1	A multi speed gear box is to be designed for small machine tool having speeds varying from 63 rpm to 630 rpm. The recommended series of speeds is R5 using standard spindle speeds. The gear box is connected to a motor driven by a pair of pulleys. Assume the motor runs at 1440 rpm. Draw a suitable structure and speed diagram and determine the no of teeth on each gear.
2	Draw speed ray diagram and layout for a 8 speed gear box .The output speed are 100 rpm minimum and 1000 rpm maximum. The motor speed is 1440 rpm.
3	Design a gear box of a machine tool (turret) having 12 spindle speeds ranging from 90 to 1800 rpm. The gear box should be a compact one. (a) Represent the speeds graphically. (b) Draw the structural diagram. (c) Show the layout of the gear box. (d) Find Out the numbers of teeth on various gears
4	A manufacturing concern takes up the demand of supplying turret lathes to its customers having 9 speeds powered by 8 kW motor. The speed range is from 90 to 1500 rpm. Design a suitable gear box giving all details.
5	A three stage gear box with 12 speeds is to be designed based on R10 series with a minimum spindle speed of 63 rpm. The electric motor is connected to the gear box through a belt drive and runs on 1440 rpm transmitting power of 6 kW. Draw the structure diagram, speed diagram, gearbox layout. Determine the number of teeth on each gear, maximum torque on each shaft.