187/23

Total Number of Questions : 20

Time : 2.00 Hours Max. Marks : 100

1. What are the main factors determining People's Participation in Rural Development Projects ? **(4 Marks)**

2. Give a short note on virtual learning environment. Describe any two benefits and challenges that can come in a virtual classroom. **(4 Marks)**

3. Define cultural lag and elucidate the role of education in addressing cultural lag. **(4 Marks)**

4. Analyse the characteristics of learners for designing effective teaching strategies. **(4 Marks)**

5. Content analysis is a transparent and flexible research method. Substantiate the statement with four major characteristics of the method. **(4 Marks)**

6. Explain the factors affecting implementation of rural development projects. **(6 Marks)**

7. What is curriculum transaction ? List any four reasons for integrating ICT in curriculum transaction. **(6 Marks)**

8. Explain how a teacher can accommodate all learners with varied learning styles in his/her classroom. **(6 Marks)**

9. Describe the techniques and strategies for student centric learning. **(6 Marks)**

10. Briefly explain four advantages of writing a discussion section, in the chapter on review of related literature, in a thesis. **(6 Marks)**

11. Consider the functions $f(x) = x^2; x \in \mathbb{R}$, $g(x) = \sqrt{x}, x \geq 0$. Find $f \circ g(x)$. Can you conclude that $f^{-1} = g$? Give reason. **(4 Marks)**

12. If the price of petrol is increased by 10% and then decreased by 10%. What is the net increase or decrease of price in percentage ? **(4 Marks)**

13. Ratio of area of two equilateral triangles is 3 : 1. If the height of the smaller triangle is 10 cm, find the height of the larger triangle. **(4 Marks)**

14. The sum of ages of a man and his son is 58. Five years later, age of son will be 4 years less than half the age of his father. Find the ages of the man and his son. **(4 Marks)**

15. The mean weight of students in a class is 50 kg and the standard deviation is 4. If the weights are normally distributed and $P(0 < z < 0.5) = 0.19$, where z is a standard normal distribution, find the percentage of number of students whose weights are less than 48 kg. Also find the approximate number of students having age more than 52, if there were 60 students in the class. **(4 Marks)**

P.T.O.

16. Test whether the relation R defined on $\mathbb{Z}$ such that $(x, y) \in R$ if and only if 3 divides $y - x$. If so find the equivalence classes. **(6 Marks)**

17. Is it true that for any positive integer n, the greatest common divisor of n and n + 1 is 1 ? Justify your answer. **(6 Marks)**

18. A metallic square pyramid has base edge 10 cm and height 15 cm. It is melted into 10 square pyramids of same size and same height. Find the base edge of the smaller pyramid. **(6 Marks)**

19. The sum of a number and twice its reciprocal is three less than twice the number. Find the number. **(6 Marks)**

20. The following table shows the marks in Mathematics (x) and marks in physics (y) of 5 students. Find the regression line of y on x. **(6 Marks)**

x	30	40	45	50	25
y	35	35	40	50	30