INTERNAL ASSIGNMENT QUESTIONS

B.Sc. (AVIATION) III Year

ANNUAL EXAMINATIONS MARCH / APRIL - 2017

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(RECOGNISED BY THE DISTANCE EDUCATION BUREAU, UGC, NEW DELHI)

OSMANIA UNIVERSITY

(A University with Potential for Excellence and Re-Accredited by NAAC with "A" Grade)

DIRECTOR

Prof. SHIVARAJ

Hyderabad – 7 , Telangana State

PROF.G.RAM REDDY CENTRE FOR DISTANCE EDUCATION
OSMANIA UNIVERSITY, HYDERABAD – 500 007

Dear Students,

Every student of B.Sc. Aviation III year has to write and submit **Assignment** for each paper compulsorily. Each assignment carries **20 marks.** The marks awarded to you will be forwarded to the Controller of Examination, OU for inclusion in the University Examination marks. If you fail to submit Internal Assignments before the stipulated date, the internal marks will not be added to University examination marks under any circumstances. The assignment marks will not be accepted after the stipulated date,

You are required to **pay Rs.300/- fee** towards Internal Assignment marks through DD (in favour of Director, PGRRCDE, OU) and submit the same along with assignment at the concerned counter **on or before 20th May 2017** and obtain proper submission receipt.

ASSIGNMENT WITHOUT THE DD WILL NOT BE ACCEPTED

Assignments on Printed / Photocopy / Typed papers will not be accepted and will not be valued at any cost. Only <u>hand written Assignments</u> will be accepted and valued.

Methodology for writing the Assignments:

1. First read the subject matter in the course material that is supplied to you.
2. If possible read the subject matter in the books suggested for further reading.
3. You are welcome to use the PGRRCDE Library on all working days including Sunday for collecting information on the topic of your assignments.
   (10.30 am to 5.00 pm).
4. Give a final reading to the answer you have written and see whether you can delete unimportant or repetitive words.
5. The cover page of the each theory assignments must have information as given in FORMAT below.

<u>FORMAT</u>

1. NAME OF THE STUDENT :
2. ENROLLMENT NUMBER :
3. B.Sc. Aviation III Year :
4. NAME OF THE PAPER & CODE :
5. DATE OF SUBMISSION :

6. Write the above said details clearly on every subject assignments paper, otherwise your paper will not be valued.
7. Tag all the assignments paper wise and submit assignment number wise.
8. Submit the assignments on or before 20th May 2017 at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Dr.N.R.Giridhar
Joint Director

Prof. Shivaraj
Director

B.Sc. (AVIATION) III Year
ANNUAL EXAMINATIONS MARCH/APRIL - 2017

INTERNAL ASSIGNMENT

Subject: Aviation Physics –III

(Advanced Aviation Meteorology)

SPECIALIZATION: FLIGHT OPERATIONS

Answer all the questions
Each question carries TWO marks

1. Explain the structure of a depression.
2. Explain AIREP.
3. What is Radar Weather Report?
4. Define ATIS? What is pressure Attitude ?
5. What are three types of weather observation in Aviation Met?

Answer all the questions
Each question carries FIVE marks

1. What is the significant of weather phenomena which affects the take off?

2. Explain about ACARS in brief.

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Subject: Aviation Physics –IV
(Aero Dynamics & Aircraft Engine-Technical General)
SPECIALIZATION: FLIGHT OPERATIONS

Answer all the questions
Each question carries TWO marks

1. Write the purpose of various markings on the engine instruments.
(Red, Yellow, Blue & Green)
2. Briefly explain principle of operation of turbofan engine.
3. What is Hypoxia? Write symptoms and preventive methods.
4. Explain briefly about hot tank lubrication system.
5. Write a short note on maximum weight and empty weight of an Aircraft.

Answer all the questions
Each question carries FIVE marks

1. Write short notes on Cross-wind Take -off.
2. Define : (i) Hot Start (ii) Hung Start.

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Subject: Aviation Science –III

(Air Navigation)

SPECIALIZATION: FLIGHT OPERATIONS

Answer all the questions
Each question carries TWO marks

1. Explain the principle of operation of VOR.
2. Describe various methods of navigation.
3. Differentiate between FM and AM.
4. What is the importance of transmission of numbers in radio telephony?
5. Explain about the calculation of ground speed.

