

SCHEME OF EXAMINATION & SYLLABUS  
OF  
**Diploma in Perfusion Technician :**  
**2 Years Diploma Course**



मध्यप्रदेश सह-चिकित्सीय परिषद् से निर्धारित डिप्लोमा पाठ्यक्रम

Madhya Pradesh Medical Sciences University, Jabalpur  
Academic Session 2015-16

**SCHEME OF EXAMINATION: Diploma in Perfusion Technician**

**FIRST YEAR EXAMINATION**

S.No.	Paper	Subject	Max. Marks	Min. Passing Marks
1	Paper - I	APPLIED ANATOMY & PHYSIOLOGY	100	50
2	Paper - II	PHARMACOLOGY, DISEASE & THEATER TECHNIQUES	100	50
3	Paper - III	EQUIPMENT & CANNULAE	100	50
4	Paper - IV	EXTRACORPOREAL TECHNOLOGY & PROCEDURES	100	50

(There shall be Institutional /College level theory examination as per university notification, marks to be send to University for internal assessment purposes of university examination)

**PAPER-I: APPLIED ANATOMY & PHYSIOLOGY**

Paper	Subject	Max. Marks	Min. Passing Marks
Paper - I	APPLIED ANATOMY & PHYSIOLOGY	100	50

The examination shall be of 100 marks with **Section – A: Anatomy** and **Section – B : Physiology** . The theory examination marks for Anatomy shall be 50 and for Physiology 50 marks respectively. There shall be two paper setters / evaluators, one from Anatomy and one from Physiology . Section- A, which will be set by Anatomy examiner (50 marks) and Section-B, by Physiology (50 marks) examiner. Recognized teachers in Anatomy and Physiology with five years of experience shall be on the panel of examiners; 50% shall be the minimum passing marks.

The pattern of theory examination for each section (A and B) will be as under for **50 Max. Marks**.

No. and Type of Questions	Marks for each Question	Total Marks
<b>05</b> Very short answer Questions <i>Answer to be given in 50-60 words</i>	<b>02</b>	<b>20</b>
<b>03</b> Short answer Questions <i>Answer to be given in 250-300 words</i>	<b>10</b>	<b>50</b>
<b>01</b> Essay type Questions <i>Answer to be given in 450-500 words</i>	<b>15</b>	<b>30</b>
Total Marks		<b>100</b>

**PAPER-II : PHARMACOLOGY, DISEASE & THEATER TECHNIQUES**

<b>Paper</b>	<b>Subject</b>	<b>Max. Marks</b>	<b>Min. Passing Marks</b>
Paper - II	<b>PHARMACOLOGY, DISEASE &amp; THEATER TECHNIQUES</b>	100	50

The examination shall be of 100 marks and question paper will be set by Asst Prof. Cardiology or Cardiothoracic surgery, who shall be on the panel of examiners, 50% shall be the minimum passing marks..

The pattern of University theory examination will be as under for **100 Max. Marks in question paper** and distribution of marks for questions will be as under

<b>No. and Type of Questions</b>	<b>Marks for each Question</b>	<b>Total Marks</b>
<b>10</b> very short answer Questions <i>Answer to be given in 50-60 words</i>	<b>02</b>	<b>20</b>
<b>5</b> short answer Questions <i>Answer to be given in 250-300 words</i>	<b>10</b>	<b>50</b>
<b>2</b> essay type Questions <i>Answer to be given in 450-500 words</i>	<b>15</b>	<b>30</b>
Total Marks		<b>100</b>

**PAPER-III: EQUIPMENT & CANNULAES**

<b>Paper</b>	<b>Subject</b>	<b>Max. Marks</b>	<b>Min. Passing Marks</b>
Paper - III	<b>EQUIPMENT &amp; CANNULAES</b>	100	50

The examination shall be of 100 marks and question paper will be set by qualified examiner Asst Prof. Cardiology or Cardiothoracic surgery who shall be on the panel of examiners of internal or external , 50% shall be the minimum passing marks

The pattern of University theory examination will be as under for **100 Max. Marks in question paper** and distribution of marks for questions will be as under

<b>No. and Type of Questions</b>	<b>Marks for each Question</b>	<b>Total Marks</b>
<b>10</b> very short answer Questions <i>Answer to be given in 50-60 words</i>	<b>02</b>	<b>20</b>
<b>5</b> short answer Questions <i>Answer to be given in 250-300 words</i>	<b>10</b>	<b>50</b>

2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

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**PAPER-IV : EXTRACORPOREAL TECHNOLOGY & PROCEDURES**

Paper	Subject	Max. Marks	Min. Passing Marks
Paper - IV	EXTRACORPOREAL TECHNOLOGY & PROCEDURES	100	50

The examination shall be of 100 marks and question paper will be set by qualified examiner Prof. Cardiology or Cardiothoracic surgery, who shall be on the panel of examiners of internal or external, 50% shall be the minimum passing marks.

