M.Sc. 4th Semester Examination, 2012

APPLIED MATHEMATICS WITH OCEANOLOGY AND COMPUTER PROGRAMMING

PAPER – MTM-408 (OM)

(Practical)

Full Marks : 25

Time : $1\frac{1}{2}$ hours

Answer any **one** questions from each Group

The figures in the right hand margin indicate marks

GROUP – A

1. Find the relative humidity taking a set of six data from atmosphere near the science building. 5

2. Calculate the wind speed and wind direction taking a set of 10 data near the science building. 5

3. Calculate the vapor pressure taking a set of six data near the science building. 5

4. Calculate the saturation vapor pressure taking a set of six data near the science building. 5

5. Determine the mixing ratio of the air near the science building measuring wet and dry bulb temperatures taking a set of six data. 5

6. Find the dew point temperature measuring dry and wet bulb temperature taking a set of six data near the science building. 5

GROUP – B

7. Plot the following data around a surface station model where the atmosphere has the following: temperature 39°C, dewpoint 28°C, wind from North to South, at 50 Kmhr, overcast, pressure 990 mb. 5

8. Plot the following data around a surface station model where the atmosphere has the following: in the present weather there is a thunderstorm, in past weather there was a light rain shower and the pressure tendency in the last 3 hours is 0·3 mb. 5

GROUP – C

9. The sounding of an atmosphere between 850 and 700 mb is represented by points.

p (mb)	T (°C)
850	8·0
800	3·0
750	4·0
700	1·0

Plot then data on a tephigram and compute the thickness of the layer by the methods of the mean isotherm and the mean adiabat. 5

10. An air mass is defined by $T = 20{\cdot}0\ ^{\circ}C$, $p = 900$ mb, $U_w = 70\ \%$. Find the following parameters on a tephigram r, r_w, θ, T_d. 5

Note Book + Viva – 5 Marks

Field work + Lab. vist – 5 Marks