

University polytechnic

Sample paper

1. Find the arithmetic mean of 3, 4, 5, 6, 7
(a) 3 (b) 4 (c) 5 (d) 6
2. Find the nature of the roots of $x^2 - 7x + 10 = 0$
(a) Real and distinct (b) real and repeated (c) complex (d) none
3. -2 is which type of number
(a) Natural number (b) whole number (c) integer (d) none
4. Find the value of $(2x-5y)^2$
(a) $4x^2+25y^2-20xy$ (b) $25x^2+4y^2-20xy$ (c) $2x^2+5y^2-20xy$ (d) none
5. If the mean of 3, 4, x, 6, 7 is 5, find x
(a) 3 (b) 4 (c) 5 (d) 6
6. Find the value of $(x+2y)^3$
(a) $X^3+8y^3+6x^2y+12xy^2$ (b) $2x^3+y^3+6x^2y+12xy^2$ (c) $x^3+y^3+6x^2y+12xy^2$ (d) none
7. If $\sin a=3/5$ and $\cos a=4/5$, find $\sin 2a$
(a) $12/25$ (b) $24/25$ (c) $5/25$ (d) $48/25$
8. The population of a village was 10000. After 2 years the population becomes 12100. Find the percentage increase in population
(a) 20% (b) 30% (c) 10% (d) 5%
9. If amit and sumit can do a work in 15 and 30 days respectively. In how many days they can finish the work by doing together.
(a) 5 (b) 10 (c) 15 (d) 20
10. If the flow of a water current is 4km/h and the speed of boat in still water is 10km/h. Find the net speed of boat in the direction of flow of water
(a) 12km/h (b) 14km/h (c) 16km/h (d) 8 km/h
11. Work is always done on a body when:
 - a) A force acts on it
 - b) It moves through a certain distance
 - c) It experiences an increase in energy through a mechanical influence
 - d) None

12. If the stone is thrown up vertically and return to ground, its potential energy is maximum:

- a) During upward journey
- b) At the maximum height
- c) During the return journey
- d) At bottom

13. One horse power is;

- a) 746 watt
- b) 946 watt
- c) 1024 joule
- d) 746 erg

14. You lift a book from the floor and put it on the table of height 2 m in 5 sec. The work done by you depend upon:

- a) Mass of the book and time
- b) Weight of the book and height of the table
- c) Height of the table and time
- d) Mass of the book, height of table and time

15. If the mass of an object doubled, its kinetic energy becomes:

- a) Remains unchanged
- b) Half
- c) Quadrupled
- d) Doubled

16. Two electrical charges of same nature kept at a distance:

- a) Attract
- b) Repel
- c) No interaction
- d) None

17. Heat added to a system is equal to:

- a) A change in its internal kinetic energy
- b) A change in its internal potential energy
- c) Work done by it
- d) Sum of above all the three

18. In a pressure cooker food cooks early, why

- a) With increase pressure, melting point decrease
- b) With decrease pressure, melting point increase
- c) With increase pressure, melting point increase
- d) None

19. On freezing a liquid, its molecules kinetic energy :

- a) Increase
- b) Decrease
- c) First increase then decrease
- d) First decrease then increase

20. Latent heat of vapour:

- a) 4.2 j
- b) 540 j
- c) 100 j
- d) 70 j

21. Which one is non- metal element

A)iron

b)gold

c)iodine

d)sodium

22. Petrol is a element

A) element

b) mixture

c) compound

d) saturated solution

23. The symbol of potassium is

- A) S b) P c) Pa d) K

24. The chemical name of washing soda is

- A) sodium carbonate b) sodium sulphate
C) sodium bi-carbonate d) sodium bi-sulphate

25. The formula of baking powder is

- A) Na_2CO_3 b) NaHCO_3 c) K_2CO_3 d) KNO_3

26. The formula of marble is

- A) $\text{CaH}(\text{CO}_3)_2$ b) CaCO_3 c) NaHCO_3 d) NaOH

27. The atomic no. of an element is 16 the valency will be

- a) 2 b) 6 c) 16 d) 0

28. Mendeleev gave a theory about

- A) atomic structure
B) classification of element
C) theory of electronic valency
D) none of these

29. Which one is the mixture of the following:

- A) chalk
B) washing soda
C) sugar solution
D) diamond

30. Atom-bomb theory is based on

- A) nuclear fission
B) nuclear fusion
C) Faraday's principle
D) Hund's principle

31. Figure out adjective in the given sentence.:

He is a good player.

- I) He
- II) Is
- III) Good
- IV) Player

32. Figure out adjective in the given sentence:

Raman is a nice boy.

- I. Raman
- II. Is
- III. Boy
- IV. Nice

33. Figure out adjective in the given sentence:

He is a good cricketer.

- I. He
- II. Is
- III. Good
- IV. Cricketer

34. Figure out adverb in the given sentence:

He is a very good player.

- I. Very
- II. Is
- III. Good
- IV. A

35. Figure out adverb in the given sentence:

He is too good.

- I. Is
- II. Too
- III. He
- IV. Good

36. Figure out adverb in the given sentence:

He is a very good writer.

- I. Is
- II. Very
- III. Writer
- IV. Good

37. Figure out verb in the given sentence.:

He is playing cricket.

- I. Cricket
- II. He
- III. Playing
- IV. Is playing

38. Figure out verb in the given sentence:

He is waching cricket.

- I. Is waching
- II. Cricket
- III. Is
- IV. He

39. Figure out verb in the given sentence.:

He is writing.

- I. Is writing
- II. Writing
- III. Is
- IV. He

40. Figure out verb in the given sentence.:

He is running in the field.

- I. Is
- II. Is running
- III. He
- IV. Field

