

**Marking Scheme**  
**Strictly Confidential**  
**(For Internal and Restricted use only)**  
**Secondary School Examination, 2026 (X<sup>th</sup>)**  
**SUBJECT NAME : Foundation Skills for Sciences**  
**(Pharmaceuticals and Biotechnology)**  
**(Q.P. CODE /Set No. 421/108)**

**General Instructions: -**

<b>1</b>	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A 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.
<b>2</b>	<b>“Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, evaluation done and several other aspects. Its leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in Newspaper/Website, etc. may invite action under various rules of the Board and IPC.”</b>
<b>3</b>	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. <b>However, while evaluating, answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In Class-X, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.</b>
<b>4</b>	The Marking scheme carries only suggested value points for the answers. These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
<b>5</b>	The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after deliberation and discussion. 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.
<b>6</b>	Evaluators will mark ( √ ) wherever answer is correct. For wrong answer CROSS ‘X’ be marked. Evaluators will not put right (√) while evaluating which gives an impression that answer is correct and no marks are awarded. <b>This is most common mistake which evaluators are committing.</b>
<b>7</b>	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 be totaled up and written in the left-hand margin and encircled. This may be followed strictly.
<b>8</b>	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.
<b>9</b>	If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note <b>“Extra Question”</b> .

10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks _____ (example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines). This is in view of the reduced syllabus and number of questions in question paper.
13	<p>Ensure that you do not make the following common types of errors committed by the Examiner in the past :-</p> <ul style="list-style-type: none"> <li>• Leaving answer or part thereof unassessed in an answer book.</li> <li>• Giving more marks for an answer than assigned to it.</li> <li>• Wrong totaling of marks awarded on an answer.</li> <li>• Wrong transfer of marks from the inside pages of the answer book to the title page.</li> <li>• Wrong question wise totaling on the title page.</li> <li>• Wrong totaling of marks of the two columns on the title page.</li> <li>• Wrong grand total.</li> <li>• Marks in words and figures not tallying/not same.</li> <li>• Wrong transfer of marks from the answer book to online award list.</li> <li>• 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.)</li> <li>• Half or a part of answer marked correct and the rest as wrong, but no marks awarded.</li> </ul>
14	While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0) Marks.
15	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.
16	The Examiners should acquaint themselves with the guidelines given in the <b>“Guidelines for Spot Evaluation”</b> before starting the actual evaluation.
17	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.
18	The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

**MARKING SCHEME**  
**Foundation Skills for Sciences (Pharmaceuticals and Biotechnology)**  
**(Subject Code-421)**  
**(PAPER CODE : 108) (M1080421)**

Q.No.	EXPECTED OUTCOMES/VALUE POINTS	Marks
	<b>SECTION – A</b>	
	Answer any 4 out of the given 6 questions on employability skills	<b>4x1=4</b>
<b>1.</b>	(i) (A) Specific Feedback (ii) (B) Realistic (iii) (B) Ability (iv) (D) Check for expiry of antivirus software and renew (v) (D) Fostering innovation and economic growth (vi) (D) Space Research	1 1 1 1 1 1
<b>2.</b>	Answer any five out of given 6 questions. (i) Marketing (ii) Accountability (iii) Test-Tubes (iv) Reagent (v) Goods Manufacturing Practices (vi) Innovation	5x1=5 1 1 1 1 1 1
<b>3.</b>	Answer any 5 out of 6 questions : (i) Identifying prescribing trends (ii) It is a document that outlines the steps and procedures required to carry out specific task in all the industry. (iii) Erlenmeyer flasks (iv) Formaldehyde, Ethanol (v) Organic chemistry (vi) Product Innovation	5x1=5 1 1 1 1 1 1
<b>4.</b>	Answer any 5 out of the given 6 questions. (i) Sales Representative (ii) To provide clear instruction for a factory workers to perform their task safely, efficiently and effectively. (iii) Petri-Dishes (iv) Acids (v) Regulatory Authorities (vi) Use of pen to check concentration	5x1=5 1 1 1 1 1 1
<b>5.</b>	Answer any five questions out of 6 questions (i) Sales focuses on the direct exchange of product for money while marketing focuses on promoting products and building brand awareness. (ii) (a) Improves safety (b) Enhances customer satisfaction (iii) Graduated cylinder (iv) Indicators (v) Stereo Chemistry (vi) Co-Relational Research	5x1=5 1 1 1 1 1 1
<b>6.</b>	As there are various stakeholders like customers, employees, vendors, media etc, are always sending important information to each other. It has three important parts : (1) Transmitting (2) Listening	2

