

حل الامتحان (10 أسئلة)

Solution of Mid-term exam

2016-2017

① → (d) All the answers are correct

② → (d) → No answers are correct

③ → (d) → Frozen

④ → (d) → Weighting bucket

⑤ → (d) → No answers are correct

⑥ → (c) → Double mass curve

⑦ → (c) → Non-uniform

⑧ → (c) → False

⑨ → (c) → salinity of the water

⑩ → (c) → Interception

⑪ → (b) → tube in filterometer

$$(12) \rightarrow (b) \rightarrow 727.12 \text{ Mm}^3$$

$$A = 2500 \text{ km}^2, P_I = 130 \text{ cm}, Q_0 = 80 \text{ m}^3/\text{sec}$$

$$Q_I - Q_0 = \Delta S / \Delta t$$

$$Q_0 = \frac{80 \times (60 \times 60 \times 24) \times 365}{2500 \times 10^6} \times 100 = 100.92 \text{ cm}$$

$$\begin{aligned} \frac{\Delta S}{\Delta t} &= 130 - 100.92 = 29.08 \text{ cm} \\ &= 727.12 \text{ Mm}^3 \\ &= 23.06 \text{ m}^3/\text{sec} \end{aligned}$$

$$(13) \rightarrow (b) \rightarrow 0.7 \text{ in}$$

$$P = 3 \text{ in}, A = 20 \text{ acre}, R = 166980 \text{ Ft}^3, F = ??$$

$$P R - F = 0$$

$$3 - \frac{166980 \times 12}{20 \times 43560} - F = 0 \rightarrow F = 0.7 \text{ in}$$

$$(14) \rightarrow (b) \rightarrow 0.7$$

$$(15) \rightarrow (b) \rightarrow 23 \text{ mm}$$

$$P_A = 20 \text{ mm}, P_B = 22 \text{ mm}, P_C = 24 \text{ mm}, P_D = 26 \text{ mm}$$

$$N_x = 290 \text{ mm}, N_A = 285 \text{ mm}, N_B = 287 \text{ mm}, N_C = 288 \text{ mm}$$

$$N_D = 282 \text{ mm}$$

$$\text{for check } \frac{|N_x - N_A|}{N_x} = \frac{|290 - 285|}{290} = 1.7\% < 6\%$$

$$\frac{|N_x - N_B|}{N_x} = \frac{|290 - 287|}{290} = 1\% < 6\%$$

(7)

$$\frac{|N_x - N_d|}{N_x} = \frac{|1290 - 2881|}{290} = 0.910 < 6\%$$

$$\frac{|N_x - N_D|}{N_D} = \frac{|1290 - 2821|}{290} = 2.67\%$$

$$P_x = \frac{20 + 22 + 24 + 26}{4} = 23 \text{ mm}$$

(16) (a) $\rightarrow 4.96 \text{ cm/month}$

$$A = 5 \text{ km}^2, u_2 = 2.86 \text{ cm/sec}, e_s = 18.9 \text{ mb}$$

$$e_d = 14.6 \text{ kN/m}^2$$

$$E = 0.291 A^{-0.05} u_2 (e_s - e_d)$$

$$= 0.291 \times (5 \times 10^6)^{-0.05} \times 2.86 [18.9 - 14.6]$$

$$= 1.65 \text{ mm/day}$$

$$= 4.96 \text{ cm/month}$$

(17) (a) $\rightarrow 0.7$

(18) (a) $\rightarrow 724.36 \text{ m}^3$

$$A = 5000 \text{ m}^2, L_d = 1.32, \bar{I} = 45.47, q = 1.211, t = 26$$

$$ET_p = 1.6 L_d (10t/\bar{I})^q = 1.6 \times 1.32 (10 \times 26.3/45.47)^{1.211}$$

$$= 14.49 \text{ cm/month}$$

$$= 724.36 \text{ m}^3/\text{month}$$

(19) (a) $\rightarrow 13.8 \text{ M ft}^3$

$$A = 300 \text{ acre}, f_0 = 4.5 \text{ in/hr}, k = 0.35 \text{ hr}^{-1}, f_c = 0.4 \text{ in/hr}$$

$$f = f_c + (f_0 - f_c) e^{-kt} = 0.4 + 4.1 e^{-0.35t}$$

(3)

$$\begin{aligned}
 \Delta &= \int_0^6 (0.4 + 4.1 e^{-0.35t}) dt \\
 &= 0.4t + \left(\frac{4.1}{-0.35}\right) e^{-0.35t} \Big|_0^6 = 12.68 \text{ in} \\
 &= \frac{12.68}{12} \times 300 \times 43560 = 13.8 \text{ M ft}^3
 \end{aligned}$$

(20) \rightarrow (9) $\rightarrow 0.109 \text{ in/hr}$

$A = 600 \text{ acre}$, $PI = 0.5 \text{ in/hr} \rightarrow 2 \text{ hr}$
 $0.3 \text{ in/hr} \rightarrow 5 \text{ hr}$
 $0.4 \text{ in/hr} \rightarrow 1 \text{ hr}$

$$R/p = 0.7$$

$$P = 0.5 \times 2 + 0.3 \times 5 + 0.4 \times 1 = 2.9 \text{ in}$$

$$R/p = 0.7 \rightarrow F/p = 0.3 \rightarrow F = 0.3 \times 2.9 = 0.87 \text{ in}$$

$$\phi = \frac{0.87}{8} = 0.109 \text{ in/hr}$$

(4)