Answers of Exercise on Continuous Probability

1)Find the following probabilities:
(a) P(Z > 1.06)
(b) P(Z < -2.15)
(c) P(1.06 < Z < 4.00)
(d) P(-1.06 < Z < 4.00)

Answer: (a) 0.1446 (b) 0.0158 (c) 0.1446 (d) 0.8554

2)A company pays its employees an average wage of $3.25 an hour with a standard deviation of 60 cents. If the wages are approximately normally distributed, determine
a) Proportion of the workers getting wages between $2.75 and $3.69 an hour
b) Minimum wage of the highest 5%

Answer: (a) 0.566 (b) 4.24

3)The average life of a certain type of motor is 10 years, with a standard deviation of 2 years. If the manufacturer is willing to replace only 3% of the motors because of failures, how long a guarantee should she offer? Assume that the lives of the motors follow a normal distribution

Answer: 6.24 Years

4) The length of time, L hours, the phone will before it needs charging is normally distributed with a mean of 100 hours and a standard deviation of 15 hours

a) Find P(L>127)
b) Find the value of d such that P(L<d) = 0.1

Ganesh is about to go on a 6 hour journey. Given that it is 127 hours since he last charged his phone

c) Find the probability that the phone will not need charging before the journey is completed

Answer: (a) 0.0359 (b) 80.78 (c) 0.39

5) A cement manufacturing plant packs cement in bags. The weight X of a bag of cement can be modelled by a normal distribution with mean 50 kg and a standard deviation of 2 kg

a) Find P(X>53)
b) Find the weight that is exceeded by 99% of the bags
c) Three bags are selected at random. Find the probability that two weigh more than 53 kg and one weighs less than 53 kg

Answer: (a) 0.0668 (b) 45.3474 (c) 0.0125