Answer all the questions
Each question carries FIVE marks

1. Explain different methods for communication and Direction finding.
2. Explain the Do's and Don'ts to avoid thunderstorm.

B.Sc. (AVIATION) III Year
ANNUAL EXAMINATIONS MARCH/APRIL - 2017

Subject: Aviation Science –IV
(Air Regulations)
SPECIALIZATION: FLIGHT OPERATIONS

Answer all the questions
Each question carries TWO marks

1. Define movement area, prohibited area, aerodrome reference point and dangerous goods.

2. What close May Day call from an aircraft signify? Give the contents of this emergency message.

3. Realties for low flying over populated Area.

4. What is the penalty for the carriage of dangerous goods?

5. Describe the ATS airspaces in India.

Answer all the questions
Each question carries FIVE marks

1. What is the information available in an en-route chart?

2. On what grounds can the certificate of airworthiness be cancelled or suspended by the DGCA?

B.Sc. (AVIATION) III Year
ANNUAL EXAMINATIONS MARCH/APRIL - 2017

Subject: CESSNA – 152A and CESSNA -172R (Glass Cockpit (Technical) Specific)

SPECIALIZATION: FLIGHT OPERATIONS

Answer all the questions
Each question carries TWO marks

1. What is RMI? Write a short note on RMI.

2. Explain about the airframe of Cessna 172.
3. How the cylinder had temperature of Cessna -172 is measured.
4. Explain about the selection of cruising altitude on Cessna 172.

5. Write a essay about the fuel system of Cessna-152.

Answer all the questions
Each question carries FIVE marks

1. Using a sample problem explain how to calculate mass and balance of Cessna -152.

2. Briefly explain about the G 1000 altimeter in Cessna 172.

B.Sc. (AVIATION) III Year
ANNUAL EXAMINATIONS MARCH/APRIL - 2017

Sub: Aviation Physics-III
(Aircraft Hardware & Materials)
SPECIALIZATION: A.M- MECHANICAL

Answer all the questions
Each question carries TWO marks

1. What is Oxy-acetylene cutting?

2. How do you maintain the nickel cadmium batteries?

3. How many types of flames used in welding and explain about carbon Zing flame.

4. Briefly explain: (i) Parasite Drag (ii) Induced Drag

5. Write down of the interpretation of indications in fluorescent penetration inspection process.

Answer all the questions
Each question carries FIVE marks

1. Write in brief about Otto cycle.

2. Explain the typical Lead-acid battery?

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Sub: Aviation Science III

(Air Law, Rules & Regulations)

SPECIALIZATION: A.M- MECHANICAL

Answer all the questions
Each question carries TWO marks

1. Define certificate of maintenance.
2. What are the group-B documents?
3. Define certificate of Flight Release.
4. What is the method of certification by an A.M.E?
5. What are Group-A documents?

Answer all the questions
Each question carries FIVE marks

1. Write down the procedure of revalidation of C of A?
2. Procedure for Registration of aircraft?

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Sub: Aviation Physics IV

(Light Aircraft Concepts)

SPECIALIZATION: A.M- MECHANICAL

Answer all the questions
Each question carries TWO marks

1. How the plastics are classified?
2. Define Anti-icing and De-icing? Write the icing effects on an Aircraft?
3. Explain low carbon steel.
4. What are the various types of electric arc welding?
5. Define angle of attack and angle of incidence.

Answer all the questions
Each question carries FIVE marks

1. What are the common troubles in dope application?
2. What is the procedure to be adopted to carry out leak testing of Pitot-static system?

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Sub: Aviation Science IV
(Aircraft Power plant Piston Engine)
SPECIALIZATION: A.M- MECHANICAL

Answer all the questions
Each question carries TWO marks

1. Draw a typical circuit for a direct cranking electric starter.

2. Write a note on float type of carburetor.

3. Define the relationship between IHP, FHP and BHP.

4. What is marine propeller?

5. List some of the causes that could reduce volumetric efficiency. Describe the cause of pre-ignition.

Answer all the questions
Each question carries FIVE marks

1. Write causes and remedy for Engine is not starting but engine cranking and all circuit breakers and switches are in correct position.

