AE 1101 – FARM MECHANIZATION
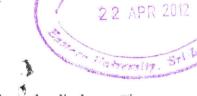### Practical Examination

Answer all questions
Time: 02 hrs

01. A four cylinder 4 stroke diesel engine has a cylinder bore of 30 mm and piston stroke of 100 mm. The engine develops 40 kW at 2000 rpm with a mechanical efficiency of 75% when coupled to a dynamometer. Determine the indicated mean effective pressure and the brake power.

02. (a) Briefly describe the operating principle of a piston type knapsack sprayer

   (b) The following data were obtained during the calibration process of a piston type knapsack sprayer
   Speed of advance = 3 m / min
   Volume flow rate = 500 ml/min
   Swath width = 1.5 m at a nozzle height of 1m from the ground

   Determine the volume application rate of this sprayer.

03. (a) A pump operator indentified a problem of no water delivery from the discharge pipe. Give at least 5 possible reasons and solutions to overcome this problem.

   (b) List out the factors considered in selecting a pump for a particular site.

04. (a) How can you distinguish a **'disc plough'** from a **'disc harrow'** based on their design (structure) and function?

   (b) Discuss about the structural features and operational advantages of a spring loaded tine cultivator (tine tiller).