

- SYLLABUS -

Bachelor Level Common Entrance Examination

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Government of Nepal
Medical Education Commission
Sanothimi, Bhaktapur

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Medical Education Commission
Syllabus for Bachelor level Entrance Examination (2020)

Introduction:

Health Professional education was started in Nepal formerly after establishment of Institute of Medicine under Tribhuvan University in 1972 beginning with training of middle level human resources for health. A bachelor level course in Institute of Medicine was started in 1978 and postgraduate studies since 1982. Similarly, BP Koirala Institute of Health Sciences was established in eastern Nepal in 1993, Manipal Academy of Health Sciences was established under Kathmandu University as a Kathmandu University affiliated private institutions in 1993. Kathmandu University School of Medical Sciences as constituent campus started MBBS program in 2001. Then National Academy of Medical Sciences was established in 2002 and Patan Academy of Health Sciences in 2008.

Since late 90's, over a period of decade, numerous private medical institutions were also opened in affiliation to various universities. In one hand, the rapid development of medical institutions helped for fulfilling the gap between need of human resources for health. In the other hand, there have been issues related to quality in health professional education and also the process and costs related to the entrance examination and student enrollment. In this context, National Medical Education Act 2075 has envisioned the common entrance examination to be conducted by Medical Education Commission (MEC) for enrollment of students in various programs and colleges throughout the country. For conducting the Bachelor level common entrance examination, MEC felt the need to prepare a common syllabus in consultation with experts from various institutions with experience in bachelor level entrance examination.

Objectives

The objectives of the consultation with experts were:

1. To generate consensus and match logically between the existing bachelor level entrance syllabus effective at various medical institutions
2. To develop common syllabus of specific academic programs for bachelor level common entrance examination
3. To find out the scope of improvements/innovations in the existing bachelor level entrance examination

Process

The process used in the development of the common syllabus were:

1. Institutions conducting bachelor level entrance examinations were officially corresponded to send the ongoing bachelor level programs they are conducting and the syllabus for entrance examinations.
2. The syllabus of related disciplines from various institutions were compiled.
3. Team of experts in the related disciplines representing various institutions worked together for the development of common syllabus with the help of available compiled documents.
4. Workshop was conducted to scrutinize the contents and other aspects on entrance syllabus involving the experts who developed the syllabus and experienced experts

conducting bachelor level entrance examinations in various institutions and head/chief of examination divisions in the respective institutions.

5. Workshop involving all head of institutions and concerned regulatory authority was conducted to come up with the consensus.

General Consensus:

A common consensus on relevant issues related to syllabus were generated with brainstorming and regular discussions as per above mentioned process involving all stakeholders related to bachelor level academic programs.

- Experts agreed to develop the syllabus for four groups representing all the bachelor level programs:
 1. MBBS/BDS/BSc Nursing/BASLP/ B Perfusion Technology
 2. BAMS/BSc MLT/BSc MIT/BSc Radiotherapy Technology/BPT/ BPharm/B Optometry
 3. BPH (Bachelor in Public Health)
 4. BNS (Bachelor in Nursing Science)/BMS (Bachelor in Midwifery Science)
- A consensus was generated to have entrance test paper with 200 multiple choice questions to improve content coverage as well as to match with the usual practice. This would also help differentiation of the candidates by minimizing the tie in the marks among the candidates.
- Multiple choice questions (MCQs) will be of Single Best Response Type (Type A) with four options.
- Adopt a norm-referenced testing system, using the 50th percentile rank as the qualifying pass mark for inclusion in the merit list.
- A consensus was generated to allow 3 hours examination time with instruction to paper setter that the stem or vignette of the MCQs should not exceed 60 words.
- All agreed to include 20 MCQs on Mental Agility Test for all the academic programs.
- For the programs with eligibility from both 10+2 science and respective PCL Health Science programs, a consensus was generated to include 20 MCQs related to the specific subjects as per the respective PCL programs.
- In BNS/BMS programs with entry only from PCL nursing, a consensus was made to include 180 questions from PCL program.

