Questions 13 to 18 are based on material covered in *Chapter 5*.

13 If the random variable Z follows a standard normal distribution with mean 0 and standard deviation 1, find from the following options the probability $P(-1.5 < Z < 2.5)$.

A 0.927	**B** 0.933	**C** 0.061	**D** 0.955
E 0.073	**F** 0.994	**G** 0.939	**H** 0.954

14 If the random variable X follows a normal distribution with mean 100 and standard deviation 12, find from the following options the SSC command for the probability $P(X > 135)$.

A `Norm(135,100,12)`	**B** `1-Norm(135,100,12)`
C `Norm(135,100,144)`	**D** `normQ(135,100,12)`
E `Norm(134.5,100,12)`	**F** `Norm(135.5,100,12)`
G `Norm(100,12,135)`	**H** `norm(135,100,12)`

15 Write down the 1% quantile and the 99% quantile for the normal distribution $N(100, 80)$. (Choose two options.)

A 388.3	**B** 79.2	**C** 120.8	**D** 70.6
E −188.3	**F** 119.2	**G** 75.3	**H** 129.4

16 If a fair six-sided die is rolled twenty times and the scores are added together, use the central limit theorem and the rough rule that for normally distributed random variables *the majority of observations will be within three standard deviations either side of the mean* to state lower and upper limits between which the total score will probably lie.

A 20,120	**B** 57,83	**C** 62,78	**D** 60,80
E 56,84	**F** 47,93	**G** 55,85	**H** 65,75

17 If X has a Poisson distribution with mean 44, select from the following options the exact probability $P(X = 50)$ and the approximation to this probability given by the central limit theorem. (Choose two options.)

A 0.180	**B** 0.2035	**C** 0.0399	**D** 0.0090
E 0.0381	**F** 0.0412	**G** 0.820	**H** 0.1636

18 If X is binomial $B(40, 0.4)$ select from the following options the exact probability $P(X \geq 18)$ and the approximation to this probability given by the central limit theorem.

A 0.3115	**B** 0.3407	**C** 0.0830	**D** 0.3734
E 0.1026	**F** 0.1043	**G** 0.2593	**H** 0.3141

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