

**SET-4****Series BVM**कोड नं. **75**  
Code No.

रोल नं.

Roll No.

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परीक्षार्थी कोड को उत्तर-पुस्तिका के मुख-पृष्ठ पर अवश्य लिखें ।

Candidates must write the Code on the title page of the answer-book.

- कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित पृष्ठ 7 हैं ।
- प्रश्न-पत्र में दाहिने हाथ की ओर दिए गए कोड नम्बर को छात्र उत्तर-पुस्तिका के मुख-पृष्ठ पर लिखें ।
- कृपया जाँच कर लें कि इस प्रश्न-पत्र में 26 प्रश्न हैं ।
- कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, प्रश्न का क्रमांक अवश्य लिखें ।
- इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है । प्रश्न-पत्र का वितरण पूर्वाह्न में 10.15 बजे किया जाएगा । 10.15 बजे से 10.30 बजे तक छात्र केवल प्रश्न-पत्र को पढ़ेंगे और इस अवधि के दौरान वे उत्तर-पुस्तिका पर कोई उत्तर नहीं लिखेंगे ।
- Please check that this question paper contains 7 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 26 questions.
- **Please write down the Serial Number of the question before attempting it.**
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

## शारीरिक शिक्षा (सैद्धान्तिक)

### PHYSICAL EDUCATION (Theory)

निर्धारित समय : 3 घण्टे

Time allowed : 3 hours

अधिकतम अंक : 70

Maximum Marks : 70



### सामान्य निर्देश :

- (i) इस प्रश्न-पत्र में 26 प्रश्न हैं ।
- (ii) सभी प्रश्न अनिवार्य हैं ।
- (iii) प्रश्न संख्या 1 से 11 तक प्रत्येक प्रश्न 1 अंक का है । इनमें प्रत्येक प्रश्न का उत्तर लगभग 10 – 20 शब्दों में देना चाहिए ।
- (iv) प्रश्न संख्या 12 से 19 तक प्रत्येक प्रश्न 3 अंक का है । इनमें प्रत्येक प्रश्न का उत्तर लगभग 30 – 50 शब्दों में देना चाहिए ।
- (v) प्रश्न संख्या 20 से 26 तक प्रत्येक प्रश्न 5 अंक का है । इनमें प्रत्येक प्रश्न का उत्तर लगभग 75 – 100 शब्दों में देना चाहिए ।

### General Instructions :

- (i) The question paper contains 26 questions.
- (ii) All questions are compulsory.
- (iii) Questions no. 1 to 11 carry 1 mark each. Answers to these questions should be in approximately 10 – 20 words each.
- (iv) Questions no. 12 to 19 carry 3 marks each. Answers to these questions should be in approximately 30 – 50 words each.
- (v) Questions no. 20 to 26 carry 5 marks each. Answers to these questions should be in approximately 75 – 100 words each.

### खण्ड क

### SECTION A

1. 'खेलों में योजना' से आप क्या समझते हैं ? 1  
What do you understand by 'Planning in Sports' ?
2. "सूक्ष्म-पोषकों" के बारे में संक्षेप में लिखिए । 1  
अथवा  
हमारे शरीर को पूरक आहार की आवश्यकता क्यों पड़ती है, दो कारण सुझाइए । 1  
Write briefly about "Micronutrients".

**OR**

Suggest two reasons, why our body requires food-supplements.



3. किन्हीं दो अक्षमता शिष्टाचारों के बारे में बताइए । 1  
Mention any two disability etiquettes.
4. बौद्धिक अक्षमता से आपका क्या अभिप्राय है ? 1  
What do you mean by Intellectual Disability ?
5. “काइफोसिस” किस प्रकार की विरूपता होती है ? 1  
अथवा  
गामक विकास क्या होता है ? 1  
Which type of deformity is “Kyphosis” ?
- OR**
- What is Motor Development ?
6. महिलाओं में किस प्रकार के मासिक धर्म की गड़बड़ी को ‘ऋतुरोध’ कहा जाता है ? 1  
Among females, what type of Menstrual Dysfunction is called Amenorrhea ?
7. “बुलिमिया” से आपका क्या अभिप्राय है ? 1  
अथवा  
बाह्य-प्राचीर (एक्स्ट्राम्यूरल) गतिविधियों के दो उद्देश्य बताइए । 1  
What do you mean by “Bulimia” ?
- OR**
- Give two objectives of Extramural activities.
8. सामान्य गामक योग्यता के मापन के लिए आप कौन-सा परीक्षण सुझाएँ ? 1  
Which test will you suggest to measure general motor ability ?



