UEE Questions From Grade 11 (2016 E.C)

1. Which one of the following is an onto function from R onto R?

A. $f(x) = 2x - 3x^2$

B. $f(x) = 5x^3 + 1$

C. $f(x) = |x - 1|$

D. $f(x) = \sqrt{(x^2 + 1)}$

2. Let f(x) = x + 1 / x – 1 and g(x) = ✓(x + 2) be two functions. Which one of the following is true about the combination values of f and g at x = 2 ?

A. (f.g) (2) = 6

B. (f + g)(2) = 3

C. (F/g)(2) = 2/3

D. (F - g)(2) = -1

3. Which one of the following pairs of function is an inverse of each other n their respective domains?

A. $f(x) = \sqrt{(x+3)}$ and $g(x) = x^2 - 9$

B. $f(x) = x^5$ and $g(x) = 1/x^5$

C. $f(x) = x^3 - 1$ and $g(x) = \sqrt[3]{(x+1)}$

D. $f(x) = x+1/x-1$ and $g(x) = x-1/x+1$

4. If 180 individuals can complete a job in 15 days by working 10 hours a day, how many individuals are needed to complete the job in 10 days if they work 12 hours a day?

A. 200 B. 144 C. 225 D. 220

5. Which one of the following is the range of the function $f(x) = 2x - 1 / x + 3$

A. $R \setminus \{-3\}$ B. $R \setminus \{2\}$ C. $R \setminus \{-1/3\}$ D. $R \setminus \{1/2\}$

6. Let M be a matrix such that $\mathbf{M} = \begin{pmatrix} 9 & 24 & 6 \\ -12 & 18 & 15 \\ 0 & 27 & 3 \end{pmatrix}$. Which one of the following matrix is equal to 2/3M ?

A $\begin{pmatrix} 6 & 16 & 2 \\ -8 & 12 & 10 \\ 0 & 18 & 2 \end{pmatrix}$

B $\begin{pmatrix} 6 & 16 & 4 \\ -8 & 12 & 10 \\ 0 & 18 & -2 \end{pmatrix}$

C $\begin{pmatrix} 3 & 8 & 2 \\ -4 & 6 & 5 \\ 0 & 9 & 1 \end{pmatrix}$

D $\begin{pmatrix} 6 & 8 & 4 \\ -8 & 6 & 10 \\ 0 & 9 & 2 \end{pmatrix}$

7. Which one of the following is the determinants of the matrix M = $\begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 10 \end{pmatrix}$?

A. -3 B. 6 C. -6 D. 3

8. Which one of the following is the position vector of the vector with initial point A(1, -1) and terminal point B(2, -3)?

A. 3i + 4j

B. 3i – 4j

C. i – 4j

D. I - 2j

9. The following table represents the scores of grade 11 students of a certain school in mathematics examinations.

Score	31 – 40	41 – 50	51 – 60	61 – 70	71 – 80	81 – 90	91 – 100
Number of Students	10	9	15	12	10	4	2

What is the median of the data given in the above table?

A. 58.5 B. 60.5 C. 50.5 D. 55.5

10. The following table represents the number of traffic accidents in a certain city per year for five consecutive years from 2019 to 2023.

Year	2019	2020	2021	2022	2023
Number of Accidents	3500	2750	2850	3500	3750

What is the average number of accidents per year for the given five years?

A. 3250 B. 3270 C. 3200 D. 3210