



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology) 2024 Admission
IV Semester Final Examination – July 2026

FPO 2201

Food Plant Utilities and Services (2+1)

Marks: 50
Time: 2 hours

I Fill in the blanks

(10x1=10)

1. The speed of induction motor (RPM) is than synchronous speed of motor.
2. The is the best quality of steam for industrial process heating.
3. Reciprocating compressor and rotary compressor are the type compressors.
4. ASME stands for
5. 1 Watt is equal to lumens at 555 nm wavelength.

State True or False

6. In axial flow type fan direction of airflow changes at inlet and outlet.
7. Fire tube boilers are generally limited to low to medium pressures, typically only up to 18 to 25 bar.
8. One tone of refrigeration is equal to removal of 120 kJ heat unit per minute.
9. Motors are most efficient near their rated load.
10. The specific ratio of fan is lower than blower and compressor.

II Write short notes on ANY FIVE of the following

(5x2=10)

1. Give classification of air compressors.
2. List any five energy conservation opportunities in a fan system.
3. Differentiate between fans, blowers and compressors.
4. What do you mean by the term "cavitation"? What are the desirable effects of cavitation in a pumping system?
5. List the factors affecting energy efficiency of electric motors.
6. Explain basic motor types.
7. Discuss the types of utilities used in food processing plant.

III Answer ANY FIVE of the following

(5x4=20)

1. Explain about different fan laws with neat sketch.
2. Enlist different types of boilers. Describe any one of them.
3. Enlist various lighting system and describe any two.
4. Explain about energy conservation opportunities of boiler.
5. Describe the vapour compression refrigeration cycle with neat sketch.
6. Enlist about properties of liquid fuel and explain any three briefly.
7. A boiler has equivalent evaporation of 4000 kg/hr at design conditions. It consumes 400kg/hr of coal of calorific value 30 MJ / kg. Determine the thermal efficiency of the boiler.

IV Write an essay on ANY ONE of the following

(1x10=10)

1. Centrifugal pump
2. Electricity billing
