Program: Civil Engineering

Curriculum Scheme: Rev2012

Examination: Third Year Semester V

Course Code: CE-C603 and Course Name: Applied Hydraulics-II

Time: 1-hour Max. Marks: 50

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For the Students: - All the Questions are compulsory and carry equal Marks.

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| Q1 | Most economical channel section means |
| OPTION A: | Perimeter Minimum and Discharge Maximum |
| OPTION B: | Perimeter Maximum and Discharge Minimum |
| OPTION C: | Both Perimeter and discharge maximum |
| OPTION D: | Both Perimeter and discharge minimum |
|  |  |
| Q2 | The boundary layer is called as laminar boundary layer if Reynolds number is less than |
| OPTION A: | 6x105 |
| OPTION B: | 5x105 |
| OPTION C: | 10x105 |
| OPTION D: | 50x105 |
|  |  |
| Q3 | The boundary layer is called as turbulent boundary layer if Reynolds number is more than |
| OPTION A: | 105 |
| OPTION B: | 2x105 |
| OPTION C: | 4x105 |
| OPTION D: | 5x105 |
|  |  |
| Q4 | With the boundary layer separation, displacement thickness\_\_\_\_\_\_\_\_ |
| OPTION A: | Increases |
| OPTION B: | Decreases |
| OPTION C: | Remains Same |
| OPTION D: | Independent |
|  |  |
| Q5 | The laminar boundary layer is a \_\_\_\_\_\_\_\_\_ |
| OPTION A: | smooth flow |
| OPTION B: | rough flow |
| OPTION C: | uniform flow |
| OPTION D: | random flow |
|  |  |
| Q6 | The turbulent boundary layer is a \_\_\_\_\_\_\_\_\_ |
| OPTION A: | non-uniform with swirls |
| OPTION B: | uniform |
| OPTION C: | less stable |
| OPTION D: | smooth |
|  |  |
| Q7 | How does a turbulent boundary layer produce swirls? |
| OPTION A: | Due to random motion |
| OPTION B: | Collision of molecules |
| OPTION C: | Due to eddies |
| OPTION D: | Due to the non-uniform cross-section |
|  |  |
| Q8 | Boundary layer thickness is the distance from the surface of the solid body in the direction perpendicular to flow, where the velocity of fluid is equal to |
| OPTION A: | free stream velocity |
| OPTION B: | 0.9 times the free stream velocity |
| OPTION C: | 0.99 times the free stream velocity |
| OPTION D: | 0.95 times the free stream velocity |
|  |  |
| Q9 | Boundary layer separation is caused by the |
| OPTION A: | reduction of pressure to vapour pressure |
| OPTION B: | boundary layer thickness reducing to zero |
| OPTION C: | adverse pressure gradient |
| OPTION D: | reduction of a pressure gradient to zero |
|  |  |
| Q10 | The layer that is influenced by a planetary boundary is called\_\_\_\_\_\_ |
| OPTION A: | Atmospheric boundary layer |
| OPTION B: | Lithosphere |
| OPTION C: | Troposphere |
| OPTION D: | Hydrosphere |
|  |  |
|  |  |
| Q11 | For Most Economical Rectangular Channel section, Mean hydraulic depth is equal to |
| OPTION A: | m=0.3d |
| OPTION B: | m=0.4d |
| OPTION C: | m=0.5d |
| OPTION D: | m=0.55d |
|  |  |
| Q12 | Total drag on the body is equal to |
| OPTION A: | Pressure drag - Friction drag |
| OPTION B: | Pressure drag + Friction drag |
| OPTION C: | Pressure drag \* Friction drag |
| OPTION D: | (Pressure drag +Friction drag)2 |
|  |  |
| Q13 | Mean hydraulic depth is the ratio of m= \_\_\_\_\_\_\_\_ |
| OPTION A: | Wetted Area/Wetted Perimeter |
| OPTION B: | Wetted area x Wetted Perimeter |
| OPTION C: | Wetted Perimeter/Wetted Area |
| OPTION D: | Whole Area/Wetted Perimeter |
|  |  |
| Q14 | Skin friction drag is equal to |
| OPTION A: | Fsd= 2FD/3 |
| OPTION B: | Fsd= 3FD/2 |
| OPTION C: | Fsd= FD/3 |
| OPTION D: | Fsd= FD |
|  |  |
| Q15 | Pressure Drag is equal to |
| OPTION A: | Fsd= 2FD/3 |
| OPTION B: | Fsd= 3FD/2 |
| OPTION C: | Fsd= FD/3 |
| OPTION D: | Fsd= FD |
|  |  |
| Q16 | Equation of Coefficient of drag for a sphere when Reynolds number is less than 0.2 is equal to |
| OPTION A: | Cd= 23/Re |
| OPTION B: | Cd= 24/Re |
| OPTION C: | Cd= 25/Re |
| OPTION D: | Cd= 26/Re |
|  |  |
| Q17 | At terminal velocity, the weight of the body is equal to |
| OPTION A: | (A) Drag Force / Buoyant Force |
| OPTION B: | (B) Drag Force - Buoyant Force |
| OPTION C: | (C) Drag Force \* Buoyant Force |
| OPTION D: | (D) Drag Force + Buoyant Force |
|  |  |
| Q18 | The expression for coefficient for lift for an airfoil is |
| OPTION A: | CL= 2p Sinɵ |
| OPTION B: | CL= 4p Cosɵ |
| OPTION C: | CL= 6p Sinɵ |
| OPTION D: | CL= 8p Sinɵ |
|  |  |
| Q19 | Value of Cd for sphere, when Reynolds number lies between 100 to 100000 |
| OPTION A: | 0.1 |
| OPTION B: | 0.2 |
| OPTION C: | 0.4 |
| OPTION D: | 0.5 |
|  |  |
| Q20 | The lift on the airfoil is due to negative pressure created on the |
| OPTION A: | Middle part pf airfoil |
| OPTION B: | Rear part of airfoil |
| OPTION C: | Upper part of airfoil |
| OPTION D: | Lower part of airfoil |
|  |  |
| Q21 | Determine the hydraulic depth of a triangular channel having the side slope Z and depth y. |
| OPTION A: | y |
| OPTION B: | y/2 |
| OPTION C: | 2y |
| OPTION D: | y2 |
|  |  |
| Q22 | Calculate the discharge through a channel having a bed slope 1 in 1000, area 12 m2, hydraulic radius of 1.2m and Chezy's constant being equal to 50. |
| OPTION A: | 17.98 m3/s |
| OPTION B: | 18.98 m3/s |
| OPTION C: | 19.98 m3/s |
| OPTION D: | 20.98 m3/s |
|  |  |
| Q23 | Energy per unit weight of water measured with respect to the datum is called |
| OPTION A: | total energy |
| OPTION B: | specific energy |
| OPTION C: | velocity head |
| OPTION D: | datum head |
|  |  |
| Q24 | Hydraulic jump is observed in |
| OPTION A: | closed channel flow |
| OPTION B: | open channel flow |
| OPTION C: | flow changes |
| OPTION D: | volumetric changes |
|  |  |
| Q25 | Hydraulic jump depends upon |
| OPTION A: | temperature |
| OPTION B: | pressure |
| OPTION C: | initial fluid speed |
| OPTION D: | volumetric change |