

**B. V. Sc. & A.H. (Second Professional) Examination – 2023**

**Animal Nutrition Paper –I**

**(MSVE 2016)**

**To be filled by the candidate:**

Candidate's Roll Number:

In figure .....

In words .....

Candidate's Enrolment Number: .....

Day and date of examination: .....

Please see for general instructions overleaf.

**Signatures of invigilators verifying the details filled by the candidate**

Signature of invigilator 1: ..... 2: .....

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Candidate should not write anything below this line

**Marks to be filled by the examiner:**

Section A	
Q. No.	Marks
1.	
2.	
3.	
4.	
5.	
<b>Total</b>	

Total Marks obtained:

In figures: ..... In words: .....

Signature of examiner: .....

**INSTRUCTIONS TO THE CANDIDATES**

1. The invigilator and the members of the Flying Squad are empowered to take search of the examinees during the examinations:
2. Candidate should read the question paper and the instructions carefully before they begin to write answers.
3. The candidate will not be allowed to leave the examination hall before one hour from the end of the examination time.
4. Write on the cover page all the required entries correctly and get the signature of the invigilators.
5. Write legibly in the space provided for answer of each questions/sub-questions according to instruction given in the question paper booklet (question paper).
6. Do not write your name on any part of the question paper / answer booklet.
7. Do not leave examination hall without handing over question paper / answer booklet to the invigilator incharge.
8. No leaves should be torn out of the question paper / answer booklet.
9. Candidate attempting to use unfair means or talking to one another will be dealt with severely as per unfair means rules.
10. No written paper or book notes etc. should be brought to examination hall.
11. Total number of pages of question paper / answer booklet be checked before writing.
12. Candidate should not bring in any article other than pens and admit card. Use of Mobiles, calculators on any other electronic device in the examination hall is strictly prohibited.

**SPACE FOR ROUGH WORK**

**B. V. Sc. & A.H. (Second Professional) Examination – 2023**  
**Animal Nutrition Paper -I**

Time: Three Hours

Maximum Marks: 100  
Weightage: 20

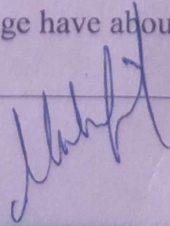
Unit-1 (Principles of Animal Nutrition and Feed Technology)  
Unit-2 (Applied Ruminant Nutrition-I)

**Instructions:**

- 1) Attempt all questions
- 2) Answer of all questions is to be written in the space provided along with the question in question-booklet.
- 3) Overwriting is not allowed in the objective type question.

**Q.1 Fill in the blanks. (20x0.5 = 10)**

- 1.1 Harmful natural constituents to form complex with metal and present in pigment glands of cotton seeds \_\_\_\_\_
- 1.2 Some species are unable to synthesize vitamin C due to lack of an enzyme \_\_\_\_\_
- 1.3 In adult cattle & buffaloes mimosine degraded to \_\_\_\_\_ by rumen microbes
- 1.4 A deficiency of \_\_\_\_\_ in growing pigs leads to mulberry heart disease.
- 1.5 Indian feeding standard based on \_\_\_\_\_ feeding standard
- 1.6 1 IU of vitamin A is equal to activity of \_\_\_\_\_ of retinol
- 1.7 To reduce the chance of anaemia, piglets are administered with \_\_\_\_\_ injection.
- 1.8 'Physiological fuel value' was stated by the scientist \_\_\_\_\_
- 1.9 'Degnala disease/Alkali disease' occurs in animals from toxicity of the nutrient \_\_\_\_\_
- 1.10 Solvent extracted oil cakes contain \_\_\_\_\_ % ether extract
- 1.11 When digestibility of one feed is altered by another feed in feeding trials that condition is known as \_\_\_\_\_
- 1.12 Gross energy value of methane is \_\_\_\_\_ Kcal/g
- 1.13 The active form of Vitamin D is known as \_\_\_\_\_
- 1.14 The maintenance types of roughage have about \_\_\_\_\_ % of DCP
- 1.15 Carbonic anhydrase contain \_\_\_\_\_ (mineral)



- 1.16 \_\_\_\_\_ fermentation occurs during silage making
- 1.17 Hay contain good amount of vitamin \_\_\_\_\_ which is lacking in silage
- 1.18 Phylloquinone is scientific name of vitamin \_\_\_\_\_
- 1.19 The instrument for measuring gross energy of feed is \_\_\_\_\_
- 1.20 Maize grain contains \_\_\_\_\_ % of CP

**Q.2 Choose the most suitable answer and write the number of the correct answer 1 or 2 or 3 or 4 in the space given against each sub question:**

(20x0.5 = 10)

