

# SEVENTH SEMESTER B. TECH DEGREE EXAMINATION

2013 Scheme

13.706.15 INDUSTRIAL HYDRAULICS (M P)

Time: 3 Hours

Max Marks: 100

## PART – A

*Answer all questions. Each question carries 2 marks.*

1. What are the primary functions of hydraulics fluids?
2. Sketch the complete symbol for a variable displacement bidirectional pump.
3. Explain the system failures occur due to presence of contaminants.
4. Differentiate between a strainer and a filter.
5. What is the purpose of cylinder cushion?
6. How are single acting cylinders retracted?
7. What does an unloading valve accomplish?
8. What is the purpose of a regenerative circuit?
9. What is meant by air-over-oil system?
10. What is a fail-safe circuit?

**(2 X 10 = 20 Marks)**

## PART-B

*Answer any one question from each module*

### Module-I

11. (a) What are the desirable properties considered in the selection of hydraulic fluids?  
(b) With the help of a neat sketch, explain the working of a generated rotor pump.

OR

12. (a) State the main differences between hydraulic and pneumatic systems.  
(b) How selection of hydraulic pumps done in a hydraulic system.

## Module-II

13. (a) What are the design considerations for hydraulic cylinders and rams?  
(b) Explain the functions of reservoir accessories.

OR

14. (a) Explain the different types of hydro-pneumatic accumulators.  
(b) What are the considerations required in the design of filters.

## Module-III

15. (a) With the help of neat sketch explain the working of a vane motor.  
(b) Sketch and explain a hydraulic circuit for heat reduction.

OR

16. (a) Explain the working of a pilot operated sequence valve.  
(b) Explain the working of a 2-stage servo valve.

## Module-IV

17. How speed control is done with the help of meter-in, meter-out and bleed-off circuits.

OR

18. Draw and explain a hydraulic circuit of an extrusion press.

**(4 x 20 =80Marks)**