

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 THEORETICAL 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

Question Paper & Student Details

Name of Faculty*	<input type="text" value="Sidhartha Sondh"/>	Date of Submission of QP	<input type="text" value="26/11/2020"/>
Subject*	<input type="text" value="205 - Engineering Mechanics (Old)"/>	Date of Examination*	<input type="text" value="02/12/2020"/>
Email Id of Faculty:*	<input type="text" value="sidharthasondh@soaneemrana.org"/>	Course*	<input type="text" value="B.Tech (Aeronautical Engineering)"/>
Phone Number of Faculty*	<input type="text" value="963 455 7511"/>	Semester*	<input type="text" value="Semester : 2"/>

Student Name	<input type="text"/>	Student Reg No.	<input type="text"/>
--------------	----------------------	-----------------	----------------------

Part A

Question : 1*

Explain the following terms:

- I. Limiting friction
- II. Angle of friction
- III. Uniform velocity

Lesson Plan*	<input type="text" value="6"/>	Topic*	<input type="text" value="Fundamentals"/>	Source*	<input type="text" value="Self"/>
--------------	--------------------------------	--------	---	---------	-----------------------------------

Question : 2*

Write impulse momentum equation & give its applications.

Lesson Plan*

14

Topic*

Momentum equation

Source*

Self

Question : 3*

Distinguish between the following:
I. Sliding friction and rolling friction
II. Plane motion and projectile motion

Lesson Plan*

12

Topic*

Friction

Source*

Self

Question : 4*

Explain the principle of virtual work.

Lesson Plan*

22

Topic*

Virtual Work

Source*

Self

Part B

Question : 1*

A drum containing water weighing 500N is to be raised from a well by a simple wheel and axle. If diameter of axle is 100 mm. & diameter of wheel is 500mm, applied force = 125N, Determine
I) M.A.
ii) V.R.
iii) Efficiency

Lesson Plan*

24

Topic*

Velocity ratio

Source*

Engineering Mechanics

Question : 2*

A small belt makes 1.5 turns on a pulley and supports a weight at one end of belt. If at other end pull force exerted is 600N and coefficient of friction between belt and pulley is (0.15). Determine range of weight that can supported by such arrangement.

Lesson Plan*

20

Topic*

Belts

Source*

Engineering Mechanics

Question : 3*

Explain with example "the principle of conservation of energy Derive expression for transformation of energy.

Lesson Plan*

11

Topic*

Conservation of energy

Source*

Self

Question : 4*

Derive an expression for the P_{min} and P_{max} that is required to act on a body on a rough inclined plane to keep the body in equilibrium. Consider the force to be acting at some angle Θ with the inclined plane.

Lesson Plan*

4

Topic*

Force

Source*

Engineering Mechanics

Question : 5

Explain the parallel axis theorem and derive perpendicular axis theorem.

Lesson Plan

8

Topic

Axis theorem

Source

Self

Question : 6

An airplane flying at a straight levelled course at 200 km/h at a height of 1000 meters above the ground. An anti-aircraft gun located on the ground fires a shell with an initial velocity of 300 m/s, at the instant when the plane is vertically above it. At what inclination to the horizontal, should the gun be fired to hit the plane? What time after firing, the gun shell will hit the plane? What will then be the horizontal distance of the plane from the gun?

Lesson Plan

16

Topic

Projectile motion

Source

Engineering Mechanics

Upload Scanned Document In Case of Numerical or Diagram for any of the above question

Mention question number with relevant fig / numerical / equations.
Max 150 KB

Choose files or drag here

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

SS