	(3) Feedback	
7.	(1) Self – Awareness (2) Responsibility (3) Time Management (4) Adaptability (any other relevant Point)	2
8.	(1) Roll over or Hover (2) Point and click (3) Drag and drop (4) Double click	2
9.	(a) A career is a line of work that a person takes for life (b) Two ways are :- (i) Self employment (ii) Wage employment	1+1=2
10.	To reduce inequalities we can :- (1) be helpful to one another (2) be friendly with everyone (3) Include everyone while working or playing (4) Help others by including everyone whether they are small or big, boy or girl, belong to any class or caste.	2
	<b>Answer any 4 out of the given 6 questions in 20 – 30 words each</b>	<b>4x2=8</b>
11.	The primary purpose is of RCPA are (a) Identifying Prescribing Trends. (b) Spotting Potential Prescribers (c) Competitor Analysis	2
12.	The different components of SOP are as follows. (a) <b>Title</b> – The title should clearly describe what they SOP is for : (b) <b>Objective/Purpose</b> – The objective or purpose should describe the reason for the SOP and what it aims to achieve. (c) <b>Scope</b> – The scope should define the area or process that the SOP and it aims to achieve.	2
13.	(a) <b>Personal Injury</b> – Broken glassware can cause cuts, punctures and other injuries to the skin, eyes and other parts of the body. (b) <b>Chemical Exposure</b> – Mishandling glassware can lead to spills or splashes of hazardous chemicals which can result in chemical exposure and potentially harmful health effects.	2
14.	<b>Acids</b> – These acids can cause severe burns and are corrosive to skin and eyes. They can also release toxic gases when mixed with certain substances. <b>Bases</b> – They can also cause burns and corrosive to skin and eyes. They can react violently when mixed with acids.	2
15.	The key objectives and benefits of implementing GMP guidelines for pharmaceutical companies are as follows. <ul style="list-style-type: none"> <li>• Ensuring product quality and consistency</li> <li>• Protecting public health</li> <li>• Compliance with regulatory requirements</li> <li>• Enhancing industry reputation</li> </ul>	2

16.	<p><b>Research and Development :</b></p> <p>(a) Focuses on the intricacies of innovation (information gathering, patenting).</p> <p>(b) Typically uses internal resources of the research group.</p> <p><b>Innovation :</b></p> <p>(a) Focuses on the big picture, encompassing all phases of innovation from idea generation across sources to prototype creation.</p> <p>(b) May draw resources from external sources throughout the innovation ecosystem.</p>	2
	Answer any 3 out of given 6 questions in 50 to 80 words each.	3x4=12
17.	<p>Types of Advertising Media for Life Sciences Sales and Marketing.</p> <p>(a) <b>Print Advertising</b> – Utilize magazine, journals and newspaper that cater to health care professionals and consumers.</p> <p>(b) <b>Digital marketing</b> – Leverage digital platform such as website, social media, search engines and mobile apps to target Health Care professionals and consumers in India.</p> <p>(c) <b>E-mail marketing</b> – Send targeted email campaigns to health care professionals, clinics hospitals and pharmacies in India.</p> <p>(d) <b>Direct Mail Advertising</b> – Send direct mailers, brochure or catalogues to health care professionals and consumers in India to promote life science products.</p>	4
18.	<p><b>Total Quality Management</b> – This is an approach that involves all employees in the organisation working together to improve quality. It focuses on continuous improvement, satisfaction and employee involvement.</p> <p><b>Role of Lean Manufacturing in Quality Management System</b> – This is a systematic approach to eliminating waste and improving efficiency in the manufacturing process. It aims to create a flow of products or services that is smooth and continuous with minimal waste.</p>	4
19.	<p><b>Importance of handling glassware's safely in laboratories –</b></p> <p>Handling glassware safely in laboratories is extremely important for several reasons :</p> <p>(1) <b>Personal Safety</b> : Glassware is fragile and can easily break, leading to potential cuts, injuries, and infections. By handling glassware safely, you reduce the risk of personal injury and illness.</p> <p>(2) <b>Accuracy of Results</b> : Glassware is often used to measure precise amounts of liquids and chemicals, and any error in measurement can affect the results of an experiment. By handling glassware safely, you reduce the risk of spillages or breakages that could affect the accuracy of the results.</p> <p>(3) <b>Efficiency</b> : Handling glassware safely helps to ensure that the experiment runs efficiently. Any spillages or breakages during process could result in delays or the need to repeat an experiment, which could be costly and time-consuming.</p>	4

20.	<p>Chemical storage guidelines are important to ensure the safety of individuals working in a laboratory setting. Here are some general guidelines for storing chemicals in a laboratory.</p> <ol style="list-style-type: none"> <li>(1) <b>Store chemicals in a designated area :</b> Chemicals should be stored in a designated area that is clearly labelled as a chemical storage area. This area should be separate from the work area to prevent accidental spills or exposure to users and/or workers.</li> <li>(2) <b>Use appropriate storage containers :</b> Chemicals should be stored in appropriate storage containers, such as glass or plastic bottles, that are properly labelled with the name of the chemical, the date it was received and any hazard warnings. Chemicals should also be stored in secondary containers, such as trays or tubs, to contain spills.</li> <li>(3) <b>Store chemicals based on compatibility :</b> Chemicals should be stored based on their compatibility with other chemicals. Flammable liquids, for example, should be stored away from oxidizing agents, while acids should be stored from bases.</li> </ol>	4
21.	<p>Current Trends and Advancements in Medicine Manufacturing</p> <p>In recent years, there have been exciting developments in the way medicines are made, which are shaping the future of health care. Let's explore some of the key trends and advancements :</p> <ol style="list-style-type: none"> <li>(1) <b>Personalized medicine :</b> Personalized medicine is all about tailoring treatments to suit each individual patient. This involves looking at a person's genetic makeup, lifestyle, and other factors to find the best treatment for them. For example, if someone has cancer, doctors can use genetic testing to choose a treatment that is most likely to work for them, with fewer side effects. This approach is revolutionizing how we treat diseases and is giving patients more effective and personalized care.</li> <li>(2) <b>Biopharmaceuticals and Biosimilars :</b> Biopharmaceuticals are medicines made from living organisms, like proteins and antibodies. They offer new and innovative ways to treat various diseases, including cancer and autoimmune disorders. Biosimilars are similar versions of existing biologic drugs, providing more affordable options for patients. Advances in manufacturing technologies have made it possible to produce these complex medicines at a larger scale, making them more accessible to those who need them.</li> </ol>	4
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