).
 - Perform necessary qualitative investigations in the patient urine sample given to you to find abnormal constituents present (Do not collect sample).
 - Prepare dummy patient report in LIS.
 - Prepare a computer presentation emphasizing:
 - biochemical basis of pathogenesis,
 - biochemical basis of clinical features,
 - biochemical basis of investigation results,
 - biochemical basis of treatment given.
- b) Measure ABG in sample provided, Prepare patient report ,Visit patients in wards/ICU.Prepare computer presentation of your findings and interpretation.
- 2) (225)
- a) Interview any five laboratory technician about clinical biochemistry knowledge, behaviour and professional attitude of biochemistry residents. Prepare your report in powerpoint presentation (50)
- b) Review Non confirmities raised in month of February and March. Prepare RCA(Root cause analysis) and CAPA (Corrective and preventive action) (50)
- c) Calibrate given creatinine reagent in erba XL-1000(new). Do reagent lot verification. (50)
- d) Perform internal audit of biochemistry section of NCHSLS as per ISO 15189:2022 and updated NABL 112 of clause 6.5 and 6.6. Prepare internal audit report with required immediate, corrective and preventive actions (75)
- 3) (150)
- a) Prepare for micro-teaching on point mutation with one example.
- b) Grand Viva

