

School of Aeronautics (Neemrana)

Question Paper For Back / Re-back Internal Assessment Examination (Theory) - Old Scheme i.e 2012
Syllabus

Instructions For Students / Faculty

Back / Re-back Internal Examination (Total 60 Marks, 2 Hrs, Syllabus From Beginning of The Session)

Total number of questions to be given are 10, each carrying 10 marks and it is compulsory to attend 2 questions from Part A and 4 questions from Part B. There is a choice of two questions out of four in part A and 4 questions out of 6 in Part B. Part A will be theoretical or derivation type (**Not More Than 70 Words For Question**). Part B will be fully numerically oriented questions (**Not More Than 70 Words For Question**), except for the list of subjects given below. No objective type or fill in the blanks shall be given, but subpart of question can be given for both Part A & B.

* **LIST OF ELABORATIVE THEORY QUESTION SUBJECTS:** Aircraft Materials, Aircraft System, Aircraft Rules & Regulation-I, Mechanics of Composite Materials, Aircraft Design, Aircraft Rules & Regulation-II, Avionics-I, Helicopter Theory, Maintenance of Airframe and System Design, Avionics-II, Airlines and Airport Management, Maintenance of Power Plant & Systems

FACULTY MEMBERS, PLEASE ENSURE EXCEPT ABOVE LISTED SUBJECTS, NO THEORITICAL ELABORATIVE QUESTION SHOULD BE GIVEN IN PART 'B' OF QUESTION PAPER

STUDENT IS ALLOWED TO ENTER LATE NOT MORE THAN 15 MIN AFTER STARTING OF EXAM, AND MAY LEAVE THE EXAM HALL ON EXPIRY OF ATLEAST OF 1 Hr FROM THE STARTING TIME OF EXAMINATION

Mid Term *	Back Internal Exam	Date of Submission of QP	11/28/2020
Name of Faculty *	Sapana Thakur	Date of examination *	12/01/2020 !
Subject *	202 – Engineering Mathematics II	Course*	B.Tech
Batch	AE and MT	Semester *	2
Email Id of Faculty:*	sapanathakur1990@gmail.com	PhoneNumberofFaculty*	8823094838

PART : A

Question: 1

State the Green's theorem and then Verify the Green's theorem and Evaluate $\oint F \cdot dr$ where $\vec{F} = x^2 \hat{i} - 2xy \hat{j}$ which is bounded by square in plane $z=0$ and bounded by line $x=0, y=0, x=2$ and $y=1$

LessonPlan*

LP 22

Topic*

Vector calculus

Source*

By H.K.Das

Question: 2*

Using by Gauss divergence theorem Evaluate $\oiint \vec{F} \cdot \vec{n} \, ds$ Where $\vec{F} = 3x \hat{i} + 4y \hat{j} + 5z \hat{k}$ which is bounded by sphere $x^2 + y^2 + z^2 = 16$

LessonPlan*

LP 24

Topic*

Vector calculus

Source*

By H.K.Das

Question: 3*

Prove that $\text{div}(\text{grad } r^n) = n(n+1)r^{n-2}$

LessonPlan*

LP 18

Topic*

Vector calculus

Source*

By H.K.Das

Question: 4*

A sphere of constant radius $2k$ passes through the origin and meets the axes in points A,B and C ,show that the locus of centroid of tetrahedron OABC is the Sphere $x^2 + y^2 + z^2 = k^2$

LessonPlan*

LP 5

Topic*

Geometry of 3D

Source*

By H.K.Das

PART : B

Question: 1*

Solve the following system of equations

$$5x + 3y + 7z = 4$$

$$3x + 26y + 2z = 9$$

$$7x + 2y + 10z = 5$$

LessonPlan*

LP 12

Topic*

Matrix

Source*

By H.K.Das

Question: 2*

Find A^{-1} of matrix $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$ using by Cayley's Hamilton theorem

LessonPlan*

LP 14

Topic*

Matrix

Source*

By H.K.Das

Question: 3*

Solve $(x^2 D^2 - 3x D + 4)y = 2x^2$

LessonPlan*

LP 34

Topic*

Diff. equation

Source*

By H.K.Das

Question: 4*

Find the equation of sphere which touches the plane $3x+2y-z+2 = 0$ at the point $(1,-2,1)$ and cuts the sphere $x^2 + y^2 + z^2 - 4x + 6y + 4 = 0$ orthogonally

LessonPlan*

LP 4

Topic*

Geometric 3D

Source*

By H.K.Das

Question: 5*

Using by Charpit method solve $(p^2 + q^2)y = qz$

LessonPlan*

LP 37

Topic*

Diff. Equation

Source*

By H.K.Das

Question: 6*

Find the rank of matrix using by normal form $\begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$

LessonPlan*

LP 10

Topic*

Matrix

Source*

By H.K.Das

I have scrutinized the assignment paper.
There is no spelling mistake of any type or irrelevant question

Faculty's Sign SAPANA THAKUR