

This booklet consists of **100** questions and **12** printed pages.

RGUCET/2023/PG/33

Series

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RGUCET 2023
MASTER OF SCIENCE IN SPORTS BIOMECHANICS

Full Marks: 100

Time: 2 Hours

Roll No.

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Day and Date of Examination :

Signature of Invigilator(s) :

Signature of Candidate :

General Instructions:

PLEASE READ ALL THE INSTRUCTIONS CAREFULLY BEFORE MAKING ANY ENTRY.

1. DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. Candidate must write his/her Roll Number on the space provided.
3. This Test Booklet contains 100 Multiple Choice Questions (MCQs). Each question carries 1 mark. There shall be negative marking of 0.25 against each wrong attempt.
4. Please check the Test Booklet to verify that the total pages and total number of questions contained in the test booklet are the same as those printed on the top of the first page. Also check whether the questions are in sequential order or not.
5. Candidates are not permitted to enter into the examination hall 15 minutes after the commencement of the entrance test or leave the examination hall before 30 minutes of end of examination.
6. Making any identification mark in the OMR Answer Sheet or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.
7. Candidates shall maintain silence inside and outside the examination hall. If candidate(s) is/are found violating the instructions mentioned herein or announced in the examination hall, they will be summarily disqualified from the entrance test.
8. In case of any dispute, the decision of the Entrance Test Committee, RGU shall be final and binding.
9. The OMR Answer Sheet consists of two copies, the Original copy and the Student's copy.

| | | | | | | |
|----|---|----------------------------------|-----------------------------|--------------------------------|---|--------------------------|
| 1 | Which of the following sentences is in present perfect tense? | | | | c | I have finished my work. |
| | a) I will finish my work tomorrow. | b) I finished my work yesterday. | c) I have finished my work. | d) I am finishing my work now. | | |
| 2 | Blue Revolution is related to..... | | | | b | Fish production |
| | a) oil production | b) Fish production | c) Milk production | d) Food production | | |
| 3 | The author of world-famous Harry Potter series is | | | | b | J K Rowling |
| | a) Arundhati Roy | b) J K Rowling | c) Taslima Nasrin | d) Salman Rushdie | | |
| 4 | Fatehpur Sikri was founded as the capital of Mughal empire by..... | | | | d | Akbar |
| | a) Babur | b) Humayun | c) Jahangir | d) Akbar | | |
| 5 | 'Curie' is unit of | | | | a | Radioactivity |
| | a) Radioactivity | b) Temperature | c) Heat | d) Energy | | |
| 6 | Choose the most appropriate article to complete the sentence. Vysakh was found to possess..... required qualification for the job. | | | | c | the |
| | a) an | b) no article | c) the | d) a | | |
| 7 | Which of the following is an example of a proper noun? | | | | c | Paris |
| | a) boy | b) dog | c) Paris | d) happiness | | |
| 8 | Which of the following sentences is in the past tense? | | | | c | I ate breakfast |
| | a) I am eating breakfast | b) I will eat breakfast | c) I ate breakfast | d) I eat breakfast | | |
| 9 | Which of the following is a preposition? | | | | b | on |
| | a) cat | b) on | c) happy | d) run | | |
| 10 | Which word is an antonym for "dark"? | | | | a | light |
| | a) light | b) black | c) dim | d) shadow | | |
| 11 | Which of the following is a verb? | | | | c | run |
| | a) bright | b) quickly | c) run | d) honest | | |

