MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

II BTech II Semester AERODYNAMICS – (R17A2103)

MODEL PAPER – I

MAX MARKS: 70

ALL QUESTIONS CARRIES EQUAL MARKS

Section I

1. Derive the energy equation by applying the fundamental principle to a suitable flow model.

OR

2. Using neat sketches, explain the flow behavior past stream lined bodies placed in different mach number regimes.

Section II

3. a. Define boundary condition. Explain infinity boundary condition and wall – boundary condition.

b. Explain Rankine – oval. Derive the equation of Rankine – oval.

OR

4. A stationary circular cylinder is placed in a uniform flow stream of velocity V_∞. Obtain the equation of stream line pattern around the cylinder. Also sketch the pressure distribution over the surface of the cylinder.

Section III

5. Define using neat sketch the viscous drag over a body placed in a uniform free stream. Explain the concept of flow separation and the factors effecting it

OR

6. Obtain the laminar boundary layer thickness and skin friction drag for an incompressible flow over a flat plate at zero angle of attack. (BLASIUS EQUATION)

Section IV

7. a. Derive the fundamental equation of Prandtl's lifting line theory.

b. Obtain the expressions for coefficients of lift, induced drag, effective angle of attack for an elliptical wing plan-form. Explain the symbols used clearly.

OR

8. Define vortex filament and vortex sheet. Obtain the solution for lifting – flows over 2 – D bodies using vortex panel method. State the advantages of panel method over thin airfoil theory.

Section V

9. Using a neat sketch, explain how lift is augmented by using

a. Flap systems

b. Circulation control wing

OR

10. What is the working principle of Vortex generators? Explain in detail.

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

II BTech II Semester AERODYNAMICS – (R17A2103)

MODEL PAPER – II

MAX MARKS: 70

ALL QUESTIONS CARRIES EQUAL MARKS

Section I

1. Derive Momentum equation in integral form and differential form by applying the physical principle to a suitable flow model.

OR

2. Derive the Navier – stokes equation.

Section II

3. A circular cylinder spinning about its own axis is placed in a uniform free – stream of velocity V_∞. Obtain the expression for the lift generated over the cylinder. State all the symbols used clearly.

OR

4. Consider lifting flow over a circular cylinder. The lift coefficient is given by 5. Calculate the peak pressure coefficient, location of stagnation points and the points on the cylinder where the pressure equals free stream static pressure.

Section III

5. Define pressure drag. Explain using neat sketches flow separation and the factors effecting flow separation, and separation control.

OR

6. Define momentum thickness of a boundary layer and derive Von – Karman momentum integral equation.

Section IV

7. Using neat sketches, explain the effect of the presence of down wash on the local airfoil section. How the characteristics of a finite wing are different when compared to the characteristics of airfoil sections?

OR

8. Citing necessary examples, explain the effect the aspect ratio of wings on the performance parameters.

Section V

9. Using neat sketches explain the use of winglets in drag control.

OR

10. Explain the function of leading edge flaps and trailing edge flaps in detail**.**

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

II BTech II Semester AERODYNAMICS – (R17A2103)

MODEL PAPER – III

MAX MARKS: 70

ALL QUESTIONS CARRIES EQUAL MARKS

Section I

1. Using Buckingham's pi theorem, explain the factors on which the basic parameters of aerodynamics depend on.

OR

2. a. Explain the criterion to be established for the flows to be dynamically similar.

b. Consider an aircraft cruising at a velocity of 245.87m/s at standard altitude of 11582.4 m, where the free stream pressure and temperature are 20712.9 N/m^2 and 216.67 K, respectively. A one – fifth model of the craft is tested in a wind tunnel where the temperature is 238.88 K. Calculate the required pressure and velocity of the test air stream in the wind tunnel such that the aerodynamic coefficients measured for the wind tunnel model are same as for free flight. Assume μ and a are proportional to $T^{1/2}$.

Section II

3. a. State Kutta condition.

b. Derive the fundamental equation of thin airfoil theory. Explain the symbols used clearly.

OR

4. a. Define source flow and sink flow. Obtain the expression for velocity potential and stream function for the source flow. Define the strength of the source.

b. Consider a thin flat plate at 5^0, angle of attack. Using the results of thin airfoil theory, calculate the lift coefficient, moment coefficient about the leading edge, moment coefficient about the quarter chord point and the moment coefficient about the trailing edge.

Section III

5. a. Using neat sketch, explain the growth of a boundary layer over a flat plate. Define the terms laminar boundary layer, turbulent boundary layer and transition boundary layer.

b. Define boundary layer thickness, energy thickness and momentum thickness.

OR

6. Consider the flow of air over a small flat plate which is 5 cm long in the flow direction and 1 m wide. The freestream conditions correspond to standard sea level, and the flow velocirt is 120 m/s. Assuming laminar flow, Calculate: (a) The boundary layer thickness at the downstream edge (b) The drag force on the plate.

Section IV

7. Consider a rectangular wing with an aspect ratio of 6, an induced drag factor is given by 0.055 and a zero – lift angle of attack of -2^0. At an AoA of 3.4^0, the induced drag coefficient for this wing is 0.01. Calculate the induced drag coefficient for a similar wing (a rectangular wing with the same airfoil section) at the same angle of attack, but with an aspect ration of 10. Assume that the induced factors for the drag and lift slope are equal to each other.

OR

8. Explain the concept of vortex trunk and vortex theory by Lanchester.

Section V

9. Explain using necessary illustrations, how swept back wings are advantageous in reducing transonic drag rise.

OR

10. State the function of a) Winglets b) Swept wings. Explain the advantages and disadvantages of each.

II BTech II Semester AERODYNAMICS – (R17A2103)

MODEL PAPER – IV

MAX MARKS: 70

ALL QUESTIONS CARRIES EQUAL MARKS

Section I

1. a. What are the sources of aerodynamic forces and moments? Explain using a neat sketch.

b. Explain the role of lift and drag coefficients in the preliminary design of an aircraft using neat sketches.

OR

2. a. Derive the continuity equation in integral form and differential form by applying the fundamental principle to the suitable flow model.

b. State the significance of Reynolds number in aerodynamics.

Section II

3. From the fundamental equation of thin airfoil theory, obtain the aerodynamic force and moment coefficients and the position of center of pressure for a cambered airfoil. Explain all the symbols used clearly.

OR

4. Consider a non – lifting flow and lifting flow (of constant circulation) over the circular cylinder of a given radius. For the two cases mentioned, if the free stream velocity is doubled, does the shape of the stream lines change? Explain using necessary equations.

Section III

5. a. Define Viscosity

b. Explain the role of viscosity in fluid flow and aerodynamics.

c. Define adverse pressure gradient

OR

6. Derive Navier – Stokes equations

Section IV

7. Define discretisation. State the importance of quarter – chord point and three – quarter chord point in discretisation.

OR

8. Derive the fundamental equation of Prandtl's lifting line theory. Apply it to solve for the aerodynamic parameters of a rectangular swept back wing.

Section V

9. Define stall. Explain the effect of wing – section, wing plan – form and protuberances on the performance of an aircraft.

