

AN ASSESSMENT OF THE PRESENT SITUATION OF TEACHING METHODS WHILE TEACHING BIOLOGY IN JUNIOR COLLEGES.

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Abstract:

In the present research work the researcher has used survey method in which she has used Questionnaire as her research tools in order to find out the present scenario of different methods of teaching Biology in Junior colleges. Researcher has taken the population of 1265 teachers teaching Biology in Junior Colleges and her sample taken is of 100 teachers of Junior Colleges teaching subject Biology. The researcher has used cross sectional survey in which data is collected in one time from the sample which represents the larger population. Researcher has used probability sampling design under which lottery method of sampling is used. In the present study, the investigator had used a questionnaire that was self-made which consists of 20 questions which were closed ended questions in which main questions were yes- no questions and sub questions of yes and no were multiple choice questions which were related to the present scenario of teaching methods and their implications in subject Biology at Junior college.



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Keywords : Biology, teaching methods, Junior Colleges.

Introduction

The destiny of the nation is shaped in the classrooms. This shape depends upon what the teacher teaches and how it goes on molding it. In other words, the destiny of our youngsters falls on the shoulders of teachers. **"A teacher affects eternity; he can never tell where his influence stops."**

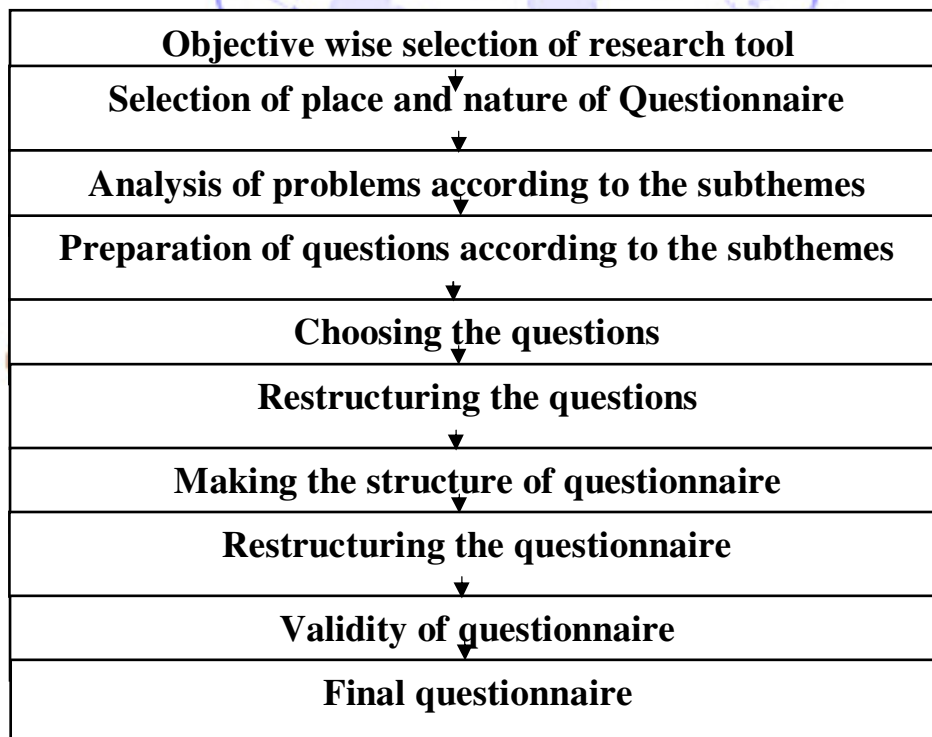
Henry Adams (1905).

Man has always tried to be excellent in all the walks of life. This desire of excellence has led to new inventions that has led to new innovations. Recently the education is completely induced in technology. The world of education is come into a device. The increasing use of technology has completely changed the structure of education and also led to many educational opportunities. The teachers and students both are using the technology positively. Teachers are using it in classrooms and students are getting educated with technology. With the help of advanced technology teacher student collaboration is become easier and thus technology is used at faster pace.

