What is claimed is:

1. A rotor, comprising:

a shaft configured to rotate about a central axis; and

a rotor core fixed to the shaft,

wherein the rotor core has a plurality of flux barriers formed side by side in a radial direction of the rotor core, each of the flux barriers ranging from a certain portion to another portion of an outer circumferential surface of the rotor core,

each of the flux barriers has:

a plurality of bridges that include a bridge forming a part of the outer circumferential surface of the rotor core at opposite ends thereof in a longitudinal direction thereof; and

one or more barrier regions that have a lower permeability than a portion other than each of the flux barriers in the rotor core between the plurality of bridges,

a permanent magnet is provided in at least one of the barrier regions,

a magnetizing direction of the permanent magnet is directed in a direction that intersects a longitudinal direction of each of the flux barriers at a position at which the permanent magnet is provided, and

when a permeability of a region where the permanent magnet is not present in the barrier region is defined as μ_0,

a cross-sectional area of the permanent magnet in a plane that is orthogonal to an extending direction of the shaft is defined as S_M,

a residual magnetic flux density of the permanent magnet is defined as B_r,

a recoil permeability of the permanent magnet is defined as μ_{re},

an arithmetic mean between a minimum and a maximum of a thickness of the barrier region is defined as t_{FB}, and

a sum of widths of all the plurality of bridges is defined as w_B,

a value of $(\mu_0 \times S_M \times B_r)/(\mu_{re} \times t_{FB} \times w_B)$ is within a range between 1.2 and 3.0.

2. The rotor according to Claim 1, wherein the rotor core is formed with one or more magnetic paths which are separated by a flux barrier of the plurality of flux

barriers and through which magnetic flux produced by a stator passes.

3. The rotor according to Claim 1, wherein the permanent magnet is provided in a barrier region of the one or more barrier regions that is formed at a position close to any one of opposite ends of at least one of the flux barriers in the longitudinal direction thereof, and a weight-adjusting member having nearly the same weight as the permanent magnet is provided in a barrier region of the one or more barrier regions that is formed at a position close to the other end.

4. The rotor according to Claim 1, wherein a non-magnetic material is filled between the rotor core and the permanent magnet in the barrier region.

5. The rotor according to Claim 1, wherein a plurality of barrier regions including the barrier region are formed in at least one of the flux barriers, and the permanent magnet is provided in a barrier region of the one or more barrier regions that is closest to the shaft among the plurality of barrier regions.

6. A reluctance motor, comprising:

the rotor defined in Claim 1;

a stator core disposed on an outer circumference of the rotor core with a space from the rotor core and having a plurality of teeth arranged with a space between each other in a circumferential direction; and

a multipole multiphase armature winding wound around the plurality of teeth.