R09

Code No: C7613

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
AIRLINES OPERATIONS AND SCHEDULING
(AEROSPACE ENGINEERING)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks
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1. Explain the minimum cost flow problem and formulate a mathematical model for its solution using an example from airlines.

2. What is flight schedule? Explain briefly different phases of developing a flight schedule and the decisions made at each phase.

3. Define fleet assignment and explain how fleet assignment is different from fleet planning. Describe using an example, how fleet assignment problem can be modelled using time-space network.

4. Define aircraft routing and its goals. Formulate a mathematical model to meet the goals of aircraft routing taking into consideration the flight coverage, aircraft load balance and maintenance requirements.

5. What is involved in crew scheduling? Define crew pairing and describe using an example the mathematical model for crew pairing.

6. a) Describe some of the factors that impact the assignment of gates to arriving flights.
   b) Define the gate assignment problem and discuss problem formulation using an example.

7. Explain briefly why irregular operations of airlines occur and how airlines handle them. Define aircraft schedule recovery problem. Discuss the time-band approximation model to handle disruption in regular schedules.

8. Write short notes on the following trends in air transportation system:
   (a) Small Aircraft Transportation System (SATS)
   (b) Fractional Ownership Programs
   (c) Air Taxis

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