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College Code 966

JM—01—2025

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

M. Pharm. (First Semester) EXAMINATION

FEBRUARY, 2026

(CBCS PCI)

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Paper MQA-101T

(Tuesday, 24-2-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Answer to the point only.

1. Answer the following questions : 10×2=20

(*a*) What is transverse relaxation ?

(*b*) Why vacuum is to be maintained during mass spectroscopy ?

(*c*) Why quartz cuvette are used in U.V. spectrophotometer ?

(*d*) Enlist types of pumps used in HPLC.

P.T.O.

(e) Enlist X-ray diffraction methods.

(f) Give the principle of working of premix burner.

(g) What do you mean by reverse phase chromatography ?

(h) Give Van-Deemeter equation.

(i) Give the significance of UPLC over HPLC.

(j) Enlist the pharmaceutical application of DSC.

2. Answer any *two* of the following : 2×10=20

(a) Discuss various rules and regulation for interpretation of I.R. spectrum of pharmaceutical drugs.

(b) What is Bragg's law ? Discuss X-ray powder technique.

(c) What is spin-spin coupling ? Give the pharmaceutical applications of NMR spectroscopy.

3. Solve any *seven* of the following : 7×5=35

(a) Discuss the different types of transitions observed in UV-spectroscopy.

(b) Give the steps involved in HPTLC.

(c) Discuss in detail detectors used in GC.

(d) Give principle and instrumentation of AAS.

(e) Explain Mac-Lafferty rearrangement.

(f) What is quenching ? Give its types.

(g) Give the principle and application of ion exchange chromatography.

(h) Discuss in detail about interference observed in FES (Flame Emission Spectroscopy.

(i) Give the instrumentation of NMR spectrophotometer.

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JM—14—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M. Pharmacy (First Semester) EXAMINATION

FEBRUARY, 2026

(CBCS PCI)

QUALITY MANAGEMENT SYSTEM

(MQA-102T)

(Thursday, 26-2-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 Hours *Maximum Marks—75*

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

(*iii*) Figures to the right indicate full marks.

1. Solve all of the following : 10×2=20

(*a*) Define OOS.

(*b*) Enlist the components of TQM.

(*c*) Give basic criteria for selection of a vendor.

(*d*) What are control charts ?

P.T.O.

(e) Give significance of benchmarking.

(f) Give advantages of QbD.

(g) What is cost of external failure ?

(h) What is customer delight ?

(i) What is PDCA in TQM ?

(j) Give significance of ISO 9001 : 14000.

2. Solve any *two* of the following : 2×10=20

(a) What is benchmarking ? Discuss benchmarking process.

(b) Discuss NABL certification and accreditation process.

(c) Discuss McKinsey 7s model in industry.

3. Solve any *seven* of the following : 7×5=35

(a) Discuss six system inspection model related to production system.

(b) Discuss ICH Q8 guidelines.

(c) What are customer complaints ? Discuss handling of customer complaints.

(d) Discuss returns and recalls in pharmaceutical industry.

(e) Explain various factors affecting customer perceptions.

(f) Discuss statistical process control.

(g) State and explain various barriers to TQM implementation in an organization.

(h) Discuss corrective and preventive action in industry.

(i) Discuss various dimensions of quality.

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JM—26—2025

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

M. Pharm. (First Semester) EXAMINATION

FEBRUARY, 2026

(CBCS PCI)

QUALITY CONTROL AND QUALITY ASSURANCE

Paper MQA-103-T

(Saturday, 28-2-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 Hours *Maximum Marks—75*

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Answer to the point only.

1. Answer the following : 10×2=20

(*a*) What do you mean by GMP ?

(*b*) Discuss IPQC.

(*c*) Enlist quality control tests for containers and closures.

P.T.O.

(*d*) Explain three tier documentation.

(*e*) Give the difference between specifications and test procedures.

(*f*) Define mix-up and cross contamination.

(*g*) What is process deviation ?

(*h*) Explain salvaging.

(*i*) What is change control ? Give its significance.

(*j*) Give composition of IAEC.

2. Solve any *two* of the following : 2×10=20

(*a*) Explain sanitization procedure for manufacturing premises.

(*b*) Describe in detail IPQC and FPQC tests for tablet and capsule.

(*c*) What is DMF ? Explain types of DMF.

3. Solve any *seven* of the following : 7×5=35

(*a*) Discuss cGMP guidelines according to schedule M.

(*b*) Discuss structure and functions of ICH steering committee.

(*c*) Explain aseptic process control.

(*d*) Describe drug product inspection.

(e) Explain in detail about batch manufacturing record.

(f) Elaborate IPQC tests for parenterals.

(g) Discuss in detail quality control tests for secondary packing material.

(h) How sterile areas are maintained in pharmaceutical industry ?

(i) Discuss role of good documentation practice in pharma industry.

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JM—38—2025

FACULTY OF SCIENCE AND TECHNOLOGY

M. Pharm. (First Semester) EXAMINATION

FEBRUARY/MARCH, 2026

(CBCS PCI)

PRODUCT DEVELOPMENT AND TECHNOLOGY TRANSFER

(MQA-104T)

(Wednesday, 4-3-2026) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

(*iii*) Figures to the right indicate full marks.

1. Solve *all* the following : 10×2=20

(*a*) Draw a well labelled diagram of drug discovery and development.

(*b*) What do you mean by BACPAC ?

(*c*) Enlist the methods for improving solubility of drugs.

(*d*) Write about techniques for the study of crystal properties.

P.T.O.

(e) Give layout of pilot plant scale up study.

(f) Give the challenges of new era of drug produces.

(g) Give advantages of pharmaceutical packaging.

(h) Write a short note on medical device packaging.

(i) Define technology transfer.

(j) Differentiate between NDA and ANDA.

2. Solve any *two* of the following : 2×10=20

(a) Discuss large scale manufacturing techniques for solid dosage form.

(b) Explain in brief about ANDA.

(c) Write quality test of containers.

3. Solve any *seven* of the following : 7×5=35

(a) Write about technology transfer from R & D to production.

(b) Discuss various issues faced in modern drug packaging.

(c) Give in brief about clinical research process.

(d) Write in detail about SUPAC.

(e) Explain in detail about crystal properties and polymorphism.

(*f*) Give the challenges and opportunities involved in new era of drug produces.

(*g*) Write about stability testing during product development.

(*h*) Discuss about quality control test of secondary packaging materials.

(*i*) Give in detail about qualitative technology models.