3. Research methods:

Sr. No	Research method	Research tools	Population	Sampling	Statistical analysis
1.	Survey method	Questionnaire	1265 teachers teaching biology subject in Junior colleges in Nashik District	100 teachers teaching biology subject in Junior colleges in Nashik District	Percentage and Pie chart

4. Procedure for survey method:



5. Statistical analysis of data of survey method:

Objective 1:

1. To study the present situation of teaching biology in junior colleges.

Researcher has used the research tool as questionnaire and data is analysed statistically by using percentage and pie charts

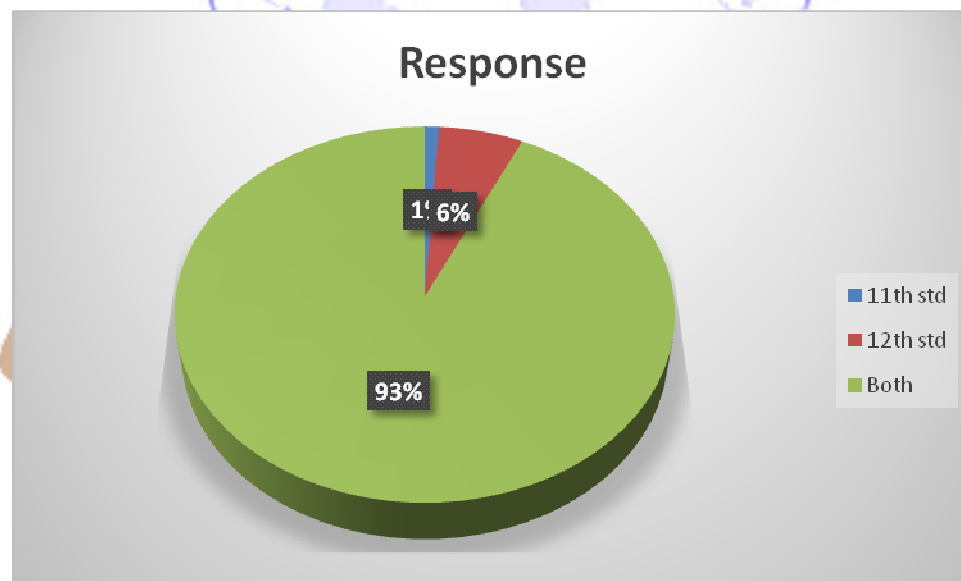
Data analysis of the question given below:

Q 1. Which class do you teach?

- 1) 11th standard
- 2) 12th standard
- 3) Both

Table 4.1: Classes that teacher teaches

	11 th std	12th std	Both
Response	1	6	93
%	1%	6%	93%



Graph 4.1: Classes that teacher teaches

Observation: 1% of teachers teach only 11th class, 6% of teachers only teach 12th class and 93% of teachers teach both the class 11th as well as 12th class.

Interpretation: From the above result researcher interpretes that most of the teachers teaching both the class 11th as well as 12th are part of this survey