OR

10. How does the secondary control surfaces operate on an aircraft. Explain in brief**.**

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

II BTech II Semester AERODYNAMICS – (R17A2103)

MODEL PAPER – V

MAX MARKS: 70

ALL QUESTIONS CARRIES EQUAL MARKS

Section I

1. Explain how drag on a two dimensional body is measured by applying momentum equation.

OR

2. Explain the importance of aerodynamics and applications of the subject in various fields of engineering.

Section II

3. a. The lift on a spinning cylinder in a free stream with a velocity of 30 m/s and at standard sea level conditions is 6 N/m of span. Calculate the circulation round the cylinder.
   b. Consider a uniform flow of velocity V_∞. Show that it is a possible case of incompressible flow that is irrotational.

OR

4. State the fundamental equation of thin airfoil theory. Obtain the solution for the non – lifting case using singularity distribution method.

Section III

5. Sketch the variation of variation of viscous drag coefficient with the Reynolds number over a circular cylinder and explain.

OR

6. Define critical Reynolds number. State the effect of transition and surface roughness of airfoils on its performance characteristics.

Section IV

7. State the advantages and disadvantages of vortex panel method over thin airfoil theory while solving for the performance parameters of an airfoil in incompressible inviscid flow.

OR

8. Consider a finite wing with an aspect ratio of 6. Assume an elliptical lift distribution. The lift slope for the airfoil section is 0.1/degree. Calculate and compare the lift slopes for (a) straight wing and a (b) swept wing with half – chord sweep of 45^0

Section V

9. a. Using neat sketches, explain how drag is reduced by using variable – twist and variable – camber wings.
   b. Explain power – augmented lift.

OR

10. a. Describe briefly the design philosophies used in conventional high lift airfoil design.
   b. What are the advantages of multiple lifting surfaces and explain about multi lifting surface interference effects.

AIRCRAFT PERFORMANCE (R17A2107)

MODEL PAPERS

II B. Tech II Semester

(2018-2019)

Prepared By

Ms. D.SMITHA, Assoc. Prof

Department of Aeronautical Engineering

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2015 Certified)
Maisammaguda, Dhulapally (Post Via. Kompally), Secunderabad – 500100, Telangana State, India.

Code No: R15A2106 **R15**

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Regular/Supplementary Examinations, April/May 2018

Aircraft Performance

(AE)

Roll No										

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 25 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

PART – A (25 Marks)

1. (a) What is the significance of off-standard atmosphere? (2M)
   (b) Write the expressions for lift, drag and side force coefficients. (3M)
   (c) What is the effect of weight on cruise performance? (2M)
   (d) Give the expressions for endurance of a jet engine and propeller engine. (3M)
   (e) What is instantaneous turn? (2M)
   (f) Write the equations of motion for accelerated flight? (3M)
   (g) What is the effect of weight of an aircraft on take-off distance? (2M)
   (h) Define tankering (3M)
   (i) What are the types of rockets? (2M)
   (j) What are design features of rockets? (3M)

PART – B (50 Marks)

SECTION – I

2. Derive an equation for the total drag condition and drag reduction methods. (10M)

(OR)

3. Explain the variation of thrust, propulsive power and specific fuel consumption with flight speed. (10M)

SECTION – II

4. Explain the effect of altitude and temperature on cruise performance. (10M)

(OR)

5. Explain the constant altitude cruise techniques and compare it with the other cruise techniques. (10M)

SECTION – III

6. Obtain the relation for the Radius of turn and turn rate for a level turning flight. (10M)

(OR)

7. Explain in detail, the effect of wind on climb and descent performance. (10M)

SECTION – IV

8. (a) Write the differences between discontinued landing and baulked landing. (5M)
   (b) Explain in detail about ground effect? (5M)

9. Calculate total take off distance for Gulfstream airplane at standard sea level assuming a take-off gross weight of 80,000lb .The design features of the airplane are $s=950ft^2$,AR=7,C_{do}=0.015and K= 0.06with the added information that the wing span is 75ft .Assume that the variation of engine thrust with the velocity during takeoff is obtained with constants where k^*_1=27,700 lb k^*_2=21.28lb s/ ft^2 and $k^*_3=1.117x10^{-2}$ lb s/ ft^2.The height of the wing above the ground during the ground roll is 6ft.Assume the runway is dry concrete ,with μ_r=0.02 (10M)

10.

SECTION – V

10. Explain the missile performance in boost glide. (10M)

(OR)

11. Explain about long range cruise trajectory(10M)

II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AIRCRAFT PERFORMANCE

MODEL PAPER – I
MAXIMUM MARKS: 70

Max Marks70

i. Answer only one question among the two questions in choice.
ii. Each question answer (irrespective of the bits) carries 10M.

1) Explain the factors to be considered in the estimation of performance of an aircraft and how the estimation is carried out

OR

2) Describe the mission of a military aircraft with the required sketches

3) Derive an expression for range and endurance for aircraft with thrust producing engines with the necessary equations

OR

4) Explain the cruising method of constant angle of attack and constant mach number and explain about the effect of alternative fuel flow laws

5) Explain the equations of motion of an aircraft with thrust producing engines in a climb .Derive the expressions for climb gradient and climb rate

OR

6) (a)Describe the phases of descending flight through a diagram and
(b) Discuss the various criteria that govern the manner in which the aircraft is flown in each phase

7) Explain the process of take –off with the help of a diagram and discuss how take-off distances are estimated

OR

8) Discuss the space available and space required for take – off performance with required sketches

9) Explain about the boost glide trajectory with graphical solution and iteration method with neat sketches

OR

10) Missiles are classified in to four general classes ,what are they explain them in detail

II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AIRCRAFT PERFORMANCE
MODEL PAPER – II
MAXIMUM MARKS: 70

Max Marks: 70

i. Answer only one question among the two questions in choice.
ii. Each question answer (irrespective of the bits) carries 10M.

1) For international standard atmosphere , explain variation of temperature , pressure variation with altitude with the help of neat and proper diagram .Also define lapse rate ,stratosphere and troposphere

OR

2) Explain minimum drag speed , minimum power speed and describe their importance in aircraft performance studies

3) Derive Breguet range equation and discuss about the constant altitude , constant mach number

OR

4) Discuss the comparison of cruise methods and explain through diagrams how range function and endurance function vary with relative speed

5) What are the reasons for the maneuver performance of an aircraft to be limited by the structural strength of the airframe? Discuss the main elements of a typical maneuver envelope with the help of a schematic diagram

OR

6) Describe the equations of motion of an aircraft undergoing lateral maneuver or level turn and derive an expression for radius of turn. Discuss with the help of a diagram the maneuver boundaries for turning performance

7) Explain the process of landing with the help of a diagram and discuss the estimation of the landing distances

OR

8) Define the performance classes used to classify aircraft in meeting the requirements of certificate of airworthiness. what are the issues relating to discontinued landing

9) Explain in detail about long - range cruise trajectory

OR

10) Explain about principle design features of rockets and missiles

II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AIRCRAFT PERFORMANCE
MODEL PAPER – III
MAXIMUM MARKS: 70

Max Marks: 70

i. Answer only one question among the two questions in choice.
ii. Each question answer (irrespective of the bits) carries 10M.