| | | | | | | |
|----|--|-------------------|-------------------------|-------------------------|---|----------------|
| 12 | The antonyms of the word 'Disgusted' is | | | | c | c) Pleased |
| | a) Irritated | b) Harmful | c) Pleased | d) Surprised | | |
| 13 | The idiom 'man of letters' means | | | | a | Scholar |
| | a) Scholar | b) proof reader | c) postman | d) story teller | | |
| 14 | Find the word spelt correctly | | | | d | Deficient |
| | a) Defficeint | b) Deficeint | c) Defficient | d) Deficient | | |
| 15 | President of India Droupadi Murmu launched the 'Addiction Free' campaign in which state? | | | | b | Odisha |
| | a) Gujarat | b) Odisha | c) West Bengal | d) Bihar | | |
| 16 | Which Indian Naval Ship has been decommissioned after 36 years of service? | | | | a | INS Magar |
| | a) INS Magar | b) INS Mahaan | c) INS Vihaan | d) INS Bhim | | |
| 17 | Which institution along with Bank for International Settlements (BIS) launched 'G20 TechSprint'? | | | | b | RBI |
| | a) UIDAI | b) RBI | c) SEBI | d) NITI Aayog | | |
| 18 | Which country lifted the ICC Women's T20 World Cup Trophy in 2023? | | | | c | Australia |
| | a) India | b) South Africa | c) Australia | d) England | | |
| 19 | What is the theme of the 'World Environment Day 2022'? | | | | b | Only One Earth |
| | a) Invest in our Planet | b) Only One Earth | c) 50th Environment Day | d) Live with the Nature | | |
| 20 | Which social media company has released its first annual human rights report? | | | | b | Meta |
| | a) Twitter | b) Meta | c) LinkedIn | d) Snapchat | | |
| 21 | What is the next number in the sequence 1, 3, 5, 7, 9, __? | | | | a | 11 |
| | a) 11 | b) 12 | c) 13 | d) 14 | | |

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|----|---|-------------------------|-------------------------|--------------------------|---|----------------------|
| 22 | Which of the following is a prime number? | | | | b | 13 |
| | a) 6 | b) 13 | c) 21 | d) 24 | | |
| 23 | Which of the following is a solution to the equation $x^2 - 4x + 3 = 0$? | | | | d | both a & c |
| | a) $x = 1$ | b) $x = 2$ | c) $x = 3$ | d) both a & c | | |
| 24 | What is the volume of a cylinder with radius 4 cm and height 6 cm? | | | | b | $64\pi \text{ cm}^3$ |
| | a) $48\pi \text{ cm}^3$ | b) $64\pi \text{ cm}^3$ | c) $96\pi \text{ cm}^3$ | d) $128\pi \text{ cm}^3$ | | |
| 25 | What is the value of $\sin(45^\circ) + \cos(45^\circ)$? | | | | a | $\sqrt{2}$ |
| | a) $\sqrt{2}$ | b) 1 | c) 2 | d) $2\sqrt{2}$ | | |
| 26 | Function of long bones in the body is to- | | | | b | Give protection |
| | a) Give strength | b) Give protection | c) Act as lever | d) None of these | | |
| 27 | Function of long bones in the body is to- | | | | a | Act as lever |
| | a) Act as lever | b) Give strength | c) Give protection | d) Reduce fatigue | | |
| 28 | Speed is indicated in - | | | | a | Km/hr |
| | a) Km/hr | b) Km/sec^2 | c) Newton | d) Duration | | |
| 29 | The terms rest and motion are studied under | | | | c | Biomechanics |
| | a) Bio-chemistry | b) Anatomy | c) Biomechanics | d) Psychology | | |
| 30 | Time is measured by- | | | | b | Duration |
| | a) Distance | b) Duration | c) Force | d) Volume | | |
| 31 | A muscle contracts, but no movement take place, it is known as - | | | | a | Isometric |
| | a) Isometric | b) Isotonic | c) Isokinetic | d) None of the above | | |
| 32 | Bone cells are also called | | | | b | osteocytes |
| | a) Osteoblasts | b) Osteocytes | c) Osteoclasts | d) Osteoporosis | | |
| 33 | A muscle contract, but no movement take place, it is known as- | | | | | |