Bachelor Level Programs

I. MBBS/BDS/BSc Nursing/BSc Midwifery/BASLP/B Perfusion Technology Program

A. Eligibility

- a. Candidates who have passed 10+2 Science or equivalent (with Physics, Chemistry and Biology) with 50% aggregate in total marks or with GPA 2.4
OR
Secured the percentage/GPA as mentioned above in regards to the certificate level programs with different grading system (e.g. A-Level)

OR

- b. Passed the Health Science Proficiency Certificate Level /Diploma (General Medicine, Medical Lab Technology, Ophthalmic Science, Dental Science, Pharmacy, Ayurveda, Radiography, Physiotherapy) containing Physics, Chemistry and Biology with Certificate of Equivalence to Grade 12 Science program from National Examination Board AND

Secured at least 50% aggregate in total marks both in Diploma and the Examination for equivalence AND

Registered in Nepal Health Professional council or Nepal Pharmacy Council or Nepal Ayurveda Council as per related educational program.

B. Examination Format

- Question type: Single best response type of multiple-choice questions
- Option: Four options (A, B, C, D)
- Number of questions: 200
- Full marks: 200 with 0.25 mark deduction for each wrong response
- Pass mark: 50th percentile
- Difficulty level of the items from the time of question preparation should be at the ratio of 50:30:20 for recall, understanding and application level of the cognitive domain of learning
- Duration: 3 hours

C. Weightage

S.N.	Content/Domain	No. of Questions
a.	Zoology	40
1.	Biology, origin and evolution of life	4
2.	General characteristics and classification of protozoa to chordates	8
3.	Plasmodium, earthworm and frog,	8
4.	Human biology and human diseases	14
5.	Animal tissues	4
6.	Environmental pollution, adaptation and animal behavior, application of zoology	2
b.	Botany	40
7.	Basic component of life and biodiversity	11
8.	Ecology and environment	5
9.	Cell biology and genetics	12
10.	Anatomy and physiology	7
11.	Developmental and applied botany	5
c.	Chemistry	50
12.	General and physical chemistry	18
13.	Inorganic chemistry	14
14.	Organic chemistry	18
d.	Physics	50
15.	Mechanics	10

16.	Heat and thermodynamics	6
17.	Geometrical optics and physical optics	6
18.	Current electricity and magnetism	9
19.	Sound waves, electrostatics and capacitors	6
20.	Modern physics and nuclear physics	6
21.	Solid and semiconductor devices (electronics)	4
22.	Particle physics, source of energy and universe	3
e.	Mental Agility Test (MAT)	20
23.	Verbal reasoning	5
24.	Numerical reasoning	5
25.	Logical sequencing	5
26.	Spatial relation / Abstract reasoning	5
Total		200

II. BAMS/BSc MLT/BSc MIT/ BSc Radiotherapy Technology/BPT/BPharm/B Optometry Program

A. Eligibility

- Candidates who have passed 10+2 Science or equivalent (with Physics, Chemistry and Biology) with 50% aggregate in total marks or GPA 2.4
OR
Secured the percentage/GPA as mentioned above in regards to the certificate level programs with different grading system (e.g. A-Level)
OR
- Passed the Health Science Proficiency Certificate Level /Diploma (General Medicine, Medical Lab Technology, Ophthalmic Science, Dental Science, Pharmacy, Ayurveda, Radiography, Radiotherapy, Physiotherapy) containing Physics, Chemistry and Biology with Certificate of Equivalence to Grade 12 Science program from National Examination Board AND
Secured at least 50% aggregate in total marks both in Diploma and the Examination for equivalence AND
Registered in Nepal Health Professional council or Nepal Pharmacy Council or Nepal Ayurveda Council as per related educational program.
OR
- Passed the Health Science Proficiency Certificate/Diploma (Ayurveda, Medical Lab Technology, Radiography/Radiotherapy Technology Physiotherapy, Pharmacy and Ophthalmic Science) program with at least 50% aggregate in total marks AND
Registered in Nepal Ayurveda Council, Nepal Health Professional Council or Nepal Pharmacy Council as per related educational program.