9. शरीरक्रियात्मक मापदण्डों के आधार पर किन्हीं दो लिंग-भेदों का उल्लेख कीजिए । 1

On the basis of physiological parameters, mention any two gender differences.

10. किस प्रकार की खेलों की चोट “खिंचाव” (स्ट्रेन) कही जाती है ? 1

**अथवा**

कोमल ऊतकों की चोटों से आप क्या समझते हैं ? 1

Which type of sports injury is known as “Strain” ?

**OR**

What do you mean by soft tissue injuries ?

11. सहनक्षमता के विकास के लिए आप कौन-सी विधि सुझाएँगे ? 1

Which method will you suggest to develop endurance ?

**खण्ड ख**

## **SECTION B**

12. “भुजंगासन” की क्रियाविधि एवं लाभों के बारे में व्याख्या कीजिए । 3

Explain about the procedure and advantages of “Bhujangasana”.

13. जीवन शैली संबंधित बीमारियों से बचाव में योग की क्या भूमिका है ? 3

**अथवा**

खेलों से पूर्व, खेलों के दौरान एवं खेलों के उपरान्त भोजन ग्रहण के लिए दिशानिर्देशों के बारे में चर्चा कीजिए । 3

What is the role of Yoga in preventing lifestyle diseases ?

**OR**

Discuss about meal intake guidelines for pre, during and post sports event.



14. पवन ने एक जाने-माने विद्यालय में कक्षा 9 में दाखिला लिया । उसकी कक्षा के सभी छात्रों ने उसका स्वागत किया । कुछ दिनों उपरांत आर्यमन, कक्षा मॉनीटर ने अवलोकन किया कि पवन का व्यवहार बाकी छात्रों से अलग है । वह क्रोधी, अशिष्ट व असहयोगी है । उसे मित्र बनाने में कठिनाई होती है । विद्यालय में कोई भी उसकी मित्रता नहीं चाहता था । आर्यमन ने लाइब्रेरी में साइंस मैगज़ीन में ओ.डी.डी. के बारे में पढ़ा था, जो पवन के व्यवहार से मिलता-जुलता था । उसने इस अवस्था के बारे में अपने सहपाठियों से बात की और उन्हें पवन के साथ मिलने और मित्रतापूर्ण व्यवहार की सलाह दी । इस प्रकार वह शांत और खुश हो सकता है ।

उपर्युक्त अवतरण पर आधारित निम्नलिखित प्रश्नों के उत्तर दीजिए :

3

- (क) ओ.डी.डी. से आप क्या समझते हैं ?
- (ख) ओ.डी.डी. के लक्षण क्या हैं ?
- (ग) आर्यमन द्वारा किन मूल्यों को दर्शाया गया है ?

Pawan got admission in class IX in a reputed school. All the students of his class welcomed him. After few days Aryaman, the class monitor observed that Pawan's behaviour is different from other students. He is aggressive, rude and non-cooperative. He finds it difficult to make friends. Even in school, nobody wants to be his friend. Aryaman had read about ODD in a science magazine in the library, which was similar to Pawan's behaviour. He discussed this situation with his classmates and suggested to interact and be friends with Pawan. This would help him to remain calm and happy.

Answer the following questions based on the above passage :

- (a) What do you mean by ODD ?
- (b) What are the symptoms of ODD ?
- (c) What values are shown by Aryaman ?

15. अस्थिसुषिरता के क्या कारण हैं ?

3

**अथवा**

“अनोरिक्सिया” से बचाव एवं प्रबंधन के बारे में संक्षेप में लिखिए ।

3

What are the causes of Osteoporosis ?

**OR**

Write briefly about the prevention and management of “Anorexia”.