| | | | | | | |
|----|--|------------------------|------------------------------|----------------------|---|--------------------|
| | a) Isometric | b) Isotonic | c) Isokinetic | d) None of the above | b | Isotonic |
| 34 | In which class lever fulcrum in the middle- | | | | | |
| | a) class 3 | b) class 2 | c) class 1 | d) None of the above | c | Class 1 |
| 35 | The class 1 lever is built for - | | | | | |
| | a) Strength | b) Equilibrium | c) Speed | d) Range of motion | b | Equilibrium |
| 36 | Which of the following is an action of the second class lever- | | | | | |
| | a) Jerking the knee | b) Opening of the jaw | c) Painting the index finger | d) None of these | b | Opening the jaw |
| 37 | In movement, bones play the task of- | | | | | |
| | a) Movers | b) Coordinators | c) Axial | d) Levers | d | lever |
| 38 | Bending forward of the trunk is an example of movement in the | | | | | |
| | a) Frontal plane | b) Transverse plane | c) sagittal plane | d) Longitudinal axis | c | sagittal plane |
| 39 | When centrifugal and centripetal forces stable, the object for example hammer- | | | | | |
| | a) Remain in rotation | b) Moves fast | c) Slow down | d) Does not move | a | Remain in rotation |
| 40 | Known as lever of speed- | | | | | |
| | a) class 1 | b) class 2 | c) class 3 | d) None of these | c | Class 3 |
| 41 | It is invisible but it is always present when motion occurs- | | | | | |
| | a) Force | b) Weight | c) Energy | d) None above all | a | Force |
| 42 | Biomechanics helps in- | | | | | |
| | a) Treating injuries to | b) Improve performance | c) Increasing friction | d) All of the | d | All of the |

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|----|--|-----------------------------------|--|-----------------------|---|------------------------------|--|
| | sports person | of athletes | between the athlete and the ground surface | above | | above | |
| 43 | Exoskeleton involves | | | | | | |
| | a)Covering of skin, hair nails | b)Bones and cartilages | c)Long bones only | d)Short bones only | a | Covering of skin, hair nails | |
| 44 | The most mobile joint of the human body is-a | | | | | | |
| | a)Knee joint | b)Elbow joint | c)Shoulder joint | d)Wrist joint | c | Shoulder joint | |
| 45 | Pulls a part away from the midline of the body is- | | | | | | |
| | a)Flexion | b)Extension | c)Abduction | d)Adduction | c | abduction | |
| 46 | A bending movement that decreases the angle between a segment and its proximal segment is- | | | | | | |
| | a)Hypertension | b)Flexion | c)Extension | d)Rotation | c | Flexion | |
| 47 | Study of bones is called | | | | | | |
| | a)osteology | b)osteoporosis | c)anthology | d)osteoclast | a | osteology | |
| 48 | Newton's second law of motion is also known as- | | | | | | |
| | a)law of inertia | b)law of action reaction | c)law of momentum | d) law of gravitation | c | Law of momentum | |
| 49 | The movement of hand where the thumb touches the 5 th finger is- | | | | | | |
| | a)Dorsiflexion | b)Planter flexion | c)Opposition | d)Pronation | c | opposition | |
| 50 | Newton which law states that every object will remain at rest or in uniform motion until any external force apply- | | | | | | |
| | a)First law(Law of inertia) | b)Second law(Law of acceleration) | c)Third law(action-reaction) | d)None of the above | a | First law(Law of inertia) | |
| 51 | Bones cells are also known as- | | | | | | |

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|----|---|--------------------------|---------------------------|---------------------------------------|---|------------------------------------|
| | a)osteocytes | b)Osteoclasts | c)osteoporosis | d)osteoblasts | d | osteoblasts |
| 52 | On set command the sprinter is in- | | | | | |
| | a)Neutral equilibrium | b)Unstable equilibrium | c)Stable equilibrium | d)None of these | b | Unstable equilibrium |
| 53 | Any action or influence that moves an object is known as - | | | | | |
| | a)Displacement | b)Change in position | c)Force | d)Agility | c | force |
| 54 | Which of the following is NOT a major factor influencing angular momentum in sports biomechanics? | | | | | |
| | a) The moment of inertia | b) The angular velocity | c) The mass of the object | d) The temperature of the environment | d | The temperature of the environment |
| 55 | Muscles which cause the joints to bend are called | | | | | |
| | a) Flexors | b) extensors | c) Abductors | d) adductors | a | Flexors |
| 56 | This type of movement takes place when the angle decreases between the two bones attached to a joint. It is _____ | | | | | |
| | a) Adduction | b)Abduction | c)Extension | d)Flexion | d | Flexion |
| 57 | Which of the following is a fibrous joint? | | | | | |
| | a) Joints of the skull | b) Joints of the fingers | c) Joints of the ribs | d) All the above. | a | Joints of the skull |
| 58 | The terms 'anterior and posterior' are synonymous with | | | | | |
| | a) Frontal and back | b) Verbal and dorsal | c) Lateral and medial | d) none of these | b | Verbal and dorsal |
| 59 | Study of muscles is called | | | | | |
| | a) Otology | b) anthropology | c) Mycology | d) anthropometry | B | Mycology |
| 60 | Total number of bones in the human skull is | | | | | |