The pattern of University theory examination will be as under for **100 Max. Marks in each question paper** and distribution of marks for questions will be as under

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

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### SCHEME OF EXAMINATION FOR 2nd Year (UNIVERSITY EXAMINATION) : D.M.L.T.

There shall be University examination at the end of 2<sup>nd</sup> year curriculum for all Diploma courses.

S.No.	Paper	Subject	Theory	Internal Assessment	Practical	Total
1	Paper - I	APPLIED ANATOMY & PHYSIOLOGY	100	100	100	300
2	Paper - II	PHARMACOLOGY, DISEASE & THEATER TECHNIQUES	100	100	100	300
3	Paper - III	EQUIPMENT & CANNULAES	100	100	100	300
4	Paper - IV	EXTRACORPOREAL TECHNOLOGY & PROCEDURES	100	100	100	300
<b>TOTAL</b>			<b>400</b>	<b>400</b>	<b>400</b>	<b>1200</b>

#### PAPER-I: APPLIED ANATOMY & PHYSIOLOGY

Paper	Subject	Theory	Internal Assessment	Practical	Total
Paper - I	APPLIED ANATOMY & PHYSIOLOGY	100	100	100	300

The examination shall be of 100 marks with **Section – A: Anatomy** and **Section – B : Physiology** . The theory examination marks for Anatomy shall be 50 and for Physiology 50 marks respectively. There shall be two paper setters / evaluators, one from Anatomy and one from Physiology . Section- A, which will be set by Anatomy examiner (50 marks) and Section-B, by Physiology (50 marks) examiner. Recognized teachers in Anatomy and Physiology with five years of experience shall be on the panel of examiners; 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiner- one examiner of Anatomy and one of Physiology from the panel of University examiners. There will be two section of **50 Max. Marks each section** and distribution pattern of marks for questions will be as under for theory examination of each Section i.e (A: Anatomy and B: Physiology) will be as under for **50 Max. Marks**.

No. and Type of Questions	Marks for each Question	Total Marks
<b>05</b> Very short answer Questions Answer to be given in 50-60 words	<b>02</b>	<b>10</b>
<b>03</b> Short answer Questions Answer to be given in 250-300 words	<b>08</b>	<b>24</b>
<b>01</b> Essay type Questions Answer to be given in 450-500 words	<b>16</b>	<b>16</b>
Total Marks		<b>50</b>

**PAPER-II : PHARMACOLOGY, DISEASE & THEATER TECHNIQUES**

Paper	Subject	Theory	Internal Assessment	Practical	Total
Paper - II	<b>PHARMACOLOGY, DISEASE &amp; THEATER TECHNIQUES</b>	100	100	100	300

The University theory examination shall be of 100 marks and question paper will be set by Astd. Professor, , who shall be on the panel of examiners, 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiner (Astd. Professor, Biochemistry) - one internal Examiner ; from the institute /college and one from other college /institute of the university from the panel of University examiners.

The pattern of University theory examination will be as under for **100 Max. Marks in question paper** and distribution of marks for questions will be as under

No. and Type of Questions	Marks for each Question	Total Marks
<b>10</b> very short answer Questions Answer to be given in 50-60 words	<b>02</b>	<b>20</b>
<b>5</b> short answer Questions Answer to be given in 250-300 words	<b>10</b>	<b>50</b>
<b>2</b> essay type Questions Answer to be given in 450-500 words	<b>15</b>	<b>30</b>
Total Marks		<b>100</b>

**PAPER-III : EQUIPMENT & CANNULAES**

Paper	Subject	Theory	Internal Assessment	Practical	Total
Paper - III	<b>EQUIPMENT &amp; CANNULAES</b>	100	100	100	300

The University theory examination shall be of 100 marks and question paper will be set by qualified examiner M.D. Pathology , who shall be on the panel of examiners, 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiner M.D. Pathology - one internal Examiner ; from the institute /college and one from other college /institute of the university from the panel of University examiners.