16. प्रक्षेप्य पथ को प्रभावित करने वाले विभिन्न कारकों की व्याख्या कीजिए । 3  
Explain the various factors affecting projectile trajectory.

17. घूर्णन अक्ष के विभिन्न प्रकारों की व्याख्या कीजिए । 3  
Explain the various types of axes of rotation.

18. सामना करने की युक्तियों से आपका क्या अभिप्राय है ? संक्षेप में लिखिए । 3

### अथवा

- व्यायाम पालन को बढ़ाने वाली रणनीतियों की व्याख्या कीजिए । 3  
What do you mean by coping strategies ? Write briefly.

### OR

Explain the strategies for enhancing adherence to exercise.

19. तनाव प्रबंधन की विधियों के बारे में संक्षेप में लिखिए । 3  
Write briefly about the techniques of Stress management.

### खण्ड ग

### SECTION C

20. लीग टूर्नामेंट किसे कहते हैं ? लीग टूर्नामेंट के आधार पर साइक्लिक विधि द्वारा नौ (9) टीमों का फिक्सचर ड्राँ कीजिए । ब्रिटिश पद्धति द्वारा विजेता का निर्धारण किस प्रकार किया जाता है ? समझाइए । 5

What is league tournament ? Draw a fixture of nine (9) teams on the basis of league tournament using cyclic method. Explain British method to declare the winner.

21. आहार के बृहत् पोषक-तत्त्वों की व्याख्या कीजिए तथा भोजन में इनकी उपयोगिता के बारे में बताइए । 5

Explain macro-nutrients and their role in our diet.

22. 'चपटे-पैर' एवं 'घुटनों का आपस में टकराना' की व्याख्या कीजिए तथा साथ ही दोनों आसन संबंधी विकृतियों के सुधारात्मक उपाय सुझाइए । 5

Explain 'Flat Foot' and 'Knock Knees' and also suggest corrective measures for both postural deformities.



23. गामक पुष्टि टेस्ट के AAPHER (अमरीकन अलायन्स फॉर हैल्थ, फिज़िकल एजुकेशन एण्ड रिक्रिएशन) के बारे में विस्तारपूर्वक लिखिए । 5

**अथवा**

हारवर्ड स्टेप टेस्ट के बारे में आप क्या जानते हैं ? इसकी कार्यप्रणाली और प्रबंधन की व्याख्या कीजिए । 5

Write in detail about AAPHER (American Alliance For Health, Physical Education and Recreation) Motor Fitness Test.

**OR**

What do you know about Harvard Step Test ? Explain its procedure and administration.

24. श्वसन तंत्र पर व्यायाम के क्या-क्या प्रभाव पड़ते हैं ? विस्तारपूर्वक लिखिए । 5

What are the effects of exercise on Respiration System ? Write in detail.

25. अस्थिभंग से आप क्या समझते हैं ? अस्थिभंग का वर्गीकरण किस प्रकार किया जाता है ? व्याख्या कीजिए । 5

What do you understand by fracture ? How can fractures be classified ? Explain.

26. तालमेल योग्यता (कोऑर्डिनेटिव अबिलिटी) से आप क्या समझते हैं ? कोऑर्डिनेटिव अबिलिटीज़ के विभिन्न प्रकारों के बारे में चर्चा कीजिए । 5

**अथवा**

ताकत (शक्ति) में सुधार करने वाली विधियाँ – आइसोमेट्रिक, आइसोटोनिक एवं आइसोकाइनेटिक के बारे में विस्तारपूर्वक लिखिए । 5

What do you understand by Coordinative ability ? Discuss about different types of coordinative abilities.

**OR**

Write in detail about strength improving methods – Isometric, Isotonic and Isokinetic.

