

VITHALBHAI PATEL & RAJRATNA P.T. PATEL SCIENCE COLLEGE

VALLABH VIDHYA NAGAR



F.Y. B.Sc. SEM: 2

PRELIMINARY EXAMINATION

DATE: 09/03/2019

SUB: PROCESS CALCULATION & MECHANICAL OPREARTION

TIME: 12:30 PM TO 2:30PM

SUB CODE: US02CICV21

TOTAL MARKS: 50

**Q1 MCQ [All Are Compulsory]**

[08]

1. In chemical science unit of density is expressed as \_\_\_\_  
a. gm/cc    b. W/cc    c. KJ/cc    d. None of the above
2. In a system of immiscible liquids which of the following will vaporize first?  
a. Bottom layer    c. Liquid having low boiling point  
b. Upper layer    d. Liquid having high boiling point
3. The energy which is associated with system due to its motion is known as \_\_\_\_  
a) Kinetic energy    b) Internal energy    c) Solar energy    d) Renewable energy
4. The rapid reaction of fuel with oxygen is generally known as \_\_\_\_  
a) Combustion    b) Distillation    c) Humidification    d) Both a and b
5. Which granular material is used to increase the porosity of the filter cake is known as?  
a) Filter aid    b) sand    c) Filter medium    d) calcium
6. The filter used to remove small amount of solids to produce sparkling clear liquid is known as?  
a) Clarifying filters    b) centrifugal filter    c) Cake filter    d) None of the above
7. How many blades the paddle impeller consists of?  
a) One    b) Two    c) Three    d) More than four
8. Baffled tank \_\_\_\_\_ formation of swirling and vortex formation  
a) Prevent    b) Promote    c) Froth    d) None

**Q2 Answer the following in short. (Attempt Five, each two marks)**

[10]

1. Enlist the various methods of expressing the composition of mixture and solutions
2. State and explain Dalton's law of partial pressure.
3. What do you mean by heat of combustion? Explain with suitable example
4. What do you mean by a web bulb in humidification?
5. Define the filtration unit operation with two names of the equipment.
6. What is the reason why the filter aid is added into the slurry?
7. Sketch the type of impellers.
8. Give Classification of conveyers.

**Q.3 Derive ideal gas equation.**

[8]

OR

**Q.3 Explain in brief the drying, absorption, crystallization unit operations with their overall material balance.**

**Q.4 Explain in detail heat capacity.**

[8]

OR

**Q.4 Explain complete and partial combustion with suitable examples.**

**Q.5 Write an explainer note on the construction, working and advantages, disadvantages of plate and frame filter.**

[8]

OR

**Q.5 Write an explainer note on the construction, working and advantages, disadvantages of Leaf filters.**

**Q.6 Discuss giving details the various designs of impellers.**

[8]

OR

**Q.6 Write the difference between crushing and grinding.**