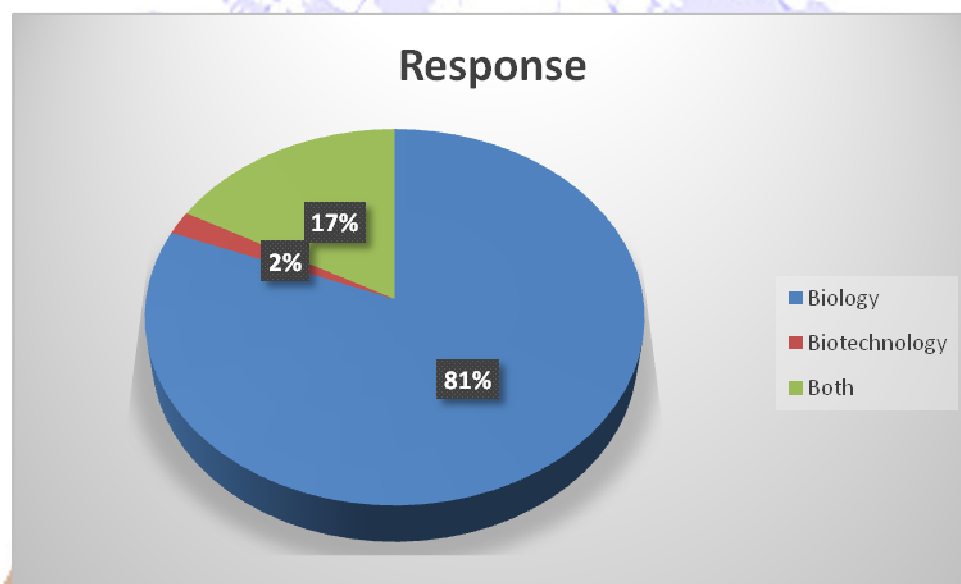
Data analysis of the question given below:

Q 2. Which subject do you teach?

- 1) Biology
- 2) Biotechnology
- 3) Both

Table 4.2: Subject that teacher teaches

	Biology	Biotechnology	Both
Response	81	2	17
%	81%	2%	17%



Graph 4.2: Subject that teacher teaches

Observation: 81% of teachers teach only subject biology, 2% of teachers only teach Biotechnology which is an optional subject in some junior colleges and 17% of teachers teach both the subjects biology as well as biotechnology.

Interpretation: From the above result researcher interpretes that most of the teachers taking part in this survey are biology teachers.

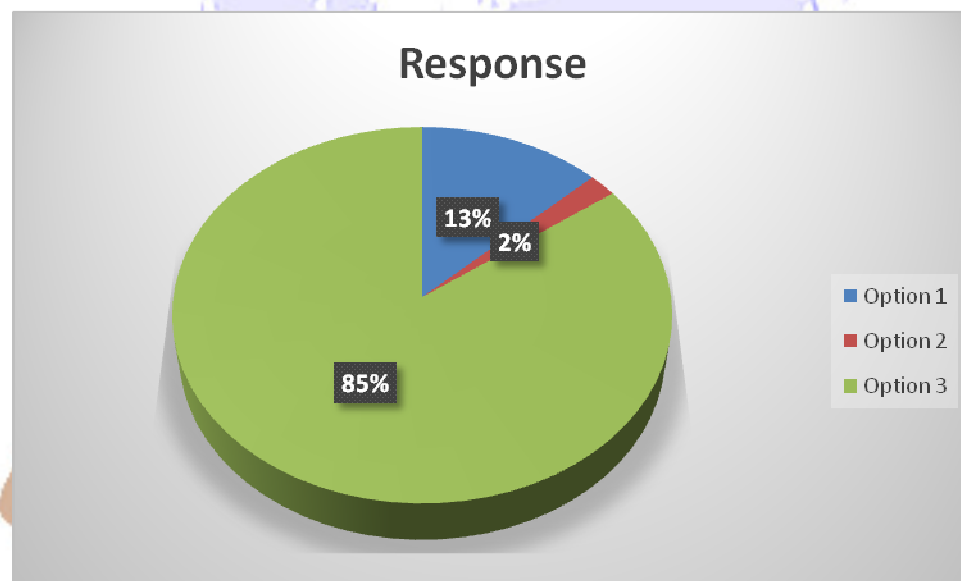
Data analysis of the question given below:

Q 3. Which method of teaching do you use in your class?

- 1) Lecture method
- 2) Demonstration method
- 3) Lecture cum demonstration method

Table 4.3: Methods of teaching

	Option 1	Option 2	Option 3
Response	13	2	85
%	13%	2%	85%



Graph 4.3: Methods of teaching

Observation: 13% of teachers use lecture method of teaching, 2% of teachers use demonstration method in teaching and 85% of teachers use lecture cum demonstration method for teaching.

