

A

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: U3A06

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Third Semester

Agriculture Engineering

21UAG306– FLUID MECHANICS AND OPEN CHANNEL HYDRAULICS

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The medium power tractor in the range of power from CO1- U
(a) 15 to 25 HP (b) 25 to 45 HP (c) 25 to 35 HP (d) 45 HP to 55HP
2. A firing order of the 4 cylinder engine CO1- U
(a) 1-4-3-2 (b) 1-2-3-4 (c) 1-4-2-3 (d) none of the above
3. In a four stroke engine each cylinder has CO1- U
(a) One valve (b) Two valves (c) Three valves (d) Four valves
4. The purpose of radiator is _____ of heat to the atmosphere. CO1- U
(a) Dissipation (b) Radiation (c) Convection (d) Conduction
5. Which of the following is the coefficient of friction of the clutch plate? CO1- U
(a) 1.3 (b) 0.8 (c) 0.4 (d) 0.1
6. Which of the following is not the component of Epicyclic gear box CO1- U
(a) Sun Wheel (b) Brake Band (c) Planet carrier (d) Friction lining
7. The force developed in the hydraulic system is high due to CO1- U
(a) high pressure (b) more oil (c) less pressure (d) less oil
8. A tractor seat suspension should have its natural frequency in the range of CO1- U
(a) 0.5 to 2.0 Hz (b) 2.0 to 4.0 Hz (c) 4.0 to 6.0 Hz (d) 6.0 to 8.0 Hz
9. How much power is considered of the torque during the tests at varying load? CO1- U
(a) 69% (b) 96% (c) 23% (d) 85%

- 10 At what speed is the brake test carried out? CO1- U
(a) 25 kmph (b) 45 kmph (c) 19 kmph (d) 50 kmph

PART – B (5 x 2= 10 Marks)

- 11 List the stationary parts of engine. CO3- App
12 State the main function of air cleaner. CO1- U
13 State the use of braking system in automobiles. CO1- U
14 What are the two aspects of mechanism involved in tractor chassis? CO1- U
15 What are the necessity of testing of tractor? CO1- U

PART – C (5 x 16= 80 Marks)

- 16 (a) Explain in detail about the power tiller and its components. CO2- App (16)
Or
(b) Discuss in detail about the options to select tractor for our college purpose. CO2- App (16)
- 17 (a) Illustrate with neat sketches of the working principle of 4- stroke petrol engine. CO2- App (16)
Or
(b) Appraise and contrast the working principle of air cooled and water cooled engine. CO2- App (16)
- 18 (a) With a neat sketch discuss the construction and working principle of sliding mesh gear box. CO3- App (16)
Or
(b) With a neat sketch discuss the construction and working principle of constant mesh gear box. CO2- App (16)
19. (a) Explain in detail about the basic components of hydraulic system. CO2- App (16)
Or
(b) Explain the three point linkage with neat sketches. CO2- App (16)
20. (a) Explain the test codes for performance testing of tractors CO2- App (16)
Or
(b) Discuss any two alternative sources of fuels. CO2-App (16)