**Strictly Confidential: (For Internal and Restricted use only)**  
**Senior Secondary School Certificate Examination**  
**March 2019**  
**Marking Scheme**

**Physical Education (048)**

**Series BVM (SET – 4, CODE NO. 75)**

**General instructions:**

1. You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. Small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully. Evaluation is a 10-12 **days mission for all of us. Hence, it is desired from you to give your best in this process.**
2. Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. However, while **evaluating, answers which are based on latest information or knowledge and innovative may be assessed and marks be awarded to them.**
3. The Head-Examiner must go through the first five answer books evaluated by each evaluator to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
4. If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then totaled up and written in the left- hand margin and encircled.
5. If a question does not have any parts, marks must be awarded in the left hand margin and encircled.
6. If a student has attempted an extra question, answer of the question deserving more marks should be retained and other answer scored out.
7. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
8. A full scale of marks **0 to 70** has to be used. Please do not hesitate to award full marks if the answer deserves it.
9. Every examiner should stay full working hours i.e. 8 hours every day and evaluate 25 answer books.



- 10.** Avoid the following common types of errors committed by the Examiner in the past:  
Leaving answer or part thereof unassessed in an answer book.
- Giving more marks for an answer than assigned to it.
  - Wrong transfer of marks from the inside pages of the answer book to the title page.
  - Wrong question wise totaling on the title page.
  - Wrong totaling of marks of the two columns on the title page.
  - Wrong grand total.
  - Marks in words and figures not tallying.
  - Wrong transfer of marks from the answer book to online award list.
  - Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated, It should merely be a line. Same is with the X for incorrect answer.)
  - Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
- 11.** While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as (X) and awarded zero (0) Marks.
- 12.** Any unassessed portion, non-carrying over of marks to the title page or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
- 13.** The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.
- 14.** Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
- 15.** As per order of the Hon'ble Supreme Court, the candidates are now permitted to obtain photocopy of the Answer Book on request on payment of the processing charges.

**PHYSICAL EDUCATION (048) MARKING SCHEME CLASS XII (SERIES BVM-2019)**[illegible]







	<p><b>Ans.</b>  (I) Calcium and Vitamin deficiency.  (II) Amenorrhoea  (III) Eating Disorder</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Write briefly about the prevention and management of “Anorexia”.</b></p> <p><b>Ans.</b> Prevention:-  (i) Encourage a healthy view of the self and others means refraining from commenting on the body sizes of other children.  (ii) Make children aware about their genetics, body shape and size.  (iii) Make them to eat healthy, nutritious food and be physically active  (iv) Stay away from the people, Places and activities which induce anorexia.</p> <p>Management:-  (i) Face the reality.  (ii) Restoring healthy weight.  (iii) Individual Psychotherapy  (IV) Antidepressants to aid the process of recovery</p>	1+1+1	3
16.	<p><b>Explain the various factors affecting projectile trajectory.</b></p> <p><b>Ans.</b>  (i) Angle of Projection  (ii) Initial Velocity  (iii) Gravity  (iv) Air resistance  (v) Projection of height relevant to the landing surface  (vi) Spin  (Explanation of any three)</p>	1+1+1	3
17.	<p><b>Explain the various types of axes of rotation.</b></p> <p><b>Ans.</b> Types of axis rotation:</p> <p>Axis is a straight line around which an object rotates. It is an imaginary line that passes through a joint or body to describe movement.</p> <ol style="list-style-type: none"> <li>1. Sagittal Axis- Passes horizontally from posterior to anterior. It passes from front to back or vice versa. Eg. Cart wheel in gymnastics, front rolls etc.</li> <li>2. Frontal Axis- Passes horizontally from left to right. It can be stated that frontal axis passes from side to side. Eg. Running, jumping, trunk twisted exercises etc.</li> <li>3. Vertical Axis- Passes vertically from Inferior to Superior i.e. it passes straight from the head down feet or vice versa. It is also known as longitudinal axis and is the longest axis. Eg. Ice skating, turning during tennis shots etc.</li> </ol>	1+1+1	3