B. Examination Format

- Question type: Single best response type of multiple-choice questions
- Option: Four options (A, B, C, D)
- Number of questions: 200
- Full marks: 200 with 0.25mark deduction for each wrong response
- Pass mark: 50th percentile

- f. Difficulty level of the items from the time of question preparation should be at the ratio of 50:30:20 for recall, understanding and application level of the cognitive domain of learning
- g. Duration: 3 hours

C. Weightage

S.N.	Content/Domain	No. of Questions
a.	Zoology	40
1.	Biology, origin and evolution of life	4
2.	General characteristics and classification of protozoa to chordates.	8
3.	Plasmodium, earthworm and frog,	8
4.	Human biology and human diseases	14
5.	Animal tissues	4
6.	Environmental pollution, adaptation and animal behavior, application of zoology	2
b.	Botany	40
7.	Basic component of life and biodiversity	11
8.	Ecology and environment	5
9.	Cell biology and genetics	12
10.	Anatomy and physiology	7
11.	Developmental and applied botany	5
c.	Chemistry	40
12.	General and physical chemistry	15
13.	Inorganic chemistry	10
14.	Organic chemistry	15
d.	Physics	40
15.	Mechanics	9
16.	Heat and thermodynamics	5
17.	Geometrical optics and physical optics	5
18.	Current electricity and magnetism	7
19.	Sound waves, electrostatics and capacitors	5
20.	Modern physics and nuclear physics	5
21.	Solid and semiconductor devices (electronics)	2
22.	Particle physics, source of energy and universe	2
e.	Contents from PCL level course of specific subject	20
23.	Contents from PCL/diploma level course of specific subject	20
f.	Mental Agility Test (MAT)	20
24.	Verbal reasoning	5
25.	Numerical reasoning	5
26.	Logical sequencing	5
27.	Spatial relation/Abstract reasoning	5
	Total	200

III. BPH (Bachelor in Public Health) Program

A. Eligibility

- a. Candidates who have passed 10+2 Science or equivalent (with Physics, Chemistry and Biology) with 50% aggregate in total marks or GPA 2.4

OR

Secured the percentage/GPA as mentioned above in regards to the certificate level programs with different grading system (e.g. A-Level)

OR

- b. Passed the Health Science Proficiency Certificate/Diploma (General Medicine, Medical Lab Technology, Ophthalmic Science, Dental Science, Pharmacy, Ayurveda, Nursing, Radiography/Radiotherapy, Physiotherapy) with at least 50% aggregate in total marks. AND

Registered in Nepal Health Professional Council or Nepal Pharmacy Council, Nepal Nursing Council or Nepal Ayurveda Council as per related educational program.

B. Examination Format

- a. Question type: Single best response type multiple-choice questions
b. Option: Four options (A, B, C, D)
c. Number of questions: 200
d. Full marks: 200 with 0.25mark deduction for each wrong response
e. Pass mark: 50th percentile
f. Difficulty level of the items from the time of question preparation should be at the ratio of 50:30:20 for recall, understanding and application level of the cognitive domain of learning
g. Duration: 3 hours

C. Weightage

S.N.	Content/Domain	No. of Questions
a.	Zoology	40
1.	Biology, origin and evolution of life	4
2.	General characteristics and classification of protozoa to chordates.	8
3.	Plasmodium, earthworm and frog,	8
4.	Human biology and human diseases	14
5.	Animal tissues	4
6.	Environmental pollution, adaptation and animal behavior, application of zoology	2
b.	Botany	40
7.	Basic component of life and biodiversity	11
8.	Ecology and environment	5
9.	Cell biology and genetics	12
10.	Anatomy and physiology	7
11.	Developmental and applied botany	5
c.	Chemistry	40
12.	General and physical chemistry	15

13.	Inorganic chemistry	10
14.	Organic chemistry	15
d.	Physics	40
15.	Mechanics	9
16.	Heat and thermodynamics	5
17.	Geometrical optics and physical optics	5
18.	Current electricity and magnetism	7
19.	Sound waves, electrostatics and capacitors	5
20.	Modern physics and nuclear physics	5
21.	Solid and semiconductor devices (electronics)	2
22.	Particle physics, source of energy and universe	2
e.	Pre-requisite Health Knowledge (Basic Concepts)	20
23.	Determinants of health and illness	5
24.	Communicable diseases including vector borne diseases and zoonotic diseases	5
25.	Non-communicable diseases	3
26.	Water, sanitation and hygiene (WASH)	2
27.	Basic concept of biostatistics and epidemiology	5
f.	Mental Agility Test (MAT)	20
28.	Verbal reasoning	5
29.	Numerical reasoning	5
30.	Logical sequencing	5
31.	Spatial relation/Abstract reasoning	5
Total		200

IV. BNS (Bachelor in Nursing Science)/BMS (Bachelor in Midwifery Science)

A. Eligibility

- Candidates who have passed Proficiency Certificate Level/Diploma in Nursing securing at least 50% aggregate in total marks.