1) What for aircraft performance measurement is required ?Show with the help of diagrams typical military aircraft mission profiles

OR

2) Discuss aircraft force system needed for formulating the performance equations of motion

3) Derive an expression for range and endurance for aircraft with thrust producing engines

OR

4) Discuss about the effect of WAT (weight, altitude ,and temperature) on cruise performance

5) Explain about the measurement of best climb performance (b)Discuss descent performance in aircraft operations

OR

6) (a)Explain about the transport aircraft maneuver performance and military aircraft maneuver performance

(b) Determine the load factor, bank angle turn radius for an aircraft in a level turn at a true speed of 120km and a turn rate of 15deg/s

7) What are the phases into which the flight is divided for the purpose of flight planning ?Explain with the help of diagram the airfield distances available for take-off

OR

8) (a)Explain the effect on the take-off distances of the flight variables

(b) Find lift to drag ratio when drag coefficient at zero lift is 0.2 density of air at 10 km is 0.4135kg/cubic meter and speed of aircraft is 300kmph.The mass of the aircraft is 5000kg area of wing plan form is 5sqm and its AR is 6, span efficiency factor is 1

9) Explain about long range - ballistic trajectories

OR

10) Explain about boost - sustain trajectory

II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AIRCRAFT PERFORMANCE
MODEL PAPER – IV
MAXIMUM MARKS: 70

Max Marks: 70

i. Answer only one question among the two questions in choice.
ii. Each question answer (irrespective of the bits) carries 10M.

1) (a) Discuss vertical structure of the atmosphere and its various layers through a diagram
(b) Explain air data computer system using a diagram

OR

2) Derive the expression for drag polar and also explain about the drag reduction methods with requires figures

3) (a) An aircraft with wing loading of 1500N/sqm is gliding from an altitude of 4 km. What is the glide angle corresponding to minimum rate of descent. If zero lift drag coefficient is 0.2? what is the equilibrium glide velocity associated with the descent
(b) Write shortly about the climbing flight and also write short notes on weight estimation of the aircraft

OR

4) Write short note on the endurance of an aircraft and derive the expression for both turbojet and propeller driven airplanes

5) (a) An F-22 is performing a 5-g pull up at 10,000 ft and 500 kn true airspeed what is the turn rate and turn radius

(b) Explain about the effect of wind on climb and descent performance

OR

6) Derive an expression for specific excess power

7) Explain about the take –off performance showing with the illustration of ground roll ,airborne distance and total take –off distance and also explain with the intermediate segments of the ground roll

OR

8) Calculate total take off distance for Gulfstream _like airplane at standard sea level assuming a take-off gross weight of 73,000lb .The design features of the airplane are $s=950ft^2$,AR=5.92,C_{do}=0.015and K= 0.08with the added information that the wing span is 75ft .Assume that the variation of engine thrust with the velocity during takeoff is

9) given by equation (6.74) .where k^*_1=27,700 lb k^*_2=21.28lb s/ ft^2 and k^*_3=1.117x10^{-2} lb s/ ft^2.The height of the wing above the ground during the ground roll is 5.6ft.Assume the runway is dry concrete ,with μ_r=0.04(example 6.6 in aircraft performance J.D ANDERSON)

10) Explain about fuel planning , flight planning

OR

11) Explain about rate of climb in long range cruise trajectory with necessary equations

II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AIRCRAFT PERFORMANCE
MODEL PAPER – V
MAXIMUM MARKS: 70

Max Marks: 70

i. Answer only one question among the two questions in choice.
ii. Each question answer (irrespective of the bits) carries 10M.

1) (a)Explain about the off standard and design atmosphere (b)Explain about the pressure height relation ship

OR

2) Derive the equations of motion for steady level flight

3) (a)Explain about the air data computers with the required sketches
(b)Define range, endurance, the drag force, the side force and the overall drag force D

OR

4) (a)Explain about the cruising performance with the comparison of three cruise technique methods
(b) Estimate the maximum range at 30,000ft for the gulfstream IV. Also calculate the flight velocity to obtain this range.The maximum usable fuel weight is 29,500 lb .The thrust specific fuel consumption of the Rolls Royce Tay turbofan at 30,000 ft is 0.69 lb of fuel consumed per hour per pound of thrust (example 5.19 aircraft performance J.D ANDERSON)

5) Derive the expression for maximum turn radius and maximum turn rate

OR

6) Derive the expression for rate of climb and also explain the graphical approach

7) (a)Explain about the V-n diagram with neat sketch
(b)Explain about the landing performance with neat sketch

OR

8) (a)Explain baulked landing(b) Discuss air safety procedures and requirements on landing performance

9) Explain graphical solution in boost glide trajectory

OR

10) Explain the types of design and control of external aerodynamic configurations used for four classes of missiles with advantaged and disadvantages with neat figures

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

UG Model question paper-I

Managerial Economics and Financial Analysis

Time:3hours **Max Marks: 70**

Note: This question of 5 sections. Answer five questions, choosing one question from each section and each question paper contains carries 14 marks.

Section-I

1. a) what is managerial economics? Discuss the nature & Scope of Managerial economics [7M]

   b) What is demand forecasting? Explain various factors involved in demand forecasting. [7M]

OR

2. a) Explain Law of Demand with its exceptions [7M]

   b) Distinguish between Micro and Macroeconomic concepts (7M)

Section-II

3. a)Define Production function. How can a producer find it useful? Illustrate. (7M)

   b) Define Cost. Explain the different cost concepts used in the process of Cost Analysis. (7M)

OR

4. a) Distinguish between explicit and implicit costs? [3M]

   b) State and illustrate Cobb-Douglas production function. What are the properties of this function? (5M)

   c) Calculate the BEP in units and rupees using the following details: • Selling price per unit Rs. 100 • Variable cost per unit Rs. 60 • Fixed costs Rs. 20,000 • Actual sales Rs. 2,00,000 (6M)

Section-III

5. a) Define Market. Explain the structure of market with suitable examples. (7M)

   b) Define partnership. Explain its features and evaluate it as against sole proprietorship (7M)

OR

6. a) what is price? Explain different methods of Pricing. (7M)

   b) Explain the need for public enterprises in India. Do you think Public Enterprises as a whole have fulfilled that need? (7M)

Section-IV

7. a) What are the accounting concepts that govern accounting process? Explain in brief. (7M)

b) Explain the main sources have long term finance. (7M)

OR

8. a) Explain the factors affecting the requirements of working capital. (7M)

b) Explain about cash and capital budget. (7M)

Section-V

9. a) what is capital budgeting ? Explain methods of capital budgeting? (7M)

b) What is ratio analysis? Explain different types of ratio analysis (7M)

OR

10. a) Ram Enterprise is considering purchasing a CNC machine. The following are the earnings after tax from the two alternative proposal under consideration each costing Rs 8,00,000. Select the better proposal if the company wishes to operate @ 10% rate of return. (7M)

	Year 1	Year 2	Year 3	Year 4	Year 5
Proposal I	80,000	2,40,000	3,20,000	4,80,000	3,20,000
Proposal 2	2,40,000	3,20,000	4,00,000	2,40,000	1,60,000
Present value of Rs 1 @10%	0.909	0.826	0.751	0.683	0.620

b) What do you mean by capital budgeting? Explain its significance. (7M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

UG Model question paper-II

Managerial Economics and Financial Analysis

Time:3hours **Max Marks: 70**

Note: This question of 5 sections. Answer five questions, choosing one question from each section and each question paper contains carries 14 marks.