Interpretation: From the above result researcher interpretes that most of the teachers taking part in this survey teach by lecture cum demonstration method.

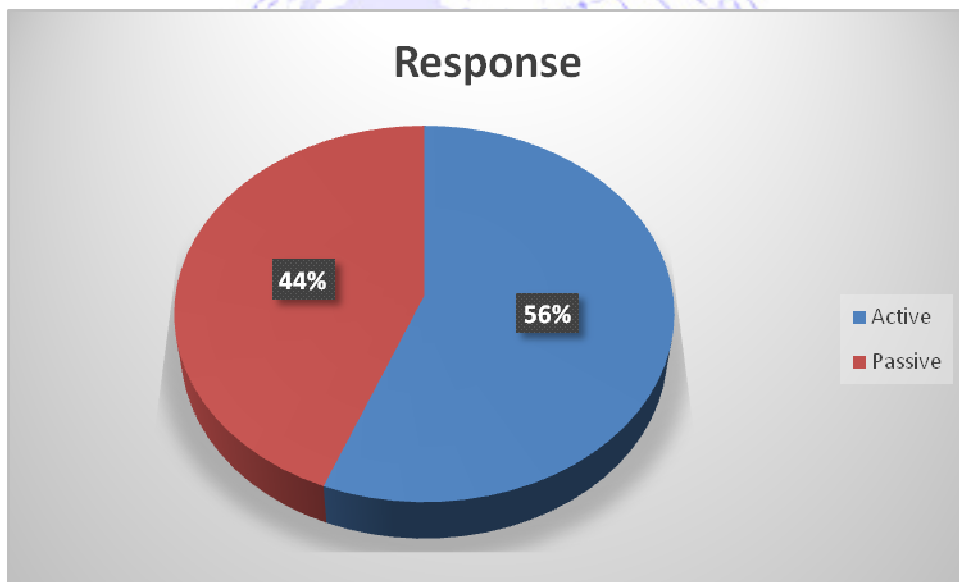
Data analysis of the question given below:

Q 4. How do the students behave in class?

- 1) Active
- 2) Passive

Table 4.4: Behavior of students in class

	Active	Passive
Response	56	44
%	56%	44%



Graph 4.4: Behavior of students in class

Observation: 56% of teachers say that their students are active in class and 44% of teachers say that their students are passive in the class.

Interpretation: From the above result researcher interpretes that 56% of teachers are able to keep their students active in the class but 44% of teachers can't keep the students much active in the class.

Data analysis of the question given below:

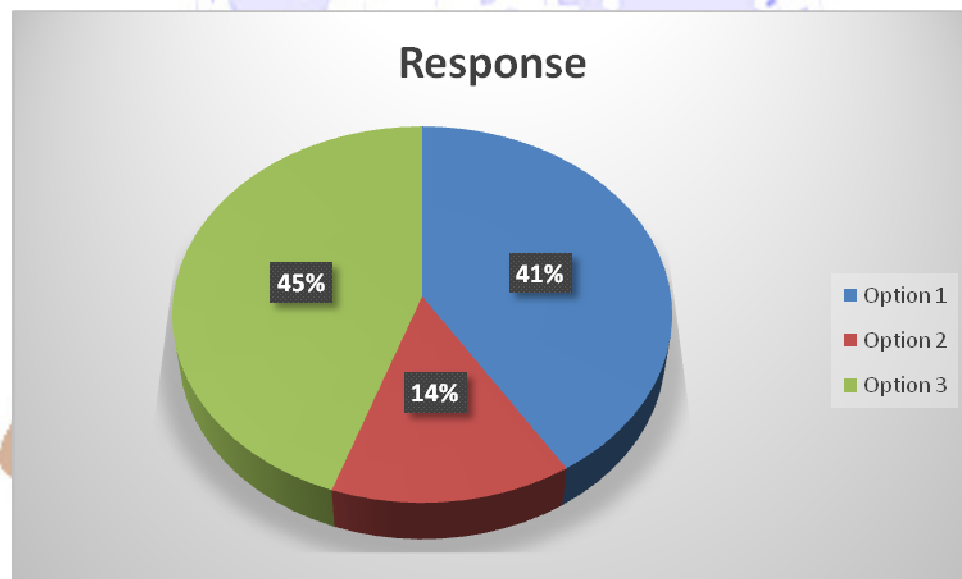
Answer this question if the teacher chooses **active** in above answer

