Write the following information in the first page of Answer Script before starting answer

ODD SEMESTER EXAMINATION: 2020-21

Exam ID Number_____

Course_____

Semester_____

Paper Code_____

Paper Title_____

Type of Exam: _____

(Regular/Back/Improvement)

Important Instruction for students:

1. Student should write objective and descriptive answer on plain white paper.
2. Give page number in each page starting from 1st page.
3. After completion of examination, Scan all pages, convert into a single PDF, and rename the file with Class Roll No. **(2019MBA15)** and upload to the Google classroom as attachment.
4. Exam timing from 10am – 1pm (for morning shift).
5. Question Paper will be uploaded before 10 mins from the schedule time.
6. Additional 20 mins time will be given for scanning and uploading the single PDF file.
7. Student will be marked as ABSENT if failed to upload the PDF answer script due to any reason.

BACHELOR OF PHYSIOTHERAPY
THIRD SEMESTER
BIOMECHANICS
BPT-306

Duration : 3 hrs. **Full Marks : 70**

(PART-A: Objective)

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1×20=20***

1. Active shortening of a muscle is called
- **a.** Eccentric contraction
- **b.** Isometric contraction
- **c.** Concentric contraction
- **d.** Isokinetic contraction

2. All are primary muscles of respiration except
- **a.** Intercostals muscles
- **b.** Diaphragm muscle
- **c.** Scalene muscles
- **d.** Pectoralis major

3. Angle of inclination in Femur is
- **a.** 130-150 degree
- **b.** 100-130 degree
- **c.** 150-170 degree
- **d.** 170-200 degree

4. Which is true about GENU VALGUM?
- **a.** Also known as knock knee
- **b.** Medial tibiofemoral angle is less than 180degree
- **c.** Also known as bow knee
- **d.** All of the above

5. Which of the following are types of power grip?
- **a.** Pad to pad
- **b.** Pad to tip
- **c.** hook
- **d.** All the above

6. Tension developed in parallel elastic components of the muscle is known as-
- **a.** Active tension
- **b.** Passive tension
- **c.** Isometric tension
- **d.** none

7. During midstance, hip is at _____ degrees of flexion.
- **a.** 20
- **b.** 10
- **c.** 0
- **d.** none

8. The kinematic relationship between lumbar spine and hip joints during sagittal plane movement is known as
- **a.** Lumbo pelvic rhythm
- **b.** Coupling movement
- **c.** Lumbar compression
- **d.** All of the above

9. Force = mass x acceleration, is according to Newton's
- **a.** 1st law of motion
- **b.** 2nd law of motion
- **c.** 3rd law of motion
- **d.** 4th law of motion

10. Ankle joint is also known as
- **a.** Talocalcaneal joint
- **b.** Talocrural joint
- **c.** Talo tibial joint
- **d.** Tibiofibular joint

11. Locking mechanism occurs in
- **a.** Last 30 degree of knee flexion
- **b.** Initial 30 degree of knee flexion
- **c.** Initial 30 degree of knee extension
- **d.** Last 30 degree of knee extension

12. Single support period constitute of_____% of gait cycle.
- **a.** 10
- **b.** 20
- **c.** 30
- **d.** 40

13. Degree of toe out is
- **a.** 5 degree
- **b.** 6 degree
- **c.** 7 degree
- **d.** 8 degree

14. When concave moves over convex surface, sliding takes place in
- **a.** Same direction
- **b.** Opposite direction
- **c.** Both direction
- **d.** None

15. Physiological valgus of knee
- **a.** Increases the base of support
- **b.** Decreases the base of support
- **c.** Does not change the base of support
- **d.** None

16. Piston movement in the chest is done by
- **a.** Upper ribs
- **b.** Lower ribs
- **c.** diaphragm
- **d.** sternum

17. **Pectus carinatum** is also known as
- **a.** Cobbler's chest
- **b.** Funnel chest
- **c.** Barrel chest
- **d.** Pigeon chest

18. The angle formed between the axis of Humerus and the Longitudinal axis of Forearm is known as
- **a.** Angle of inclination
- **b.** Angle of torsion
- **c.** Carrying angle
- **d.** Valgus angle

19. The region at which irreversible change occurs in a tissue, in the load deformation curve is known as
- **a.** Toe region
- **b.** Plastic region
- **c.** Elastic region
- **d.** Ultimate failure point

20. Mechanical disadvantage is seen in
- **a.** 1st order lever
- **b.** 2nd order lever
- **c.** 3rd order lever
- **d.** None

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(PART-B : Descriptive)

Time : 2hrs 40 min . **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. Define gait cycle. Write the different phases of the gait cycle. Explain the temporal and distance variable of gait. 2+2+6=10

2. Explain with diagram 5+5=10
a) Angle of inclination
b) Angle of torsion

3. Write about- 5+5=10
a) Isometric length tension relationship
b) Locking and unlocking mechanism of knee

4. Write elaborately the movements that occur in the thoracic cage. 10

5. Describe: 4+6=10
a) Concave- convex rule
b) Static stability of shoulder joint

6. Define: 5+5=10
a) Hysterisis
b) Load deformation curve

7. Explain the composition of skeletal muscle fibre. Write about the contractile unit of the muscles. 5+5=10

8. **a)** Elaborate the different types of power grip. 5+5=10
b) Explain the classes of lever.

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