Diode Rectifiers and Filters

1. In a half wave rectifier, the load current flows for what part of the cycle.
   a. 0^0
   b. 90^0
   c. 180^0
   d. 360^0

2. In a full wave rectifier, the current in each diode flows for
   a. whole cycle of the input signal
   b. half cycle of the input signal
   c. more than half cycle of the input signal
   d. none of these

3. in a full wave rectifier, if the input frequency is 50 Hz, then output frequency will be
   a. 50 Hz
   b. 75 Hz
   c. 100 Hz
   d. 200 Hz

4. In a center tap full wave rectifier, if V_m is the peak voltage between center tap and one end of the secondary, the maximum voltage coming across the reverse bias diode is
   a. V_m
   b. $2\ V_m$
   c. $V_m/2$
   d. $V_m/\sqrt{2}$

5. The maximum efficiency of full wave rectification is
   a. 40.6%
   b. 100%
   c. 81.2%
   d. 85.6%

6. In a bridge type full wave rectifier, if V_m is the peak voltage across the secondary of the transformer, the maximum voltage coming across each reverse biased diode is
   a. V_m
   b. $2\ V_m$
   c. $V_m/2$
   d. $V_m/\sqrt{2}$

7. To get a peak load voltage of 40V out of a bridge rectifier. What is the approximate rms value of secondary voltage?
   a. 0 V
   b. 14.4 V
   c. 28.3 V
   d. 56.6 V

8. If the line frequency is 50 Hz, the output frequency of bridge rectifier is
   a. 25 Hz
   b. 50 Hz
   c. 100 Hz
   d. 200 Hz

9. The ripple factor of a bridge rectifier is
   a. 0.482
   b. 0.812
   c. 1.11
   d. 1.21

10. The bridge rectifier is preferred to an ordinary two diode full wave rectifier because
    a. it needs much smaller transformer for the same output
    b. no center tap required
    c. less PIV rating per diode
    d. all the above

11. The basic purpose of filter is to
    a. minimize variations in ac input signal
    b. suppress harmonics in rectified output
    c. remove ripples from the rectified output
    d. stabilize dc output voltage

12. The use of a capacitor filter in a rectifier circuit gives satisfactory performance only when the load
    a. current is high
    b. current is low
    c. voltage is high
    d. voltage is low

13. A half wave rectifier is equivalent to
    a. clamper circuit
    b. a clipper circuit
    c. a clamper circuit with negative bias
    d. a clamper circuit with positive bias

14. The basic reason why a full wave rectifier has a twice the efficiency of a half wave rectifier is that
    a. it makes use of transformer
    b. its ripple factor is much less
    c. it utilizes both half-cycle of the input
    d. its output frequency is double the line frequency

15. In a rectifier, larger the value of shunt capacitor filter
    a. larger the peak-to-peak value of ripple voltage
    b. larger the peak current in the rectifying diode
    c. longer the time that current pulse flows through the diode
    d. smaller the dc voltage across the load

16. In a LC filter, the ripple factor,
    a. Increases with the load current
    b. increases with the load resistance
    c. remains constant with the load current
    d. has the lowest value

17. The main reason why a bleeder resistor is used in a dc power supply is that it
    a. keeps the supply ON
    b. improves voltage regulation
    c. improves filtering action
    d. both (b) and (c)

18. Which rectifier requires four diodes?
    a. half-wave voltage doubler
    b. full-wave voltage doubler
    c. full-wave bridge circuit
    d. voltage quadrupler

19. The dc output polarity from a half-wave rectifier can be reversed by reversing
    a. the diode
    b. transformer primary
    c. transformer secondary
    d. both (b) and (c)

Answers

1.	(c)	2.	(b)	3.	(c)	4.	(b)
5.	(c)	6.	(a)	7.	(c)	8.	(c)
9.	(a)	10.	(d)	11.	(c)	12.	(b)
13.	(b)	14.	(c)	15.	(b)	16.	(c)
17.	(d)	18.	(c)	19.	(a)		