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|----|---|---------------------------|---------------------------|---------------------------------------|---|------------------------------------|
| | a) 20 | b) 21 | c) 22 | d) 23 | c | 22 |
| 61 | How many carpal bones are there in the wrist? | | | | | |
| | a) 6 | b) 7 | c) 8 | d) 9 | c | 8 |
| 62 | Newton's First law of motion is also known as | | | | | |
| | a) Law of inertia | b) Law of action reaction | c) Law of momentum | d) Law of gravitation Mechanical pull | a | Law of inertia |
| 63 | Lever system prevalent in human arm is | | | | | |
| | a) Class III | b) Class II | c) Class I | d) None of the above | a | Class III |
| 64 | _____ newton's second law of motion can be applied in sports like | | | | | |
| | a)Base ball | b)swimming | c)football | d)both A and c | d | both a and c |
| 65 | Duration is measure of | | | | | |
| | a) Distance | b) displacement | c) Force | d) time | d | Time |
| 66 | What is the injury type of tennis elbow? | | | | | |
| | a)Impact injury | b)Overuse injury | c)Muscle injury | d)Sprains | b | Overuse injury |
| 67 | Which of the following terms describes force acting on a body in a fluid in a direction perpendicular to the fluid flows? | | | | | |
| | a)Wave drag | b)Surface drag | c)Friction | d)Lift | d | Lift |
| 68 | Which of the following is NOT a major factor influencing angular momentum in sports biomechanics? | | | | | |
| | a) The moment of inertia | b) The angular velocity | c) The mass of the object | d) The temperature of the environment | d | The temperature of the environment |

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| 69 | Number of bones in the axial skeleton is | | | | | |
| | a)60 | b)80 | c)40 | d)20 | b | 80 |
| 70 | Number of bones in the appendicle skeleton is | | | | | |
| | a)120 | b)180 | c)126 | d)116 | c | 126 |
| 71 | Boxer's muscle are | | | | | |
| | a)trapizius | b)sternocliedomastoid | c)abdominal | d)serratus anterior | d | Serratus anterior |
| 72 | Zygomatic bone is present in | | | | | |
| | a) upper extremities | b) lower extremities | c) vertebral coloumn | d) skull | d | skull |
| 73 | The bone cells which are involved in building of bone are | | | | | |
| | a)osteoblasts | b)osteoclasts | c)osteocytes | d)none of the above | a | osteoblasts |
| 74 | In which type of lever, the weight is in between force and fulcrum? | | | | | |
| | a) Type I | b)) Type II | c) Type III | d) All the above | b | Type II |
| 75 | Biomechanics helps in | | | | | |
| | a) Treating injuries to sports person | b) improving performance of atheletes | c) increasing friction between the atheletes and the ground surface | d) All the above | d | All the above |
| 76 | Biomechanics is a branch of | | | | | |
| | a) Biology | b)Kinesiology | c) science | d) physics | d | physics |
| 77 | _____ refers to the study of human movement including the interaction between the athelets sports equipment and the exercise environment. | | | | | |
| | a)Kinesiology | b) physical education | c) Biomechanics | d) sports education | c | Biomechanics |

