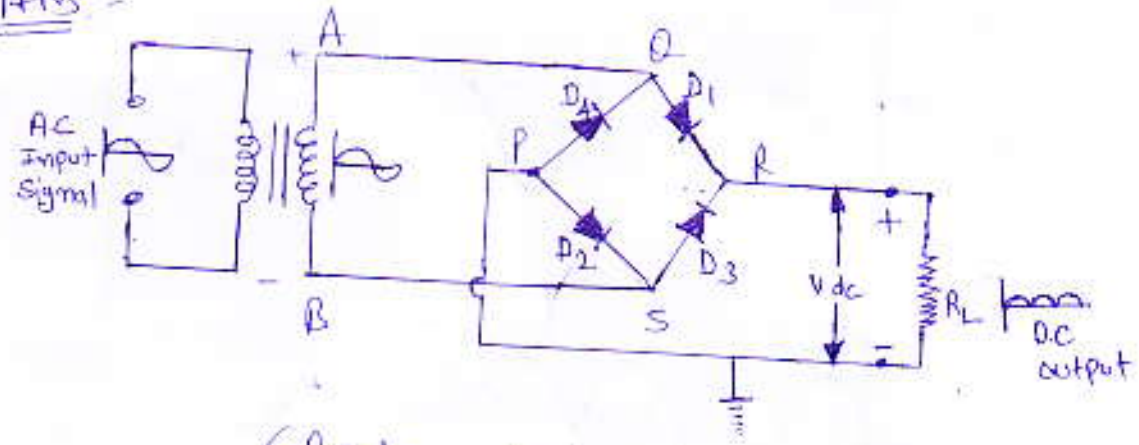
Q1. एक पूर्ण तरंग सेतु दिष्टकारी परिपथ की कार्य प्रणाली समझाइये।
Explain the working of a full wave Bridge Rectifier.

Ans:-



(Bridge Rectifier)

The bridge rectifier employs 4 diodes. By using 4 diodes, its output is twice that of the center tap ckt for the same secondary voltage. As shown the load R_L bridge the two ends P and R, the arrangement gives it the name of a bridge rectifier.

Working:- During positive half cycle of a secondary voltage, the end A of the sec becomes +ve and B becomes -ve. A a result diode D_1 and D_2 becomes forward biased which conduct. due to this current flows in load R_L. The direction of current A→R→S→B→A.

During the negative cycle, the end A bec
negative and B becomes positive. The diodes D_3
D_4 become forward biased and conduct in
direction shown BSRPQAB.

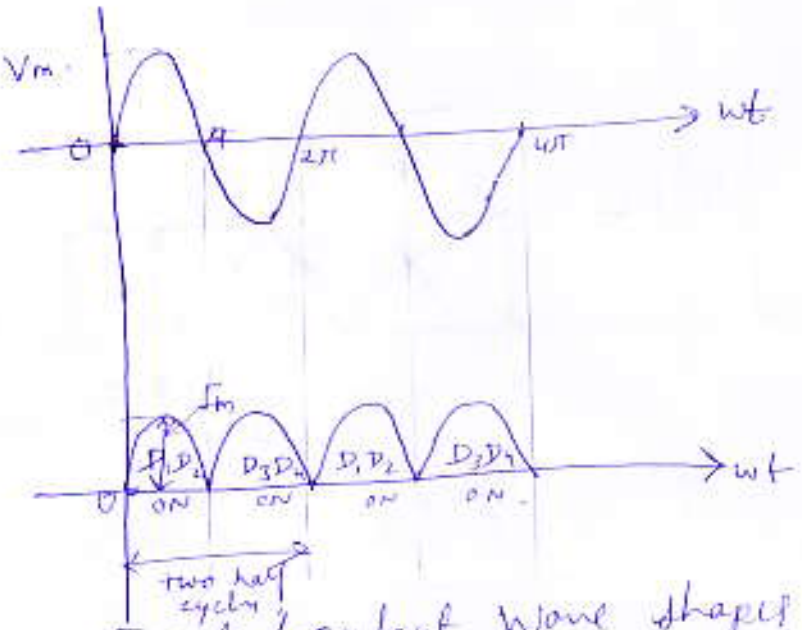


Fig. Input / output wave shapes

It can be seen that current in both cases flows thro
R_L from P to R. Hence we get a unidirectional
(current) (direct) current.

Q2 What is the difference between DC & AC load line in transistor biasing.

Ans 2:- DC load line:- It is the line on the output characteristics of a transistor circuit which gives the values of I_c and V_{CE} corresponding to zero signal or dc conditions.

AC load line:- This is the line on the output char of a transistor circuit which gives the value of I_c and V_{CE} when signal is applied.

Q3. Why operating point stability is essential in transistor biasing. Calculate the value of stability factor for collector to base biasing

Ans 3. The proper flow of zero signal collector and the maintenance of proper collector emitter voltage during the passage of signal is known as a transistor biasing For faithful amp^n, a transistor amplifier must satisfy three basic condition
(i) Proper zero signal collector current.
(ii) Proper base-emitter voltage at any instant.
(iii) Proper collector-emitter voltage at any instant

Stability Factor (S) =

By stability we mean that collector current (I_c) should remain constant even if I_{CBO} (I_{CO}) changes due to rise in temperature. If a transistor can achieve this goal, stability of the circuit is said to be "high".

The rate of change of collector current(I_c) with respect to the leakage current at constant β and I_B is known as stability factor of the transistor.

i.e $$S = \frac{dI_c}{dI_{CBO}}$$ (at constant β and I_B).

if stability factor of a certain transistor circuit is 40, it means the I_c change 40 times of I_{CBO}. The ideal value of S is '1', but it is acceptable upto 25.