Exam topics in the subject Dynamic Anatomy-2 for the 2nd year students of the Department of Physical Medicine and Rehabilitation. The 4th Semester

1. Biodynamics of the free parts of upper limbs – articulations and movements of the wrist.

2.Articulations and movements of fingers.

3.Characteristics of upper limb movements.

4. Neural regulation of human body position and movements.

5.Control of movements. N.A. Bernstein theory. Control of locomotive movements. Improvement of control of locomotive movements through training and in age-related aspects.

6. Functional analysis of standing posture.

7.Biomechanics of lower limbs – pelvic girdle, articulations and movements.

8.Biodynamics of the free parts of lower limbs – articulations and movement in the hip joint.

9. Knee and leg articulations. Movements in the knee.

10.Biodynamics of the free parts of lower limbs – Ankle joint and movement.

11.Articulations and movements of the feet.

12.Biodynamics of the free parts of lower limbs – movement of toes.

13. Characteristics of lower limb movements.

14.Morpho-functional maintenance of some of basic human postures: standing, sitting, lying.

15.Morpho-functional maintenance of spatial movement of the human body (locomotion) (walking, getting up/down).

16.Recording muscle bioelectrical activity in norm and pathology; during walking of various speeds in children, adults and elderly.

17. Running – recording of muscle bioelectrical activity and its interpretation on the basis of phase trajectory method.

18.Jumping – vertical, horizontal, vertical with whirling. Phases of a jump. Landing from a

viewpoint of unsupported body posture.

19.Mechanism of muscle movement. Age- and sex-related features of jumping.

20.Characteristics of internal organ functioning during whirling movement.

21.Throwing and hitting. Role of internally generated forces in controlling precision and strength of hitting movement.

22.Morphofunctional characterization of co-hitting mechanical model.

23.Control of throwing and hitting movements and interaction with the environment.

24.Biomechanics of certain kinds of sports (skiing, cycling, swimming, football, athletics).

25.Morpho-functional features of a sportsperson’s body.

26.Optimization of swimming technique.

27.Control of breathing in water.