

18BP43

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Name:

Reg. No:

FOURTH YEAR B.P.Ed. (INTEGRATED) DEGREE EXAMINATIONS, APRIL 2022

(Regular/Supplementary/Improvement)

CC15U BPE4 T19 – BIOMECHANICS

(2015 Admission onwards)

Time: Three Hours

Maximum: 75 Marks

I. Answer any one of the following:

1. Define centripetal and centrifugal force and explain their role in any two sports events

Or

2. Define Biomechanics. How can a knowledge of biomechanics be advantageous to a physical educator over other sciences?

(1 × 15 = 15 Marks)

II. Write short notes on the following:

3. Inertia and its types.

4. Principles of Projectiles.

5. Friction.

(3 × 5 = 15 Marks)

III. Describe the following:

6. Types of Equilibrium

7. Principles involved in throwing technique.

8. Types of Levers.

(3 × 5 = 15 Marks)

IV. Fill in the blanks:

9. When two forces act at an angle the resultant is the of the forces involved.

10. To move an object from rest, the external force applied must be greater than the of the resting object.

11. When the sum of the clockwise moments is equal to the sum of the anticlockwise the object will be in

12. is the unit of force in MKS system.

13. Center of gravity is an point on the object where the weighed center of the object is considered as concentrated.

(5 × 1 = 5 Marks)

V. State True or False:

14. There is a period of no support in running technique.
15. Range is maximum when sine function is equal to one.
16. Spin is effected by the application of an off- center force.
17. The path of a projectile is always a parabola.
18. Acceleration is proportional to the force causing it.

(5 × 1 = 5 Marks)

VI. Write the answer in one word:

19. Product of mass and acceleration is
20. Speed in a given direction is
21. A rigid bar that can turn around a fixed point / axis is
22. The second law of motion is called Law of
23. Projectile motion is caused by
24. Rate of change of velocity is
25. Displacement is a quantity.
26. Branch of mechanics dealing with causes of motion is
27. Levers that permit rapid extensive movements with relatively little shortening of the muscle is
28. At the maximum height gained by a projectile its velocity is equal to

(10 × 1 = 10 Marks)

VII. Match the following:

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|---|--|
| 29. Centripetal force | a. Mechanical advantage |
| 30. Force opposing forward motion of an object in airflow | b. As speed increases. |
| 31. On road racing tyres are thin | c. Angle of projection to be 45 |
| 32. Speed and range of motion | d. The height it attains |
| 33. Force of gravity | e. Drag |
| 34. Levers /joints creating bigger force | f. Minimising friction. |
| 35. Maximum range | g. Downward effect. |
| 36. Air resistance has a greater retarding effect | h. Lift |
| 37. Time of flight depends on | i. Force acting towards the axis of rotation |
| 38. An aerodynamic force perpendicular to the direction of the wind | j. Third class of levers. |

(10 × 1 = 10 Marks)