AND

- Registered in Nepal Nursing Council

B. Examination Format

- Question type: Single best response type of multiple-choice questions
- Option: Four options (A, B, C, D)
- Number of questions: 200
- Full marks: 200 with 0.25 mark deduction for each wrong response
- Pass mark: 50th percentile
- Difficulty level of the items from the time of question preparation should be at the ratio of 50:30:20 for recall, understanding and application level of the cognitive domain of learning
- Duration: 3 hours

C. Weightage

S.N.	Content/Domain	Question
a.	Core Subjects	150
1.	Community health nursing	25
2.	Adults health nursing	25
3.	Child health nursing	25
4.	Midwifery and gynecological nursing	25
5.	Fundamental of nursing	20
6.	Leadership and management	20
7.	Behavioral science and mental health	10
b.	Basic and Integrated Health Science Applied to Nursing	30
8.	Biochemistry	5
9.	Microbiology	5
10.	Pharmacology	6
11.	Anatomy	7
12.	Physiology	7
c.	Mental Agility Test (MAT)	20
13.	Verbal reasoning	5
14.	Numerical reasoning	5
15.	Logical sequencing	5
16.	Abstract reasoning / Spatial relation	5
	Total	200

Sample Questions for All Programs

For the test, there will be a single set of 200 multiple choice questions (MCQs) each worth one mark for a total of 200 full marks. Each question will have four possible options, with a single correct response. A single answer sheet will be provided to the candidate to response the correct answers. The answer sheet consists of four bubbles as shown below:

Example of answer sheet:

Q.N.	A	B	C	D
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sample question:

1. Which one of the following drugs is approved by FDA for treatment of COVID-19?
(Key-A)

- A. Remdesivir
- B. Chloroquine
- C. Azithromycin
- D. Amoxicillin

Example of correct answer:

Q.N.	A	B	C	D
1.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: All candidates should use the Black Gel Ink Pen (provided at the examination center) to mark their answers. They should fill the correct bubble in the answer sheet using the black gel pen.

Sample Question for Mental Agility Test (MAT)

1. Verbal Reasoning :

Rita goes 30 km towards North from a fixed point, then after turning to her right she goes 20 km. After this she goes 30 km after turning to her right. How far and in what direction is she from her starting point? (Key-C)

- A. 10 km west
- B. 15 km east
- C. 20 km east
- D. 30 km west

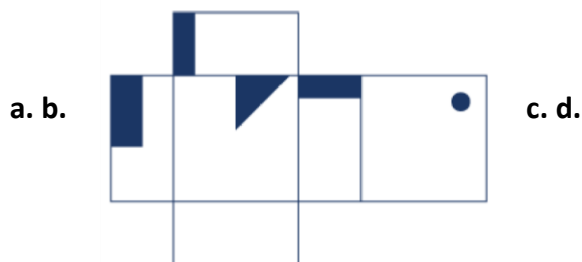
2. Numerical Reasoning:

The length and breadth are increased by 15% and 25% respectively. What is the percentage increase in the area of rectangle? (Key-D)

- A. 20%
- B. 30%
- C. 40%
- D. 44%

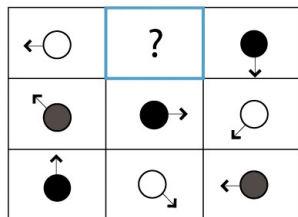
3. **Logical Sequencing:** Look at this series: 53, 53, 40, 40, 27, 27, Which pair of number should come next? (Key-B)
- A. 12
 - B. 14
 - C. 27
 - D. 53

4. **Spatial Reasoning:**
Which 3D shape can be made from given 2D net? (Key-C)



5. **Abstract Reasoning:**

Which answer option is the correct shape that could be placed into the missing gap to fulfill the sequence? (Key-B)



a. b. c. d.