18.	<p><b>What do you mean by coping strategies? Write briefly.</b></p> <p><b>Ans.</b> Coping refers to the thoughts and actions which we use to deal with a threatening situation. It can also be referred to as conscious effort to solve problem and reduce stress.</p> <p>There are of two types.</p> <ol style="list-style-type: none"> <li>1. Emotion focused coping strategies are those strategies which are used to tackle the feelings of distress rather than the actual problem.</li> <li>2. Problem focused coping strategies deal with the root causes of stress and are tried by the sports persons to improve the stressful environment experienced by them.</li> </ol> <p style="text-align: center;">OR</p> <p><b>Explain the strategies for enhancing adherence to exercise.</b></p> <p><b>Ans.</b></p> <ol style="list-style-type: none"> <li>(i) Simple exercise in the beginning</li> <li>(ii) Exercise in the morning</li> <li>(iii) Concentrate only on yourself</li> <li>(iv) Set appropriate goal</li> <li>(v) Take support of others</li> <li>(vi) Select interesting exercises</li> <li>(vii) Be punctual</li> <li>(viii) Make a schedule</li> <li>(ix) Be aware about your progress</li> <li>(x) Variety in exercise program</li> <li>(xi) Be regular</li> </ol> <p style="text-align: center;">(Explanation of any three)</p>	1+2	3
		1+1+1	
19.	<p><b>Write briefly about the techniques of Stress management.</b></p> <p><b>Ans.</b></p> <ol style="list-style-type: none"> <li>(I) Participation in physical activities</li> <li>(II) Achieve high level of physical fitness</li> <li>(III) Cognitive strategies to change perception of the stressor</li> <li>(IV) Building self confidence</li> <li>(V) Relaxation techniques</li> <li>(VI) Developing hobbies</li> <li>(VII) Stay cool and confident under pressure</li> <li>(VIII) Avoid the company of stressed persons</li> <li>(IX) Don't think about the stressful thoughts</li> </ol> <p style="text-align: center;">(Explanation of any three)</p>	1+ 1+ 1	3
20.	<p style="text-align: center;"><b><u>Section - C</u></b></p> <p><b>What is League tournament? Draw a Fixture of 9 teams on the basis of league</b></p>		

**tournament using cyclic method. Explain British method to declare the winner.**

**Ans:-** (i) League Tournament: In this type of tournament, each team plays with every other team once if it is a single league tournament.

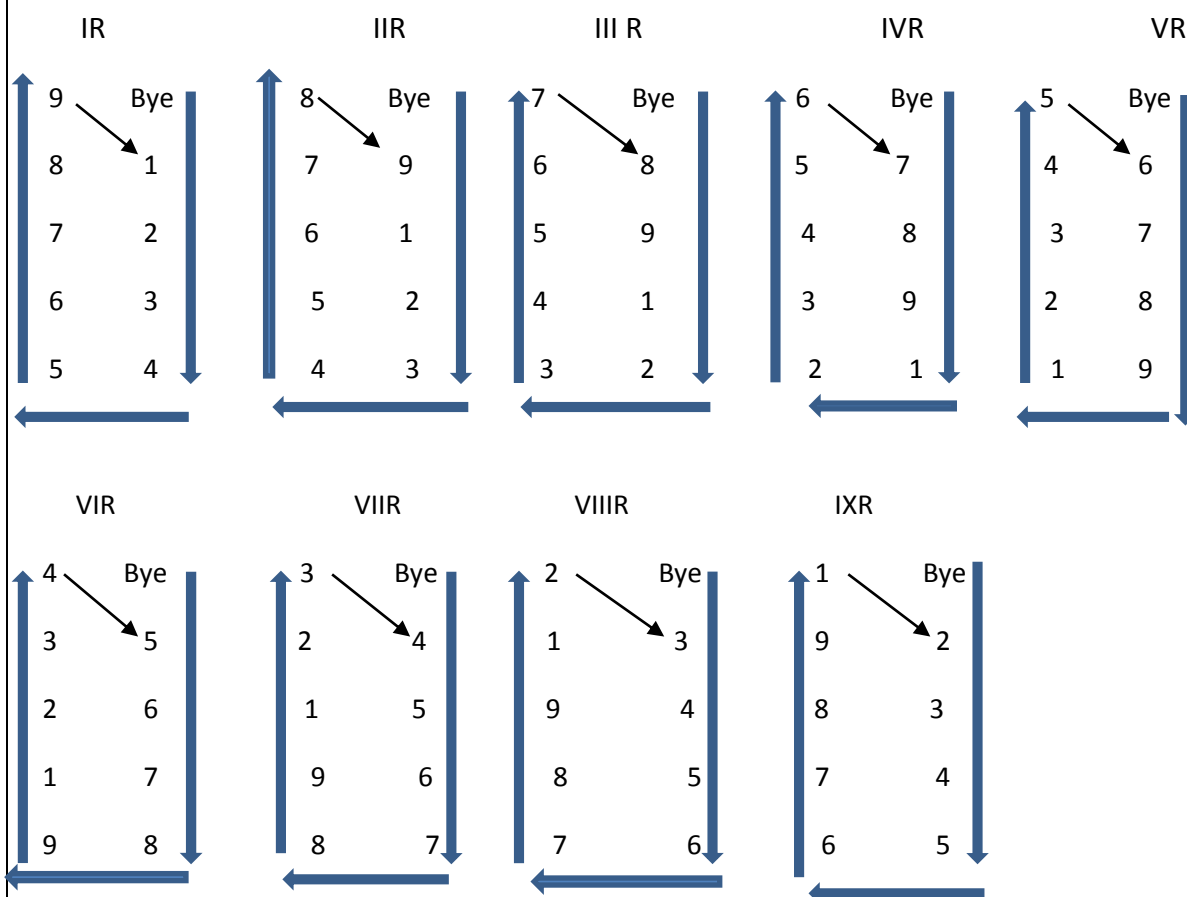
It is a Double league tournament when each team plays with every other team twice.