Section-I

1. a) what is managerial economics? Discuss the nature & Scope of Managerial economics [7M]

   b) What is demand forecasting? Explain various factors involved in demand forecasting. [7M]

OR

2. a) Explain Law of Demand with its exceptions [7M]

   b) Distinguish between Micro and Macroeconomic concepts (7M)

Section-II

3. a)Define Production function. How can a producer find it useful? Illustrate. (7M)

   b) Define Cost. Explain the different cost concepts used in the process of Cost Analysis. (7M)

OR

4. a) Discuss about the economies and diseconomies of scale. (7M)

   b) Calculate the BEP in units and rupees using the following details: • Selling price per unit Rs. 100 • Variable cost per unit Rs. 60 • Fixed costs Rs. 20,000 • Actual sales Rs. 2,00,000 (7M)

Section-III

5. a) Define Market. Explain the structure of market with suitable examples.

   b) Define partnership. Explain its features and evaluate it as against sole proprietorship

OR

6. a) what is price? Explain different methods of Pricing. (7M)

   b) Explain the need for public enterprises in India. Do you think Public Enterprises as a whole have fulfilled that need? (7M)

Section-IV

7. a) What are the accounting concepts that govern accounting process? Explain in brief. (7M)

b) Explain the main sources have long term finance. (7M)

OR

8. a) Explain the factors affecting the requirements of working capital. (7M)

b) Explain about cash and capital budget. (7M)

Section-V

9. a) what is capital budgeting ? Explain methods of capital budgeting? (7M)

b) What is ratio analysis? Explain different types of ratio analysis (7M)

OR

10. a) Ram Enterprise is considering purchasing a CNC machine. The following are the earnings after tax from the two alternative proposal under consideration each costing Rs 8,00,000. Select the better proposal if the company wishes to operate @ 10% rate of return. (7M)

	Year 1	Year 2	Year 3	Year 4	Year 5
Proposal I	80,000	2,40,000	3,20,000	4,80,000	3,20,000
Proposal 2	2,40,000	3,20,000	4,00,000	2,40,000	1,60,000
Present value of Rs 1 @10%	0.909	0.826	0.751	0.683	0.620

b) What do you mean by capital budgeting? Explain its significance. (7M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

UG Model question paper-III

Managerial Economics and Financial Analysis

Time:3hours **Max Marks: 70**

Note: This question of 5 sections. Answer five questions, choosing one question from each section and each question paper contains carries 14 marks.

Section-I

1. a) "Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management". Explain? (7M)

b) Define demand and describe its determinants with suitable examples? (7M)

OR

2. a) What do you understand by Elasticity of demand? How do you measure it? What is its significance? (7M)

b) What do you understand by demand? What the different types are of demand? **(7M)**

Section-II

3. a) Explain and illustrate the following: and also mention why they arise: a) The Law of Constant Returns b) The Law of increasing returns**.** **(7M)**

b) discuss about iso quants and iso costs? **(7M)**

OR

4. a) Define BEP. How do you determine it. Show graphical presentation of BEA **(7M)**

b) You are given the following information for the year 2003 of XYZ Co. Ltd: Variable Cost 6,00,000 60% Fixed Cost 3,00,000 30% Net Profit 1,00,000 10% 10,00,000 100% Find out i) Break Even Point in units and sales ii) PV Ratio iii) Margin of Safety iv) Number of units that must be sold to earn a profit of 5,00,000 v) How many units must be sold to earn a net income of 13.5% of sales **(7M)**

Section-III

5. a) Do you think monopoly is present in the current business environment? Explain it with suitable examples**.** **(7M)**

b) Explain the merits and demerits of different forms of Business organization and their suitability with different types of business Activities **(7M)**

OR

6. a) what is pricing? Explain objectives and policies behind pricing. **(7M)**

b) Explain the need for public enterprises in India. Do you think Public Enterprises as a whole have fulfilled that need? (7M)

Section-IV

7. a) What are the accounting concepts that govern accounting process? Explain in brief. (7M)

b) Explain the main sources have long term finance. (7M)

OR

8. a) Explain the factors affecting the requirements of working capital. (7M)

b) Explain about cash and capital budget. (7M)

Section-V

9. a) what is capital budgeting ? Explain methods of capital budgeting? (7M)

b) What is ratio analysis? Explain different types of ratio analysis (7M)

OR

10. a) Ram Enterprise is considering purchasing a CNC machine. The following are the earnings after tax from the two alternative proposal under consideration each costing Rs 8,00,000. Select the better proposal if the company wishes to operate @ 10% rate of return. (7M)

	Year 1	Year 2	Year 3	Year 4	Year 5
Proposal I	80,000	2,40,000	3,20,000	4,80,000	3,20,000
Proposal 2	2,40,000	3,20,000	4,00,000	2,40,000	1,60,000
Present value of Rs 1 @10%	0.909	0.826	0.751	0.683	0.620

b) What do you mean by capital budgeting? Explain its significance. (7M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Managerial Economics and Financial Analysis

UG Model question paperIV

Time:3hours **Max Marks: 70**

Note: This question of 5 sections. Answer five questions, choosing one question from each section and each question paper contains carries 14 marks.

Section-I

1. (a) Define managerial economics. Illustrate how it helps in solving managerial problems and explain the nature. (4M)

(b) Explain different methods of demand forecasting (6M)

(c) Briefly explain elasticity of demand. (4M)

OR

2. (a) What are the different kinds of elasticity of demand that are relevant to the manager of a firm? (7M)

(b) How do you forecast demand for a new product? (7M)

Section-II

3. (a) Explain the concepts of cost and explain their contribution to managerial decisions. [9M]

(b) Explain production function. [5M]

OR

4. (a) Discuss about isoquants. [4M)

(b) What is meant by breakeven analysis? Explain its advantages. (4M)

(c) Critically evaluate the law of diminishing marginal return. (6M)

Section-III

5(a) Explain the types of competition. [7M]

(b) What is perfect competition and explain its features. [7M]

OR

6. (a) Explain the state/ public enterprises and their various forms. [7M]

(b) What is the importance of pricing in a business organization? [7M]

Section-IV

7(a) Write different types of shares [7M]

(b) Define Financial Accounting. Explain the importance and Limitations of Financial Accounting. (7M)

OR

8. (a) what is accounting? Explain the principles of accounting. (7M)

(b) write the format and importance of balance sheet. (7M)

Section-V

9.(a) Illustrate the advantages and Disadvantages of NPV Method. (7M)

(b) A firm is considering two projects each with an initial investment of Rs.20,000 and a life of 4 years. The following is the list of estimated cash inflows after taxes and depreciation. (7M)

year	Proposal I	Proposal II	Proposal III
1	12500	11750	13500
2	12500	12250	12500
3	12500	12500	12250
4	12500	13500	11750
total	50000	50000	50000

Predict Accounting Rate of Return on (i) Average Capital (ii) Original Capital Employed

OR

10(a) discuss different types of liquidity and activity ratios (7M)

(b) A Company has an estimated Life of 4 years and an investment opportunity costing Rs.2,50,000 with the following expected Net Cash flow After Taxes and Before Depreciation. (7M)

Years	Net cash flows (rs)	P.V. of Rs.1 @24% D.f
1	120000	0.806
2	90000	0.650
3	160000	0.524
4	30000	0.423

Calculate payback period and NPV using with 10% discounting factor

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Managerial Economics and Financial Analysis

UG Model question paper-V

Time:3hours **Max Marks: 70**

Note: This question of 5 sections. Answer five questions, choosing one question from each section and each question paper contains carries 14 marks.