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| 78 | 'Hamstring' muscle | | | | | |
| | a) extends knee | b) flexes knee | c) extends elbow | d) flexes elbow | b | flexes knee |
| 79 | Which of the following is a ball and socket joint? | | | | | |
| | a) Hip joint | b) Shoulder joint | c)Both (a) and (b) | d) None of the above | c | Both (a) and (b) |
| 80 | During abduction the arm moves | | | | | |
| | a) Towards the body | b) Away from the body | c) In front of the chest | d) None of the above | b | Away from the body |
| 81 | In which type of lever, the force is in between weight and fulcrum? | | | | | |
| | a) Type I | b) Type II | c)Type III | d) All the above | c | Type III |
| 82 | Side ward curvature of the spine is called | | | | | |
| | a) knock knee | b) kyphosis | c) Scoliosis | d) lordosis | c | Scoliosis |
| 83 | The path of an object project projected into free air space is known as | | | | | |
| | a) Speed | b)abnormal curve | c) Velocity | d)parabola | d | Parabola |
| 84 | Which of the following is not a type of movement related to physical activity | | | | | |
| | a) Extension | b)Adduction | c)Abduction | d)None of the above | d | None of the above |
| 85 | 'Neck joint' is an example of | | | | | |
| | a) Pivot joint | b)) Hinge joint | c) Saddle joint | d) Condyloid joint | a | Pivot joint |
| 86 | 'Trapeziums' muscles help in | | | | | |
| | a) Pushing the neck backward | b)) Punching | c) Raising the leg forward | d) None of the above | a | Pushing the neck backward |

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| 87 | _____ takes place when the angle between two bones attached to a joint_____ | | | | | |
| | a) Flexion, increase | b) Extension, decrease | c)Adduction, increase | d) Extension, increase | d | Extension, increase |
| 88 | 'Latissimus Dorsi' is situated in | | | | | |
| | a) lower leg | b) thigh | c) Back | d) upper arm | c | Back |
| 89 | 'Lordosis' is also called | | | | | |
| | a) Round back | b) Hollow back | c) Lateral back | d) Back curve | b | Hollow back |
| 90 | Parabola is | | | | | |
| | a) The path of an object projected into free air | b) path of an object formed with air resistance | c) Path of the object falling vertically down | d) None of the above | a | The path of an object projected into free air |
| 91 | Which of the following is responsible for limiting the range of movements of joint? | | | | | |
| | a) Tendons | b) Ligaments | c) both (A) and (B) | d) Muscle fibers | b | Ligaments |
| 92 | Why it is important to know Biomechanics in sports | | | | | |
| | a) improve sports performance | b)prevent sports injuries | c)both a and b | d)none of the above | c | both a and b |
| 93 | Understanding of proper sports and exercise movements will allow the participants to be more _____for long term development. | | | | | |
| | a) Efficient | b)Technically sound | c)prone to good habits | d) All of the above | d | All of the above |
| 94 | Study of bones is called | | | | | |

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|-----|--|------------------|---------------------|----------------------|---|------------------|
| | a)osteology | b)osteoporosis | c) anthology | d) osteoclast | a | Osteology |
| 95 | Which of newton's law of motion deals with acceleration | | | | | |
| | a) first | b)second | c)third | d) none of the above | b | Second |
| 96 | The skeleton of thorax is made up of | | | | | |
| | a) Cartilage | b) Bone | c) Both (a) and (b) | d) None of the above | c | Both (a) and (b) |
| 97 | Which of newton's law of motion deals with action and reaction | | | | | |
| | a) First | b) second | c) third | d) all of the above | c | third |
| 98 | What type of bones performs the function of giving strength? | | | | | |
| | a)Long bones | b) Regular bones | c) Flat bones | d) Short bones | c | Flat bones |
| 99 | Density of bones is greater in | | | | | |
| | a) Men | b) Women | c) Both (a) and (b) | d) None of the above | a | Men |
| 100 | Which of the following is a joint of reciprocal innervations? | | | | | |
| | a) Pivot joint | b) Saddle joint | c) Condylloid joint | d) Hinge joint | b | Saddle joint |

SPACE FOR ROUGH WORK