Mid-West University

Examinations Management Office

Surkhet, Nepal

End Semester Examination-2081

Level: B.Ed. / IV Semester

Sub: Vector Analysis for Teacher (MATH 444/345)

Roll No. .....

Group "A" **10 × 1 = 10**

Tick (✓) the best answer.

1. Direction of zero vector ...
   a. does not exist
   b. towards origin
   c. indeterminate
   d. None of these

2. Which is correct relation between mutually perpendicular unit vectors $\vec{i}, \vec{j}, \vec{k}$ is
   a. $\vec{i} \times \vec{j} = \vec{j} \times \vec{i} = -\vec{k}$
   b. $\vec{i} \times \vec{i} = \vec{j} \times \vec{j} = \vec{k} \times \vec{k} = 1$
   c. $\vec{i} \times \vec{i} = \vec{j} \times \vec{j} = \vec{k} \times \vec{k} = 0$
   d. $\vec{k} \times \vec{i} = \vec{j}$ and $\vec{j} \times \vec{i} = \vec{k}$

3. The vector $(b \times a)$ is
   a. perpendicular to a
   b. perpendicular to b
   c. perpendicular to both a and b
   d. Null vector

4. The magnitude of the vector 6i + 2j + 3k is equal to:
   a. 5
   b. 1
   c. 7
   d. 12

5. If $|a \times b| = 4$ and $|a.b| = 2$, then $|a|^2 |b|^2$ is equal to:
   a. 4
   b. 6
   c. 20
   d. 2

6. A rope held by a monkey will not break when a mass of 30 kg is suspended to it, but if the mass exceeds 30 kg, it will break. If the mass of the monkey is 25 kg, find the minimum acceleration with which the monkey can climb up along the rope? ($g = 10 m/s^2$)
   a. $15 m/s^2$
   b. $1 m/s^2$
   c. $2 m/s^2$
   d. $5.5 m/s^2$

7. What does the displacement-time graph of a uniformly accelerated motion look like?
   a. Hyperbola
   b. Parabola
   c. Straight Line
   d. Ellipse

8. Negative acceleration is also known as ...
   a. Relaxation
   b. Deceleration
   c. Elevation
   d. Escalation

9. The slope of acceleration is ...
   a. Velocity
   b. Impulse
   c. Force
   d. Jerk

10. The position vector of the point (1, 2, 0) is ...
    a. i + j + k
    b. i + 2j + k
    c. i + 2j
    d. 2j + k