a) What are reasons for students to be active?

- i) Teacher has interactive method of teaching.
- ii) Teacher’s teaching is completely student oriented
- iii) Teacher uses lots of technology-based methods for teaching.

Table 4.5: Reasons for students to be active

	Option 1	Option 2	Option 3
Response	23	8	25
%	41%	14%	45%



Graph 4.5: Reasons for students to be active

Observation: 41% of teachers use interactive method for teaching for keeping the students active, 14 % of teachers use student-oriented methods in teaching to keep the students active and 45% of teachers use lots of technology-based methods of teaching.

Interpretation: From the above result researcher interpretes that teachers mostly use technology-based methods of teaching so that they can keep their students active in the class.

Data analysis of the question given below:

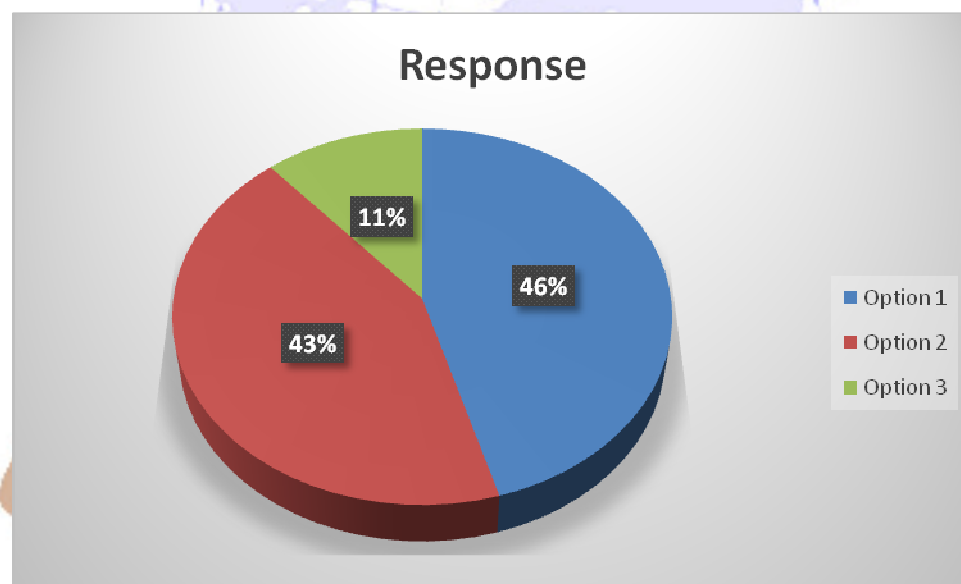
Answer this question if the teacher chooses **passive** in above answer

b) What are reasons for students to be passive?

- i) Teacher uses only traditional method of teaching.
- ii) Teacher’s teaching is completely teacher oriented
- iii) Teacher does not use technology at all.

Table 4.6: Reasons for students to be passive

	Option 1	Option 2	Option 3
Response	20	19	5
%	46%	43%	11%



Graph 4.6: Reasons for students to be passive

Observation: 46% of teachers use traditional method of teaching which keeps the student’s passive in class ,43% of teachers use teacher-oriented methods in teaching which keeps the student’s passive in the class and 11% of teachers do not use technology-based methods of teaching at all which could make the students passive in class.