Section-I

1. (a) Explain the influencing factors of the elasticity of demand. (7M)
   (b) Define managerial economics and explain its areas (7M)

OR

2.(a) What is demand forecasting? Explain various factors involved in demand forecasting. (7M)
   (b) What is elasticity of demand? And explain its types and measurement. (7M)
(7M)

Section-II

3.(a) Explain the importance production function and describe the salient features of Cobb-Douglas production function (7M)
   (b) Describe the importance of Break-even analysis and Break-even point. (7M)

OR

4.(a) You are required to Determine i)P/V Ratio (ii) Break Even Point in Value (iii) Sales required to earn a profit of Rs.4,50,000 and (iv) Profit when Sales are Rs.21,60,000 from the following information (7M)

Fixed Expenditure Rs.90,000,
Variable Cost Per unit :
Direct Material Rs.5
Direct Labour Rs.2
Direct Overheads 100% of Direct Labour
Selling price per unit Rs.12/-

   (b) The Sales Turnover and profit during two years were given as follows: (7M)

Years	2003	2004
Sales (Rs.)	1,00,000	1,20,000
Profit (Rs.)	15,000	23,000

You are required to Compute the following: i)P/V Ratio ii) Fixed Cost iii) Break Even Point (Value) ii) Sales required to earn a profit of Rs.20,000 iii) Profit when Sales are Rs.1,25,000

Section-III

(7M)

5.(a) define business. Explain its characteristics

(b) Explain the salient features of private limited and public limited companies (7M)

OR

(7M)

6. (a) Describe the features of perfect competition.

(b) Make a comparison among Monopolistic, Monopoly and Oligopoly competition? (7M)

Section-IV

7.(a) Describe different types of capital. (7M)

(b)explain about different methods and sources of capital (7M)

OR

8.(a) Describe the advantages and disadvantages of double entry book keeping (7M)

(b) Prepare Trial Balance of Mr.Rajaram as on 31.12.2005 from the following balances:

1. Sundry Debtors 32,000
2. Cash in Hand 35
3. Plant &Machinery 17,500
4. Trade expenses 1,075
5. Salaries 2,225
6. Rent 900
7. Purchases 2,18,870
8. Capital 79,500
9. Stock as on 1.1.2005 22,000
10. Cash at Bank 1,545
11. Sundry Creditors 10,650
12. Sales 2,34,500
13. Carriage Outwards 400
14. Bills Payable 7,500
15. Discount Allowed 1,100
16. Business Premises 34,500

Section-V

9.(a) Briefly explain the traditional methods of capital budgeting. (7M)

(b) Briefly describe the modern methods of capital budgeting. (7M)

OR

10 (a) describe the advantages and disadvantages of traditional methods of capital budgeting (7M)

(b) The following is an extract of a balance sheet of a company during the last year. Compute current ratio and quick ratio. Also interpret the ratios. (7M)

Land and buildings 1,50,000,	Plant and machinery 3,00,000,
Furniture and fixtures 1,25,000,	Closing stock 25,000,
Sundry debtors 62,500,	Wages prepaid 7,500,
Sundry creditors 18,000,	Rent outstanding 12,000

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

Model Paper 1

Section I

1. **Derive the expression for installed and uninstalled thrust for the aircraft.**

or

2. **Explain the turbojet engine operation, advantages and disadvantages with a neat sketch.**

Section II

3. **Derive an expression for the propulsive efficiency of a gas turbine engine.**

or

4. **State and explain four fundamental laws used in design and operation of gas turbine engines.**

Section III

5. **Derive the Euler's equation for turbine and pump**

or

6. **Explain with neat sketches the differences between blade profiles of axial flow turbine and compressor.**

Section IV

7. **Explain the problems of combustion in high speed flow.**

or

8. **Explain briefly the operating principles of different types of electrical thrusters. With a neat diagram, explain the operation of a Ion Thruster**

Section V

9. **What is the function injector in a liquid propellant rocket system? Explain working of different types of injectors used with neat diagrams.**

Or

10. **Write short notes on the following:**
    - **(a) Types of space tethers**
    - **(b) MEMS technology**
    - **(c) Interstellar Ramjet**

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

Model Paper 2

Section I

1. **What are the factors affecting the thrust of an aircraft? Discuss the effect of forward speed of the aircraft and variation of altitude on the thrust developed by the aircraft**

or

2. **With a neat schematic diagram, explain the operationof a Ram jet engine.**

Section II

3. **Explain different types of inlets with neat sketches**..

or

4. **State the differences between Centrifugal flow and Axialflow compressors**.

Section III

5. **Explain different methods of cooling used in axial turbine blades.**

or

6. **What is the need for distributed fuel injection in scramjet engines? Explain with suitable diagrams**.

Section IV

7. **Compare solid propulsion systems with liquid propulsion systems and mention their comparative advantages and usage.**

Or

8. **Explain the need for supersonic combustion beyond flight speeds of Mach 4.0. With a neat sketch, explain the operation of a Scramjet engine.**

Section V

9. **Discuss the desirable characteristics of solid propellants**.

Or

10. **What are Reaction Control Systems (RCS)? Explain different manuevers performed by RCS systems.**

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

Model Paper 3

Section I

1. **Explain the operation of turbofan engine with a neat sketch, and discuss its advantages and disadvantages.**

Or

2. **A gas turbine rotates at 1000 rpm. At entry to the nozzle guide vanes, the total temperature and pressure are 700* C and 4.5 bar. At the outlet to the nozzle guide vanes, the static pressure is 2.6 bar. At the turbine outlet, the static pressure is 1.5 bar. Mach number at the outlet is 0.5. Gas leaves the turbine in an axial flow direction. The outlet nozzle angle is 70°. Nozzle friction loss is 0.3%.**

Calculate the gas angles at entry and outlet from the rotor and the output power developed by the turbine. Assume C_p as 1.147 kj/kg K and γ as 1.33.