2. Briefly describe the function, cooling and classification of a piston.

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Paper III ASSIGNMENT
(Aircraft Power plant Jet Engine)
SPECIALIZATION: A.M- MECHANICAL

Answer all the questions
Each question carries TWO marks

1. Write short notes on relighting.
2. Explain in brief the air turbine starter.
3. What qualities should turbine fuels posses?
4. Write short notes on Horse power.
5. What are the stringent requirements of a combustion chamber?

Answer all the questions
Each question carries FIVE marks

1. What law of motion. Explain propeller thrust?
2. Give a jet engine ignition system brief description.

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ANNUAL EXAMINATIONS MARCH/APRIL - 2017

Sub: Aviation Physics-III

(Aircraft Hardware & Materials)

SPECIALIZATION: A.M- AVIONICS

Answer all the questions
Each question carries TWO marks

1. What is Oxy-acetylene cutting?

2. How do you maintain the nickel cadmium batteries?

3. How many types of flames used in welding and explain about carbon Zing flame.

4. Briefly explain: (i) Parasite Drag (ii) Induced Drag

5. Write down of the interpretation of indications in fluorescent penetration inspection process.

Answer all the questions
Each question carries FIVE marks

1. Write in brief about Otto cycle.

2. Explain the typical Lead-acid battery?

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ANNUAL EXAMINATIONS MARCH/APRIL - 2017

Sub: Aviation Science III

(Air Law, Rules & Regulations)

SPECIALIZATION: A.M- AVIONICS

Answer all the questions
Each question carries TWO marks

1. Define certificate of maintenance.
2. What are the group-B documents?
3. Define certificate of Flight Release.
4. What is the method of certification by an A.M.E?
5. What are Group-A documents?

Answer all the questions
Each question carries FIVE marks

1. Write down the procedure of revalidation of C of A?
2. Procedure for Registration of aircraft?

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Sub: Aviation Physics-IV
(Aircraft Electrical System)
SPECIALIZATION: A.M- AVIONICS

Answer all the questions
Each question carries TWO marks

1. Name the various types of resistors and give two most important advantages of wire wound resistors.

2. Define: (i) Ohm's law (ii) KVL (iii) Kirchhoff's Current Law (iv) Equation to find total resistance in series arrangement.

3. What is the instrument used for checking the continuity of Armature, how it is done?

4. Define Krichhoffs law?

5. Explain briefly frequency, time period?

Answer all the questions
Each question carries FIVE marks

1. Briefly explain the charging of a Ni-Cad battery?

2. Two resistance R_1 and R_2 when connected in series the total ohmic value is 25 ohms, when same resistors are connected in parallel their total ohmic value is 6 ohms. Find the values of R_1 and R_2.

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Sub: Aviation Science-IV
(Aircraft Instrument System)
SPECIALIZATION: A.M- AVIONICS

Answer all the questions
Each question carries TWO marks

1. Explain the types of motors.
2. Write conversion factors to convert:
   a) Inches of Hg. into (i) Kilograms/ Sq.cm (ii) Millibars
   b) Km per hour into (i) ft/min (ii) M.P.H.
3. What is ohm's law? Deduce the relation
$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$
4. Explain the role of AFCS.
5. Write short notes on : a) Wheat store bridge b) Ratio meter

Answer all the questions
Each question carries FIVE marks

1. Explain the response of servo mechanism and name the methods of damping.

2. What are the different types of synchros used in synchronous data transmission? Explain with neat sketches.

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Sub: Aviation Science-IV
(Radio Navigation & Communication)
SPECIALIZATION: A.M- AVIONICS

Answer all the questions
Each question carries TWO marks

1. As per ICAO, explain the visibility category of ILS(CAT-I, II & III a, b, c)

2. Explain charging method of a lead acid battery.

3. What is length of an antenna cut to a quarter wave at 200 MHz?

4. Explain the basic principle of radio altimeter installed on aircraft.

5. Define transistor saturation and cutoff.

Answer all the questions
Each question carries FIVE marks

1. With the help of block diagram, explain the function of GPWS (Ground Positioning Warning System)

2. Draw the block diagram and explain the function of Control Processing Unit (CPU)