

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Mid Semester Examination – Oct 2018****Course: B. Tech in Civil Engineering****Sem: III****Subject Name: Hydraulics I****Subject Code: CV 303****Max Marks:20****Date:- 10/10/2018****Duration:- 1 Hr.**

40

40

40

20

Instructions to the Students:

1. All questions are compulsory.
2. Assume suitable data if necessary.

Marks**Q. 1 Attempt following Questions****6**

1. Which one of the following is not a unit of dynamic viscosity?

- a) Pa-s b) N-s/m
- ²
- c) Poise d) Stokes

2. Which one of the following is the correct relation between compressibility β and Bulk Modulus k

- a)
- $\beta = k$
- b)
- $\beta = 1/k$
- c)
- $\beta = 2k$
- d)
- $\beta = k/2$

3. 15 bar equals to _____ Pascals.

- a)
- 10^5
- Pa b)
- 1.5×10^6
- Pa c) 100 Pa d) 1000 Pa

4. Which one of the following is the unit of pressure?

- a) N b) N/m c) N/m
- ²
- d) N/m
- ³

5. The velocity of a point in a flow is

- a) along the streamline b) tangent to the streamline c) along the pathline
-
- d) tangent to the pathline

6. The velocity vector in a fluid is given $V=5x^4+3y^2+2z$ (in metre/sec). What is the acceleration of it at point (1,3,4) ?

- a) 40 m/s
- ²
- b) 20 m/s
- ²
- c) 60 m/s
- ²
- d) 80 m/s
- ²

Q.2 Solve Any Two of the following.**3 X 2****(A)** Define and explain following terms

- i) Viscosity ii) surface tension iii) capillarity

(B) List the various pressure measuring devices and explain simple U-tube manometer.**(C)** A 60 cm diameter pipe carries petrol ($G = 0.7$) at velocity of 1.5 m/s. At another section, the diameter is 40 cm. Find the velocity at this section and also mass rate of flow of oil.**Q. 3 Solve Any One of the following.****8****(A)** Derive metacentric height by analytical method.**(B)** Derive Continuity equation in Cartesian co-ordinates.***** End *****