Section II

3. **Draw the velocity triangles at the inlet and outlet of the rotor and derive an expression for the work done per stage.**

Or

4. **Draw compressor operating map and explain compressor operation through different off design conditions.**

Section III

5. **Explain the construction and operation of a combustor in a gas turbine engine with a neat diagram**

Or

6. **Write short notes on the following:**

(a) **Thermal Throat**

(b) **Function of Isolator in scramjet engine**

Section IV

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

7. Define specific impulse, total impulse, mass ratio, propellant mass fraction and the effective exhaust velocity of a rocket vehicle

Or

8. Write short notes on:

(a) Application of Electric Propulsion

(b) Break through propulsion

(c) Ensuring Sustainable Chain Reaction in Nuclear Propulsion

Section V

9. **Explain the process through which engine back pressure control is excercised by the nozzle.**

Or

10. Explain the operation of Resisto-jet and Arc-jet engines with neat diagrams. What are limitations of electro-thermal thrusters?

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

Model Paper 4

Section I

1. **Explain the effect of altitude and forward speed on the performance of a jet engine.**

or

2. **With a neat schematic diagram, explain the function of different components of a turbo-jet engine**.

Section II

3. **Explain the use of velocity triangles in analysing the stage pressure rise in an axial flow compressor**.

or

4. **Explain the relevance of turbine inlet temperature for the gas turbine operation. Discuss various turbine blade cooling methods used with neat sketches.**

Section III

5. **In a gas turbine engine working on Brayton cycle with a regenerator effectiveness of 75%, the air at the inlet to the compressor is at 0.1 Mpa and 30° C. The pressure ratio of the compressor is 6 and the maximum cycle temperature is 900° C. If the turbine and compressor have an efficiency of 80%, find the percentage increase in the cycle efficiency due to regeneration.**

or

6. **Explain the differences between axial flow compressors and turbines**.

Section IV

7. **Derive the expression Euler's equation for pump and turbine**.

or

8. **With a neat schematic diagram, explain the operation of scramjet engine.**

Section V

9. **What are the advantages of liquid propellant rockets over solid propellant rockets**?

or

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

10. **What are the advantages of electrical propulsion engines (thrusters) over chemical rocket engines?**

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

Model Paper 5

Section I

1. **Explain the classification of air breathing propulsion systems.**

Or

2. **Explain the various types of drag associated with inlets? State different types of air intakes used in gas turbine engines and their applications.**

Section II

3. **The pressure and temperature at the entry to convergent divergent nozzle are 5 kgf/cm^2 and 550° C respectively.The pressure at the exit of the nozzle is 1.4 kgf?cm^2. The efficiency of the nozzle is 90%. Assume ϒ as 1.4 and R as 29.27 kgf/kg K. Find the area of the nozzle at throat and exit per unit mass flow rate.**

Or

4. **Explain the different nozzle coefficients that indicate the performance of the exhaust nozzle.**

Section III

5. **Draw a neat diagram of a combustor used in a gas turbine engine and explain the function of different components.**

or

6. **Explain the limitations of chemical rocket engines**

Section IV

7. **What do you understand by multiphase flow in the nozzle? How does it affect nozzle performance?**

Or

8. **Explain the concept and use of Dual-mode engines. Explain the operation of the dual-mode Ram/Scram jet engine.**

Section V

9. **With neat diagrams of the shock pattern in the isolator.**

Or

10. **Write short notes of the following:**

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING
II YR II SEM
AIR BREATHING PROPULSION

Answer any one from each section **5x14=70**

- **Calculating criticality of a nuclear fission reactor**
- **Operating principle of LACE**
- **Use of Reflector in nuclear fission rocket**
- **Nuclear thermal rocket engine**

AEROSPACE VEHICLE STRUCTURES-1 (R17A2105)

MODEL PAPERS

II B.TECH II SEM

(2018-2019)

Prepared by

G Dheeraj, Asst. prof

Department of Aeronautical Engineering

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous Institution- UGC, Govt. of India)

Affliated to JNTU, Hyderabad, Approved by AICTE-Accredited by NBA and NAAC-'A' Grade –ISO 9001:2015 Certified)
Maisammaguda, Dhulapally, (Post via Kompally), Secunderabad-500100, Telangana state, India

II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AEROSPACE VEHICLE STRUCTURES-1

MODEL PAPER-1
MAXIMUM MARKS- 70

1. Explain different structural components and members of an aircraft with neat sketches?

or

2. Define
   a. Method of joints
   b. Method of sections
   c. Method of shear
   d. Principal of superposition
   e. Determinant and indeterminate beams
3. Find the strain energy of the beam when subjected to axial, bending and torsion loads?

or

4. Define the role of each structural member of semi-monocoque wing and fuselage with neat sketches?
5. Explain different types of landing gears and explain the important structural members of the landing gear?

or

6. Derive the elastic axis equation to find the deflection of beams and state the necessary assumptions required for deriving the same?
7. Explain inelastic buckling using geometric imperfection and three different theories to explain inelastic phenomena?

or

8. Elaborate Beam-Column and explain the concept of Beam-Column deflection by considering suitable example with neat sketch?
9. Derive Castigliano first and second theorem?

or

10. How do you calculate the displacements of the structural system using dummy load and unit load method please solve a case of cantilever beam with point load at its free end?

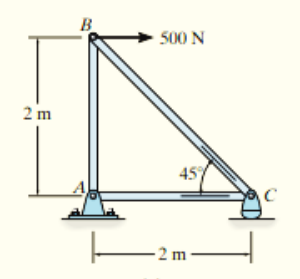
II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AEROSPACE VEHICLE STRUCTURES-1

MODEL PAPER-1
MAXIMUM MARKS- 70

1. Explain all five theories of failures and derive the respective failure stress equations?

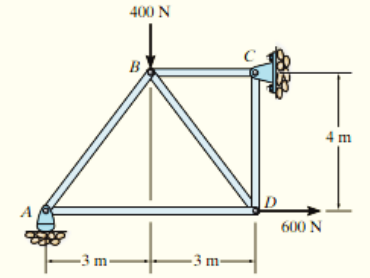
or

2. Define thermal stress, impact loading, Fatigue, Creep and Stress relaxation?
3. Determine the force in each member of the truss shown in Fig and indicate whether the members are in tension or compression using method of joints?

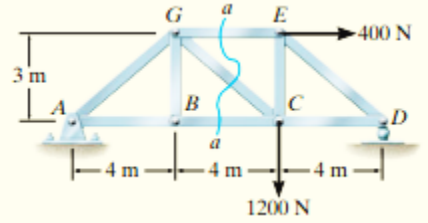


or

4. Determine the force in each member of the truss shown in Fig Indicate whether the members are in tension or compression using method of joints?

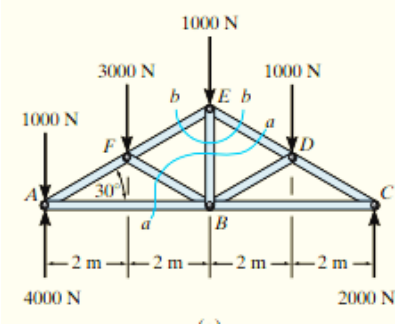


5. Determine the force in members GE, GC, and BC of the truss shown in Fig Indicate whether the members are in tension or compression using method of sections?

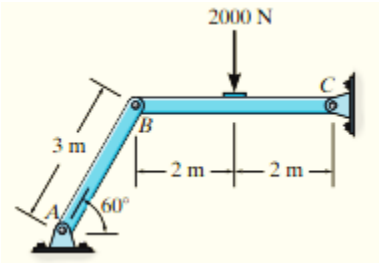


or

6. Determine the force in member EB of the roof truss shown in Fig Indicate whether the member is in tension or compression using method of sections?

