MODULE IV

17. In the circuit shown in Fig. 6, find the voltage across the 10 ohm resistor and also the current supplied by the source :
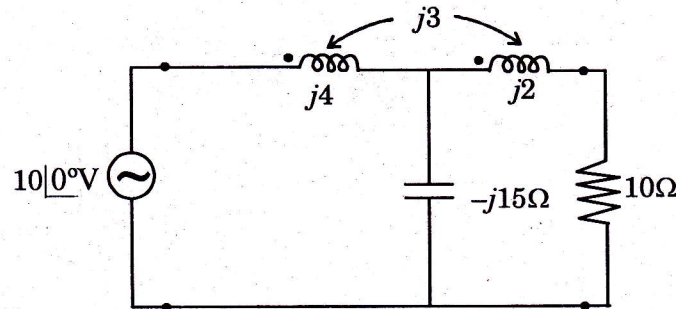

Fig. 6

Or

18. Synthesise the following driving point impedance in boththe foster forms and draw the network.

(a) $\dfrac{s\left(s^2+2\right)\left(s^2+5\right)}{\left(s^2+1\right)\left(s^2+4\right)}$.

(b) $\dfrac{\left(s^2+2\right)\left(s^2+5\right)}{s\left(s^2+4\right)\left(s^2+9\right)}$.

MODULE V

19. Between any two terminals of a 3-phase balanced load the voltage is 415 volt and the resistance is 3 Ω. The current in each of the lines is 100 A and the supply phase sequence is RYB. Find the power factor of the load. Find also the resistance and reactance per phase of the load with :

    (i) Star Connection.   (ii) Delta Connection.

Or

20. A 3-phase, 440 V delta connected system has the loads : branch RY, 20 kW at unity power factor ; branch YB, 30 kVA at power factor 0.8 lagging ; branch BR , 20 kVA at power factor 0.6 leading. Find (a) the line currents ; and (b) balanced Y connected resistors that would take same power as the above load from the same supply.

(5 × 12 = 60 marks)