(ii) Fixture of 9 teams according to cyclic tournament:

Total no. of teams = 9

$$\text{Total no. of matches} = N \left( \frac{N-1}{2} \right) = 9 \left( \frac{9-1}{2} \right) = 36$$

Total no. of rounds = 9



Cont.....

**British Method:** Divide the total points obtained by the total possible points.

For Eg. :- If a team plays 8 matches in a tournament and wins 6 matches and 2



	<p>remains draw, the percentage of points will be (2 points for winning and 1 point for draw)</p> <p>Total points = 12+2 = 14</p> <p>Possible points = 8x2 = 16</p> <p>Percentage of points = <math>\frac{\text{Total points obtained}}{\text{Total possible points}} \times 100 = \frac{14}{16} \times 100 = 87.5\%</math></p> <p style="text-align: center;"><b>OR</b></p> <p>The following way is used to decide a winner</p> <p>The team that win the match gets= 2point</p> <p>The team that draw the match gets= 1point</p> <p>The team that lose the match gets= 0 point</p>		
21.	<p><b>Explain macro-nutrients and their role in our diet.</b></p> <p><b>Ans :-</b> Macro nutrients constitute the majority of an individual's diet. They include fats, proteins, Carbohydrates, and water. It can be said that they are taken in large amount. (Or any relevant answer)</p> <p><u>ROLE</u></p> <p><u>Carbohydrates:-</u></p> <ol style="list-style-type: none"> <li>1. Act as major fuel for muscular contraction.</li> <li>2. It provides the energy to our body.</li> <li>3. It helps to maintain body weight and body temperature of the body</li> <li>4. Important for different digestive operations in our body.</li> </ol> <p>(Or any other relevant role of carbohydrates)</p> <p><u>Fats:-</u></p> <ol style="list-style-type: none"> <li>1. It provides heat and energy to the body</li> <li>2. it protects the body from extreme cold and hot climate</li> <li>3. Helps in regulation of body temperature.</li> <li>4. It also helps to protect internal organs of the body.</li> </ol> <p>(Or any other relevant role of fats)</p> <p><u>Proteins:-</u></p> <ol style="list-style-type: none"> <li>1. It also plays an important role in the physical and mental development of an</li> </ol>	1+4	5