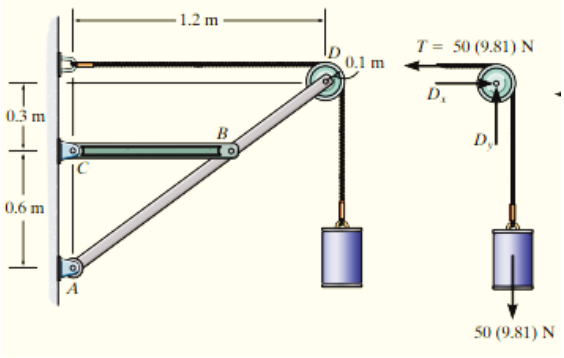


7. Determine the horizontal and vertical components of force which the pin at C exerts on member BC of the frame in Fig?



or

8. The frame in Fig supports the 50-kg cylinder. Determine the horizontal and vertical components of reaction at A and the force at C?



9. Find the maximum deflection of a cantilever beam of length 'L' with point load 'W' at its free end using Macaulay method and Double Integration Method? Let 'E' be the Young's Modulus, 'y' be the deflection, 'I' be the moment of inertia.

or

10. Find the maximum deflection of a simply supported beam of length 'L' with point load 'W' acting at quarter-span from both ends using unit load method and principle of superposition? Let 'E' be the Young's Modulus, 'y' be the deflection, 'I' be the moment of inertia.

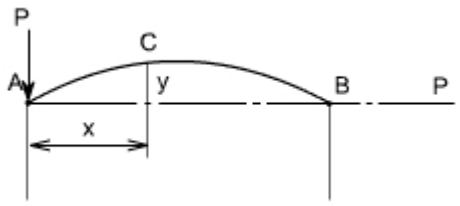
II B.TECH II SEMESTER – AERONAUTICAL ENGINEERING
AEROSPACE VEHICLE STRUCTURES-1

MODEL PAPER-1
MAXIMUM MARKS- 70

1. Find the deflection of the fixed beam of length 'L' with point load 'W' at mid-span? Let 'E' be the Young's Modulus, 'y' be the deflection, 'I' be the moment of inertia, M be the moment and R be the reaction supports.

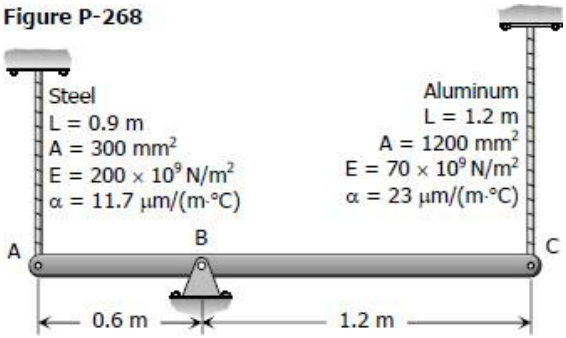
or

2. Find the buckling load of the column as shown in the figure and write down the effective lengths of different constrained ends.



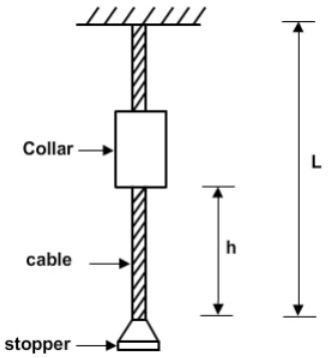
3. The rigid bar ABC in figure is pinned at B and attached to the two vertical rods. Initially, the bar is horizontal and the vertical rods are stress-free. Determine the stress in the aluminum rod if the temperature of the steel rod is decreased by 40°C. Neglect the weight of bar ABC.

Figure P-268

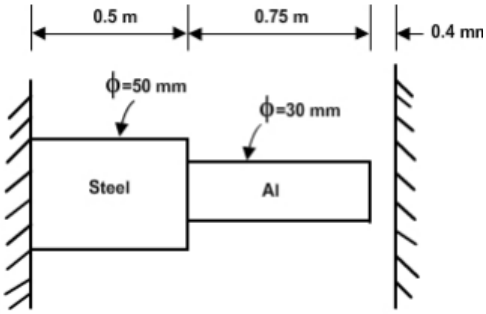


or

4. A 50 kg collar is sliding on a cable as shown in figure from a height h = 1m. Its free fall is restrained by a stopper at the end of the cable. The effective cross-sectional area and the elastic modulus of the cable are taken to be 60 mm2 and 150GPa respectively. If the maximum allowable stress in the cable due to impact load is 450MPa, calculate the minimum permissible length for the cable and the corresponding maximum deflection. Also find the impact factor.



5. A rod consists of two parts that are made of steel and aluminum as shown in figure. The elastic modulus and coefficient of thermal expansion for steel are 200GPa and 11.7 x 10-6 per 0 C respectively and for aluminum 70GPa and 21.6 x 10-6 per 0 C respectively. If the temperature of the rod is raised by 500 C, determine the forces and stresses acting on the rod.

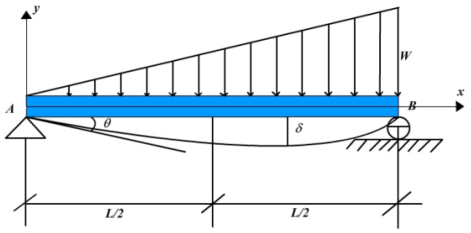


Or

6. Find the support reactions of the fixed beam of length L carrying a point load W at mid-span using Clapeyron method?
7. Find the reaction support of continuous beam with three reaction supports at equidistant of total length L?

Or

8. A simply supported beam AB carries a triangularly distributed load as shown in the fig. Find the equation of the deflection curve referred to the coordinate axes x and y as shown and also determine the maximum deflection d.



9. Find the Maximum deflection of a cantilever beam of length L carrying a UDL of W/length throughout the span?

or

10. Describe principal of virtual work, virtual displacement, unit load method with an example?

INTELLECTUAL PROPERTY RIGHTS (R17A0051)

Question Bank

II B. Tech II Semester

(2018-2019)

Prepared By

Mr. G. Sai Sathyanarayana, Asst. Prof

Department of Aeronautical Engineering

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2015 Certified)

Maisammaguda, Dhulapally (Post Via. Kompally), Secunderabad – 500100, Telangana State, India.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

	L	T/P/D	C
II Year B. Tech, ANE-II Sem	**4**	**1/-/-**	**3**

(R17A0051) INTELLECTUAL PROPERTY RIGHTS

Objectives:

- The objective of this course is to provide the knowledge on International IPR's and to make students efficient to take decisions in Global Corporate.

OBJECTIVES:

The objective of this course is to provide the knowledge on International IPR's and to make students efficient to take decisions in Global Corporate.

Unit-I

Introduction: Intellectual property rights basics, the role and value of IP in international commerce, Issues affecting IP internationally. Agreement on trade related aspects ofIntellectual Property Rights. (TRIPS) - Agreement on TRIPS and India.

