



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : HYDROLOGY
COURSE CODE : DAC 200902
PROGRAMME : DAA
EXAMINATION DATE : DECEMBER 2015/ JANUARY 2016
DURATION : 2 ½ HOURS
INSTRUCTION : ANSWER **FOUR (4)** QUESTIONS
ONLY

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

- Q1** (a) Define the meaning of hydrology cycle and list **four (4)** terminology of hydrology.
(5marks)
- (b) Briefly explain what is water balance equation and sketch the conceptual of water budget.
(8 marks)
- (c) Estimate the constant rate of withdrawal from a 1375 ha. reservoir in a month of 30 days during which the reservoir level dropped by 75 cm in spite of an average inflow into the reservoir of 5×10^5 m³/day. During that month, the average seepage loss from the reservoir was 2.5 cm, total precipitation on the reservoir was 0.185 m and the total evaporation was 9.5 mm.
(12 marks)
- Q2** (a) Sketch and explain briefly the classification and types of precipitation.
(12 marks)
- (b) From the **Table Q2(b)** given, determine the average precipitation using Thiessen method.
(13 marks)
- Q3** (a) With a simple sketch, briefly explain what is evapotranspiration and list **two (2)** concept applied in the evapotranspiration.
(5 marks)
- (b) List and explain briefly **three (3)** factor that effecting the infiltration capacity.
(7 marks)
- (c) Using the Meyer equations, find the daily evaporation rate for a lake given that the mean value for air temperature was 87°F, the mean value for water temperature was 63°F, the average wind speed was 10 mph, and the relative humidity was 20 %. Refer to **Table Q3(c)** for vapor pressure values. Assume pan empirical coefficient is 0.36.
(13 marks)

- Q4** (a) List and explain **four (4)** factor that affecting the characteristic of catchment area. (5 marks)
- (b) Hydrograph shape can be represent either typical or time charateristic, with a sketch, explain briefly about this two concept used in modelling in catchment area. (8 marks)
- (c) Determine the discharge at the river as shown in **Table 4 (c)** by using mean section method. (12 marks)

- Q5** (a) Briefly explain, sketch and label the float gauge recorder in measuring the water surface elevation. (7 marks)
- (b) Briefly explain what is runoff and sketch complete with label forms of runoff in the hydrologic cycle. (8marks)
- (c) A 25 gm/l solution of a fluoescent tracer was discharged into a stream at a constant rate of 10 cm³/s. The background concentration of the dye in the stream was found to be zero. At a sufficiently distance downstream section, the dye was found to reach an equilibrium concentration of 5 parts per billion. Estimate the stream discharge. (10 marks)

- END OF QUESTION -

CONFIDENTIAL**FINAL EXAMINATION**SEMESTER/SESSION: SEM I 2015/2016
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Station	Area (km ²)	Precipitation (mm)
A	72	90
B	34	110
C	76	105
D	40	150
E	76	160
F	92	140
G	46	130
H	40	135
I	86	95
J	6	70

Table Q3(c)

Temperature (⁰ F)	Vapor Pressure		
	In Hg	mb	psi
32	0.18	6.11	0.09
40	0.25	8.36	0.12
50	0.36	12.19	0.18
60	0.52	17.51	0.26
70	0.74	24.79	0.36
80	1.03	34.61	0.51
90	1.42	47.68	0.70
100	1.94	64.88	0.95

Table Q4(c)

Vertical Section	Section Width (m)	Depth (m)	Mean Velocity (m/s)
0	0	0	0
1	4.1	3.9	2.1
2	2.9	5	2.4
3	4.5	7.4	2.9
4	5.2	4.8	2.3
5	4.0	3.6	1.9
6	4.8	0	0

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