	<p>individual.</p> <ol style="list-style-type: none"> <li>2. Necessary for our growth and development and for repairing the wear and tear of tissues.</li> <li>3. It helps in the formation of enzymes and hormones and also act as a source of energy</li> <li>4. Transport oxygen and nutrient</li> <li>5. Regulates balance of water and acid (Or any other relevant role of proteins)</li> </ol> <p><u>Water:-</u></p> <ol style="list-style-type: none"> <li>1. Helps in transportation of nutrients to cells of body.</li> <li>2. Regulates body temperature</li> <li>3. Vital for various chemical reactions taking place in the body.</li> <li>4. Essential for body metabolism.</li> <li>5. Keeps the body hydrated.</li> </ol>		
22.	<p><b>Explain ‘Flat foot’ and ‘Knock knees’ and also suggest corrective measures for both postural deformities.</b></p> <p><b>Ans:-</b> Flat foot: It is a deformity in the feet. There is no arch in the foot and the foot is completely flat which may cause pain in the foot.</p> <p>An individual with this deformity faces problem in standing, walking, jumping and running.</p> <p>Corrective measures for Flat foot:</p> <ol style="list-style-type: none"> <li>(i) Jumping on toes</li> <li>(ii) Rope skipping</li> <li>(iii) Walk on toes</li> <li>(iv) Stand up and down on heels</li> <li>(v) Walk on heels</li> <li>(vi) Walking on inner and outer side of foot</li> <li>(vii) Perform Vajrasana and Yogic exercises.</li> </ol> <p>Knock knees: It is a postural deformity in which both the knees touch or overlap each other in normal standing position.</p> <p>Cont.....</p> <p>Due to this deformity an individual usually faces difficulty in walking.</p>	<p><math>2\frac{1}{2}</math></p> <p><math>2\frac{1}{2}</math></p>	5

	<p>Corrective measures for Knock Knees:</p> <ul style="list-style-type: none"> <li>(i) Horse riding is one of the best exercise</li> <li>(ii) Keep a pillow between the knees and stand for some time every day.</li> <li>(iii) Use of walking caliper may be beneficial.</li> </ul> <p>Perform Padmasana and Gomukhasana.</p>		
23.	<p><b>Write in detail about AAHPER (American Alliance for Health Physical Education and Recreation) Motor Fitness.</b></p> <p><b>Ans:-</b></p> <ul style="list-style-type: none"> <li>(i) Pullups(Boys) /Flexed Arm Hang (Girls)</li> <li>(ii) Flexed leg Sit-ups</li> <li>(iii) Shuttle Run</li> <li>(iv) Standing Long Jump</li> <li>(v) 50 yard Dash</li> <li>(vi) 600 yard run-walk.</li> </ul> <p>(Explanation of any 5)</p> <p style="text-align: center;"><b>OR</b></p> <p><b>What do you know about Harvard Step Test? Explain its procedure and administration.</b></p> <p>Cardiovascular fitness is the ability of the heart and lungs to supply oxygen-rich blood to the working muscle tissues and the ability of the muscles to use oxygen to produce energy for movements. Harvard Step Test is a cardiovascular fitness test. It is also called aerobic fitness test.</p> <p><b><i>Administrative procedure of Harvard Step Test</i></b></p> <p><b>Purpose:</b> To measure the general capacity of the heart and circulatory system for measurement of cardiovascular efficiency.</p> <p><b>Time Allotment:</b> 5 minutes</p> <p><b>Facilities and Equipment:</b> A stop watch, 20" height bench, partners, stethoscope, metronome, score sheet.</p> <p><b>Procedure:</b> The athlete stands in front of the bench or box. On the command 'Go' the athlete steps up and down on the bench or box at a rate of 30 steps per minute (one second up one second down) for 5 minutes (150 steps). Stopwatch is also</p> <p>Started simultaneously at the start of the stepping. After that the athlete sits down</p>	5	5
		1+3+1	