Interpretation: From the above result researcher interpreates that teachers mostly use traditional method of teaching which could be the main reason that students are passive in the class and do not respond at all.

Data analysis of the question given below:

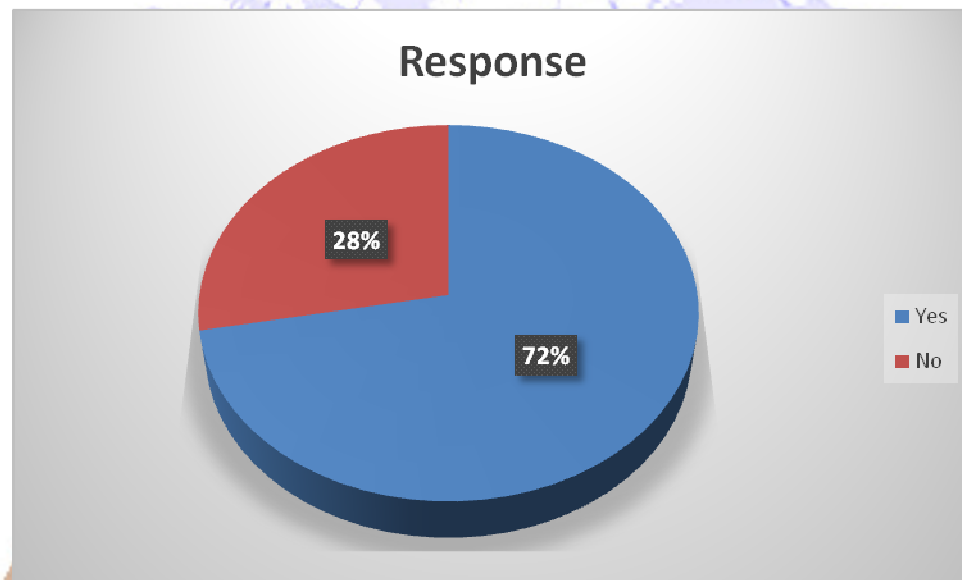
Q 5. Do you dictate notes to the students?

1) Yes

2) No

Table 4.7: Dictation of notes

	Yes	No
Response	72	28
%	72%	28%



Graph 4.7 Dictation of notes

Observation: 72% of teachers say that they dictate notes in the class and 28% of teachers say that they do not dictate any notes in the class.

Interpretation: From the above result researcher interpretes that most of the teachers dictate notes in the class itself.

Data analysis of the question given below:

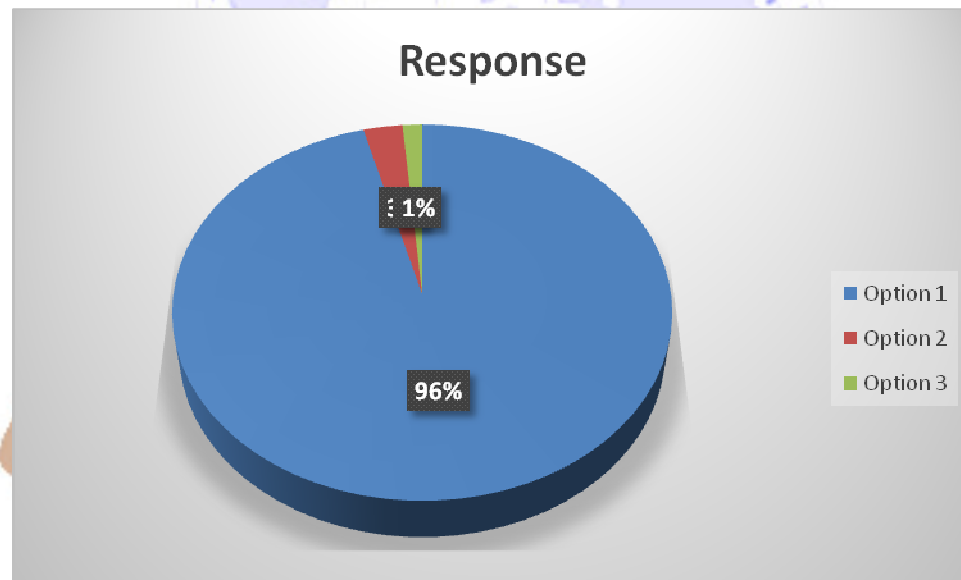
Answer this question if the teacher chooses **Yes** in above answer

a) What type of note does the teacher give?