- 2.1 Mineral essential for haemoglobin formation along with iron ( )
1. Mg
  2. Cu
  3. F
  4. Zn
- 2.2 Vitamin B<sub>12</sub> dependent enzyme is ( )
1. Propionyl CoA carboxylase
  2. Glutathione peroxidase
  3. 2-hydroxyphytanoyl CoA lyase
  4. Methylmalonyl CoA isomerase
- 2.3 Temperature requirement for popping up of cereal grain is \_\_\_\_\_ degree centigrade ( )
1. 100-150
  2. 370-425
  3. 200-275
  4. 275-325
- 2.4 Which one is the most suitable crop for silage production ( )
1. Oat
  2. Lucerne
  3. Maize
  4. Berseem
- 2.5 Autoclaving at 10 psi for 30 minutes inhibit the activity of Kunitz inhibitors in ( )
1. Mustard oil cake
  2. Soybean meal
  3. Ground nut meal
  4. Lucerne
- 2.6 Following ray is used in micronization of feed ( )
1. X-ray
  2. Gamma-ray
  3. Infra red- ray
  4. Alpha-ray
- 2.7 Tannin complexing agent which prevent complexing of tannin with dietary protein ( )
1. PEB
  2. PEG
  3. GEP
  4. GVP

- 2.8 Perosis in poultry is caused due deficiency of \_\_\_\_\_ ( )
1. Se
  2. Cr
  3. Mg
  4. Mn
- 2.9 The cellulolytic bacteria present in the rumen is \_\_\_\_\_ ( )
1. *Neocallimastix frontalis*
  2. *Ruminococcus albus*
  3. *Polyplastron multivesiculatum*
  4. None of these
- 2.10 Methaemoglobin is formed in blood of ruminants from toxicity of \_\_\_\_\_ ( )
1. Glucosinolate
  2. Phytate
  3. Cyanogen
  4. Nitrate
- 2.11 Milk fever occurs in cattle due to deficiency of \_\_\_\_\_ ( )
1. Calcium
  2. Phosphorus
  3. Sodium
  4. Copper
- 2.12 Parakeratosis in pigs occurs due to the deficiency of \_\_\_\_\_ ( )
1. Iron
  2. Zinc
  3. Copper
  4. Manganese
- 2.13 Biological value of microbial protein in ruminants is \_\_\_\_\_ ( )
1. 98 %
  2. 88 %
  3. 78 %
  4. 68 %
- 2.14 Indirect calorimetry is used for \_\_\_\_\_ measurement ( )
1. Gross energy
  2. Net Energy
  3. Respiratory Quotient
  4. Metabolizable energy
- 2.15 The portion of nitrogen absorbed which is retained by the animal is known as \_\_\_\_\_ ( )
1. Digestible crude protein
  2. Gross protein value
  3. Protein efficiency ratio
  4. Biological value
- 2.16 Antinutritional factor present in cereal grain is \_\_\_\_\_ ( )
1. Cyanogen
  2. Phytate
  3. Kunitz inhibitor
  4. Glucosinolate

2.17 The major mineral required for proper wool growth is ( )  
1. Calcium  
2. Phosphorus  
3. Magnesium  
4. Sulphur

2.18 Urea can be utilized in cow ration on DM basis upto ( )  
1. 1 %  
2. 3 %  
3. 5 %  
4. 8 %

2.19 Feed in kg required to produce one kg weight gain is called ( )  
1. Feed conversion efficiency  
2. Caloric protein ratio  
3. Feed conversion ratio  
4. Nutritive value

2.20 pH range in very good silage is ( )  
1. 3-3.5  
2. 3.5-4.2  
3. 4.2-4.5  
4. 4.5-4.8

**Q.3 Attempt any ten out of the following twelve questions. Answer of each question should be in 2 to 3 lines. (10x2.0= 20)**

3.1 Encephalomalacia

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3.2 Total digestible nutrient

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3.3 Thumps

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Please write your Roll Number above this line

3.4 Metabolizable energy

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3.5 Bloat

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3.6 Glucosinolates

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3.7 Pelleting

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3.8 Pica

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3.9 Proximate principles

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Please write your Roll Number above this line

3.10 Digestion trial

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3.11 Bulk density

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3.12 UMMB

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**Q.4** Attempt any six out of the following eight questions. Answer of each question should be in 8 to 10 lines. (6 x 6.0 = 36)

4.1 Characteristics of very good silage

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Please write your Roll Number above this line \_\_\_\_\_

4.2 Nitrate toxicity.

Handwritten answer for question 4.2, consisting of approximately 15 lines of text written in blue ink. The text is mostly illegible due to blurring and the angle of the page.

4.3 Protease inhibitor

Handwritten answer for question 4.3, consisting of approximately 15 lines of text written in blue ink. The text is mostly illegible due to blurring and the angle of the page.

4.4 Probiotics

Handwritten notes for section 4.4 Probiotics, consisting of approximately 15 horizontal lines.

4.5 Starch Equivalent

Handwritten notes for section 4.5 Starch Equivalent, consisting of approximately 15 horizontal lines.

4.6 Role and requirement of water in ruminants

Handwritten answer for question 4.6, consisting of approximately 15 lines of text written in blue ink on a lined background.

4.7 Associative effect.

Handwritten answer for question 4.7, consisting of approximately 15 lines of text written in blue ink on a lined background.

4.8 Karnal process.

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**Q.5 Answer the following question in 1-2 pages (attempt any two).**

**(2x12.0 = 24)**

- 5.1 a) Write in brief about grain processing methods (6)
- b) What are losses occurring during hay making (6)
- 5.2 a) Classify feeds and fodders in details (6)
- b) Microbial protein digestion in ruminants (6)
- 5.3 a) Measures of protein quality in non ruminants animals (6)
- b) Discuss about various factors affecting digestibility of a feed (6)