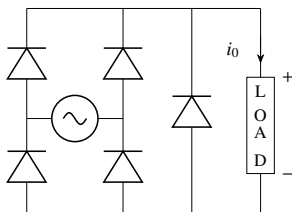


- 1) Since you have gone off the ____, the ____ sand is likely to damage the car.
The words that best fill the blanks in the above sentence are (2018)
- a) course, coarse b) course, course c) coarse, course d) coarse, coarse
- 2) A common misconception among writers is that sentence structure mirrors thought; the more ____ the structure, the more complicated the ideas.
The word that best fills the blank in the above sentence is (2018)
- a) detailed b) simple c) clear d) convoluted
- 3) The three roots of the equation $f(x) = 0$ are $x = \{-2, 0, 3\}$. What are the three values of x for which $f(x - 3) = 0$? (2018)
- a) -5, -3, 0 b) -2, 0, 3 c) 0, 6, 8 d) 1, 3, 6
- 4) For what values of k given below is $\frac{(k+2)^2}{k-3}$ an integer? (2018)
- a) 4, 8, 18 b) 4, 10, 16 c) 4, 8, 28 d) 8, 26, 28
- 5) Functions $F(a, b)$ and $G(a, b)$ are defined as follows:
 $F(a, b) = (a - b)^2$ and $G(a, b) = |a - b|$, where $|x|$ represents the absolute value of x . What would be the value of $G(F(1, 3), G(1, 3))$? (2018)
- a) 2 b) 4 c) 6 d) 36
- 6) An e-mail password must contain three characters. The password has to contain one numeral from 0 to 9, one uppercase, and one lowercase character from the English alphabet. How many distinct passwords are possible? (2018)
- a) 6,760 b) 13,520 c) 40,560 d) 1,05,456
- 7) In a certain code, AMCF is written as EQGJ and NKUF is written as ROYJ. How will DHLP be written in that code? (2018)
- a) RSTN b) TLPH c) HLPT d) XSVR
- 8) A class of twelve children has two more boys than girls. A group of three children are randomly picked from this class to accompany the teacher on a field trip. What is the probability that the group accompanying the teacher contains more girls than boys? (2018)

Colour	Blue	Black	Red	Yellow
Percentage	40%	25%	20%	15%

- a) 0 b) $\frac{325}{864}$ c) $\frac{525}{864}$ d) $\frac{5}{12}$
- 9) A designer uses marbles of four different colours for his designs. The cost of each marble is the same, irrespective of the colour. The table below shows the percentage of marbles of each colour used in the current design. The cost of each marble increased by 25%. Therefore, the designer decided to reduce equal numbers of marbles of each colour to keep the total cost unchanged. What is the percentage of blue marbles in the new design? (2018)
- a) 37.75 b) 40.25 c) 43.75 d) 46.25
- 10) P, Q, R, and S crossed a lake in a boat that can hold a maximum of two persons, with only one set of oars. The following additional facts are available: (2018)
- The boat held two persons on each of the three forward trips across the lake and one person on each of the two return trips.
 - P is unable to row when someone else is in the boat.
 - Q is unable to row with anyone else except R.
 - Each person rowed for at least one trip.
 - Only one person can row during a trip.
- Who rowed twice?
- a) P b) Q c) R d) S
- 11) A single-phase 100 kVA, 1000 V / 100 V, 50 Hz transformer has a voltage drop of 5% across its series impedance at full load. Of this, 3% is due to resistance. The percentage regulation of the transformer at full load with 0.8 lagging power factor is: (2018)
- a) 4.8 b) 6.8 c) 8.8 d) 10.8
- 12) In a salient pole synchronous motor, the developed reluctance torque attains the maximum value when the load angle in electrical degrees is: (2018)
- a) 0 b) 45 c) 60 d) 90
- 13) A single-phase fully controlled rectifier is supplying a load with an anti-parallel diode as shown in the figure. All switches and diodes are ideal. Which one of the following is true for instantaneous load voltage and current? (2018)



- a) $V_o \geq 0$ and $I_o < 0$ b) $V_o < 0$ and $I_o < 0$ c) $V_o \geq 0$ and $I_o \geq 0$ d) $V_o < 0$ and $I_o \geq 0$