The pattern of University theory examination will be as under for **100 Max. Marks in question paper** and distribution of marks for questions will be as under

No. and Type of Questions	Marks for each Question	Total Marks
<b>10</b> very short answer Questions Answer to be given in 50-60 words	<b>02</b>	<b>20</b>
<b>5</b> short answer Questions Answer to be given in 250-300 words	<b>10</b>	<b>50</b>
<b>2</b> essay type Questions Answer to be given in 450-500 words	<b>15</b>	<b>30</b>
Total Marks		<b>100</b>

**PAPER-IV : EXTRACORPOREAL TECHNOLOGY & PROCEDURES**

Paper	Subject	Theory	Internal Assessment	Practical	Total
Paper - IV	EXTRACORPOREAL TECHNOLOGY & PROCEDURES	100	100	100	300

The University theory examination shall be of 100 marks and question paper will be set by qualified examiner M.D. Pathology, who shall be on the panel of examiners of internal or external, 50% shall be the minimum passing marks. Internal assessment will be of 100 marks, which would be counted in theory marks for passing university examination. For practical examination; there will be two examiner M.D. Pathology - one internal Examiner; from the institute /college and one from other college /institute of the university from the panel of University examiners.

The pattern of University theory examination will be as under for **100 Max. Marks in question paper** and distribution of marks for questions will be as under

No. and Type of Questions	Marks for each Question	Total Marks
<b>10</b> very short answer Questions <i>Answer to be given in 50-60 words</i>	<b>02</b>	<b>20</b>
<b>5</b> short answer Questions <i>Answer to be given in 250-300 words</i>	<b>10</b>	<b>50</b>
<b>2</b> essay type Questions <i>Answer to be given in 450-500 words</i>	<b>15</b>	<b>30</b>
Total Marks		<b>100</b>

## Syllabus for 1<sup>ST</sup> YEAR Diploma in Perfusion Technician

### PAPER-I: Applied Anatomy & Physiology

**General Anatomy (40 Hrs.)**

**General Physiology (40 Hrs.)**

**Practical:-**

**Practical:-**

### ANATOMY AND PHYSIOLOGY - HEART & LUNG

#### Paper- I

1. Anatomy of Heart Lung blood vessel.
2. Heart as pump & cardiac cycle.
3. Heart blocks and pacemaker.
4. Blood, its components and Haemostatic.
5. Respiration, Gas Exchange & Diffusion.
6. Conduction system of heart.
7. E.C.G. and Defibrillation.
8. Excretory function and Acid base Balance.



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**PAPER-II PHARMACOLOGY, DISEASE & THEATER TECHNIQUES**

1. Pharmacology of commonly used medicines Inotropes, antiarrhythmies.
2. Rheumatic heart diseases pathology and surgery.
3. Ischemic Heart diseases (Pathology and surgical Management).
4. Acyanotic congenital Heart diseases (Pathology and Surgery)
5. Cyanotic congenital Heart diseases (Pathology and Surgery)
6. Method of Sterilization - Definition, Types, Methods, Central Sterilization.

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**PAPER-III: EQUIPMENT & CANNULAE**

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1. Types of Oxygenators and some common oxygenators.
2. Heat Exchange, Filters and Reservoirs.
3. Aortic and Arterial cannulae.
4. Venous cannulea and techniques.
5. Pumps (Roller Pumps, Centrifugal Pumps, I.A.B.P., Infusion Pumps)

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**PAPER-IV : EXTRACORPOREAL TECHNOLOGY & PROCEDURES**

1. (c) Priming fluids, PCV.
2. Technique of Cardiopulmonary Bypass
3. Cardioplegia, additives & techniques
4. Hypothermia, Circulatory arrest and Homeostatic management
5. Body response of Extra corporeal circulation and complications of Cardiopulmonary Bypass.
6. Ultra filtration during cardiopulmonary Bypass.
7. Emergency during cardiopulmonary Bypass.
8. Perfusion Technology for Minimally Invasive Cardiac Surgery.
9. Surgery for Aortic Aneurysm.