Unit-II

Parties to IP Rights: Owner, customer, authorized user, licensee, attorney, protection of the weak and strong, finalizing ownership and use rights.

Unit-III

Ensuring the value of IP: Ensuring the value of IP at creation stage, after creation stage, precise contractual protection of IP rights. Key issues related to IP internationally. IP rights in international forums. Fundamentals in Country legal systems, generalities. Validity of IP rights locally: specifics.

Unit-IV

Managing IP Rights: Acquiring IP Rights: letters of instruction, joint collaboration agreement, work made for hire agreement - Protecting IP Rights: non disclosure agreement, cease and desist letter, settlement memorandum. Transferring IP Rights: assignment contract, license agreement, deed of assignment or license agreement, addendum to unrecorded assignment or license.

Unit-V

Remedies and IPR Evaluation - GATT - WTO - Role of WTO in solving IPR issues.

REFERENCES:

- A short course in International Intellectual Property Rights – Karla C. Shippey, World Trade Press – 2 nd Edition.
- Intellectual Property Rights – Heritage, Science, & Society under international treaties – A. Subbian, - Deep & Deep Publications – New Delhi.
- Intellectual Property Rights: N K Acharya: ISBN: 9381849309
- Intellectual Property Rights: C B Raju : ISBN-8183870341
- Intellectual Property : Examples and Explanation – Stephen M McJohn, 2/e, ISBN13: 978-0735556652
- Intellectual Property Rights in the Global Economy – Keith E Maskus, PIIE, ISBN paper 0- 88132-282-2

TEXT BOOKS:

- A short course in International Intellectual Property Rights – Karla C. Shippey, World Trade Press – 2nd Edition.
- Intellectual Property Rights – Heritage, Science, & Society under international treaties – A. Subbian, - Deep & Deep Publications – New Delhi.

Outcomes:

- It allows students how to prepare and protect the Inventions , start up ideas and rights of patents and copy rights etc.,
- This subject brings awareness to the students the basic legal aspects at present following at Global level.

III B.TECH I SEMESTER – AERONAUTICAL ENGINEERING
INTELLECTUAL PROPERTY RIGHTS (R17)
MODEL PAPER – I
MAXIMUM MARKS: 75

1. M and N filed for patent application with provisional specification on the same date for the same invention. After that 'M' filed complete specification much earlier to 'N' but both filed within time allowed. Examine the status of patent application filed by both 'M' and 'N'.

   OR

2. State and explain the development of laws on Intellectual property and the benefits on such protection.

3. What is 'mark' ? What are the various steps for registration of Trademark ?

   OR

4. What do you mean by infringement of Trademark and discuss the remedies available for infringement.

5. Can the inventor of new process of bypass surgery claim a patent for new surgical method, invented by him ?

   OR

6. A foreign applicant of a convention country applies for patent without sufficient description of the invention. The controller accepts the application and grants patent. Decide

7. Explain the grounds for refusal of registration of a trademark

   OR

8. Discuss the powers and functions of Registrar of Trademarks.

9. 'A' is registered proprietor of trademark 'M–SEAL'. 'B' adapted and used mark 'SM-SEAL' with all essential characters of trademark 'M-SEAL'. Can 'B' be restrained from using the Mark ? Decide.

   OR

10. Registrable and non-registrable marks

III B.TECH I SEMESTER – AERONAUTICAL ENGINEERING
INTELLECTUAL PROPERTY RIGHTS (R17)
MODEL PAPER – II
MAXIMUM MARKS: 70

1. Discuss whether the following items would be protectable as trademarks, copyrights, patents, or trade secrets:

a) 'Freeze You' as the name of a new type of ice cream
b) a company's plans for its future business operations and possible mergers
c) a new type of rose
d) a new slogan to be used by Burger King

OR

2. Explain about patent? Explain about different types of Intellectual property??

3. Discuss about the methods of preparing the Trademark application?

OR

4. Explain Infringement of Trademarks? Explain about Inter partes and inter partes proceedings? What is the role of Inter partes?
5. Explain the process of the Patent Application?

OR

6. Write about the need of patent searching? Explain?
7. Write about the need of patent searching? Explain?

OR

8. Describe the determination of trade secret status?
9. Discuss about intellectual property audits?

OR

10. Discuss about international developments in trade secrets law?

III B.TECH I SEMESTER – AERONAUTICAL ENGINEERING
INTELLECTUAL PROPERTY RIGHTS (R17)
MODEL PAPER – III
MAXIMUM MARKS: 70

1. Discuss whether the following items would be protectable as trademarks, copyrights, patents, or trade secrets:

c) 'Freeze You' as the name of a new type of ice cream
d) a company's plans for its future business operations and possible mergers
e) a new type of rose
f) a new slogan to be used by Burger King

OR

2. Explain about patent? Explain about different types of Intellectual property??

3. Discuss about the methods of preparing the Trademark application?

OR

4. Explain Infringement of Trademarks? Explain about Inter partes and inter partes proceedings? What is the role of Inter partes?
5. Explain the process of the Patent Application?

OR

6. M and N filed for patent application with provisional specification on the same date for the same invention. After that 'M' filed complete specification much earlier to 'N' but both filed within time allowed. Examine the status of patent application filed by both 'M' and 'N'.

7. State and explain the development of laws on Intellectual property and the benefits on such protection.

OR

8. What is 'mark' ? What are the various steps for registration of Trademark ?

9. What do you mean by infringement of Trademark and discuss the remedies available for infringement.

OR

10. Can the inventor of new process of bypass surgery claim a patent for new surgical method, invented by him?

III B.TECH I SEMESTER – AERONAUTICAL ENGINEERING
INTELLECTUAL PROPERTY RIGHTS (R17)
MODEL PAPER – IV
MAXIMUM MARKS: 70

1. Explain the functions of INTA, WIPO?
   Or
2. Describe why Trade Secrets are necessary? How do they function?
3. Discuss about the advantages of Trademark use and compliance policies?
   Or
4. Explain the Post registration procedures?
5. Discuss about new developments in copyright law? What are they?
   Or
6. Differentiate Contributory Infringement and Vicarious Infringement?
7. Discuss about trade secret litigation?
   Or
8. Explain about the remedies for misappropriation in Trade Secrets?
9. Discuss about European patent organization and what are its duties?
   Or
10. Discuss about patent cooperation treaty?

III B.TECH I SEMESTER – AERONAUTICAL ENGINEERING
INTELLECTUAL PROPERTY RIGHTS (R17)
MODEL PAPER – V

MAXIMUM MARKS: 70

1. Distinguish between Trademark and Trade secrets?
Or
2. Explain why agencies responsible for Intellectual Property Registration with any two examples?
3. Discuss new developments in Trademark Law? How do you avoid cyberspace trademark issues?
Or
4. Explain how do you select and evaluate Trademark?
5. Discuss about "the rights to perform the work publicly" and explain it?
Or
6. Explain when the terminations of transfers of copyrights take place?
7. Explain about unfair competition? Write its types?
Or
8. Discuss right of publicity? Explain?
9. Explain copyright in the electronic age?
Or
10. Explain the new developments in copyright and recent developments in copyright law?