	<p>immediately after completion of the test i.e. after 5 minutes. The total number of heartbeats are counted between 1 to 1.5 minutes after completion of the last step. The heartbeats are counted for 30 seconds period. Again the heartbeats are noted for 30 seconds after the finishing of the test. After that third time the heartbeats are noted after 3 minutes of completion of the test for 30 seconds period. The same foot must start the step up each time, and an erect posture must be assumed on the bench.</p> <p><b>Calculation of the Score:</b> The athlete's fitness index score is calculated with the help of following formula:</p> <p>Fitness index score = <math>(100 \times \text{test duration in seconds}) / (2 \times \text{sum of heart beats in recovery periods})</math></p> <p style="text-align: center;"><b><u>"Students own view relevant to this question also acceptable"</u></b></p>		
24.	<p><b>What are the effects of exercise on respiration system? Write in detail.</b></p> <p><b>Ans.:-</b> Effects of exercise on respiratory system</p> <ul style="list-style-type: none"> <li>- Strengthens will power to push beyond the capacity of regular training</li> <li>- Decreases rate of respiration during exercise and at rest</li> <li>- Strengthen muscles of Diaphragm and chest</li> <li>- Increase in Tidal capacity</li> <li>- Activates unused Alveoli since more oxygen is required for endurance activities</li> <li>- Avoid second wind</li> <li>- Efficient Gaseous exchange</li> <li>- Increase in residual air volume</li> <li>- Increase in size of lungs and chest</li> <li>- Increase in vital air capacity</li> <li>- Increase in endurance</li> <li>- Exhale and inhale in fast pace prevents accumulation of waste in lungs and prevents lungs diseases</li> </ul> <p style="text-align: center;">(Any five effects explained)</p>	1+1+1+ 1+1	5
25.	<p><b>What do you understand by Fracture? How can Fractures be classified? Explain.</b></p> <p><b>Ans.:-</b> Fracture: Broken or cracked bone is known as Fracture. It is a very common</p>	1+4	5

	<p>injury in games and sports.</p> <p>Classification of Fracture:</p> <ul style="list-style-type: none"> <li>(i) Simple Fracture</li> <li>(ii) Compound Fracture</li> <li>(iii) Green stick Fracture</li> <li>(iv) Impacted Fracture</li> <li>(v) Communicated Fracture</li> <li>(vi) Stress Fracture</li> <li>(vii) Complicated Fracture</li> <li>(viii) Transverse Fracture</li> <li>Oblique Fracture</li> </ul> <p>explanation of any 4 classification</p>		
26.	<p><b>What do you understand by coordinative ability? Discuss about different types of coordinative abilities.</b></p> <p><b>Ans.:-</b> Coordinative abilities are those abilities which enable an individual to do various related activities accurately and efficiently. Coordinative abilities mainly depend on the central Nervous System.</p> <p>Types: (i) Orientation ability</p> <p>(ii) Coupling ability</p> <p>(iii) Reaction ability: (a) simple reaction ability (b) Complex reaction Ability</p> <ul style="list-style-type: none"> <li>(iv) Balance Ability</li> <li>(v) Rhythm ability</li> <li>(vi) Adaptation ability</li> <li>(vii) Differentiation ability</li> </ul> <p>explanation of any 4 classification</p> <p style="text-align: center;"><b>OR</b></p>	1+4	5

	<p><b>Write in detail about strength improving methods – Isometric, Isotonic and Isokinetic.</b></p> <p><b>Ans.:-</b> Strength is the capacity of the whole body or parts of to exert force. There are two types of strength – Dynamic &amp; Static strength. Following methods are used to improve strength:-</p> <ol style="list-style-type: none"> <li><b>1. Isometric Exercise:-</b> Means where we do these exercises work is done cannot be observed. In these exercises, work is performed but it is not seen directly. In these exercises a group of muscles carry out tension against the other group of muscles. For example: Pushing against the sturdy wall, we will not be able to move it from its place. So, we should not consider it as work. Our muscle exert force, while pushing wall, but we see that work is not done. When we do exercise expenditure of energy is usual phenomenon. Some time body temperature may increase while performing these exercises. Muscles may feel a slight tremor if exercise is done for a prolonged time. Regular performing these exercises muscle size and shape can be changed.</li> <li><b>2. Isotonic Exercise:-</b> Isotonic exercises are those exercises in which movement can be seen directly. Work is done in these exercises. The lengthening and shortening of muscle can be called eccentric contraction and concentric contraction accordingly.</li> </ol> <p>Examples are – callisthenic exercises, running and jumping on the spot, lifting of weights or exercise with medicine ball. These exercise can be done with or without equipment.</p> <ol style="list-style-type: none"> <li><b>3. <u>Iso-kinetic exercise</u> :-</b> In Iso-kinetic exercise contraction of muscle apply maximum forces throughout the complete range of movements. According to individual's capacity, the speed of contraction can be adjusted. The Iso-kinetic excise can be used effectively for the development of strength.</li> </ol>	5	
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