- i) Teacher dictates self-made notes.
- ii) Teacher uses guides or any other market available books.
- iii) Teacher downloads notes from google.

Table 4.8: Types of notes that teachers dictate

	Option 1	Option 2	Option 3
Response	69	2	1
%	96%	3%	1%



Graph 4.8: Types of notes that teachers dictate

Observation: 96% of teachers use self-made notes and dictate it to students, 3% of teachers use guides and market available books for making notes which they dictate in class and 1% of teachers use notes downloaded from google and give it to students.

Interpretation: From the above result researcher interpretes that teachers mostly use self-made notes and dictate these notes in the class for the students.

Data analysis of the question given below:

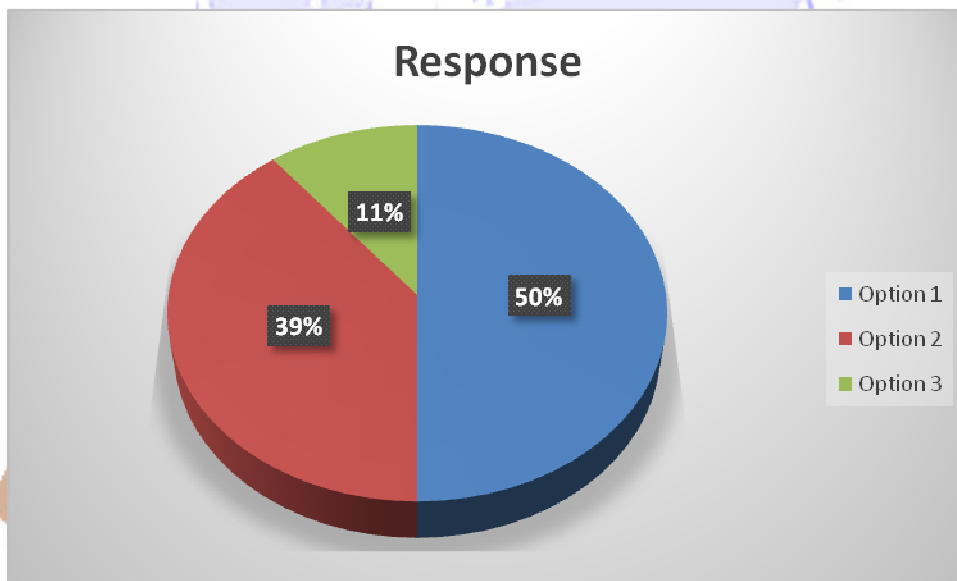
Answer this question if the teacher chooses **No** in above answer

b) Why does the teacher do not dictate notes?

- i) Teacher finds it very time consuming.
- ii) Syllabus does not get completed on time.
- iii) Students are not able cope up with the speed of dictation.

Table 4.9: Reason why teachers do not dictate notes

	Option 1	Option 2	Option 3
Response	14	11	3
%	50%	39%	11%



Graph 4.9 Reason why teachers do not dictate notes

Observation: 50% of teachers find making notes very time consuming and therefore they do not dictate notes, 39% of teachers do not dictate notes as they are not able to complete their syllabus on time and 11% of teachers say that students are not able to cope up with the speed of dictation in the class.

Interpretation: From the above result researcher interpretes that teachers mostly say that the reason for teachers not dictating notes is that those teachers find it very time consuming in making notes.

Data analysis of the question given below:

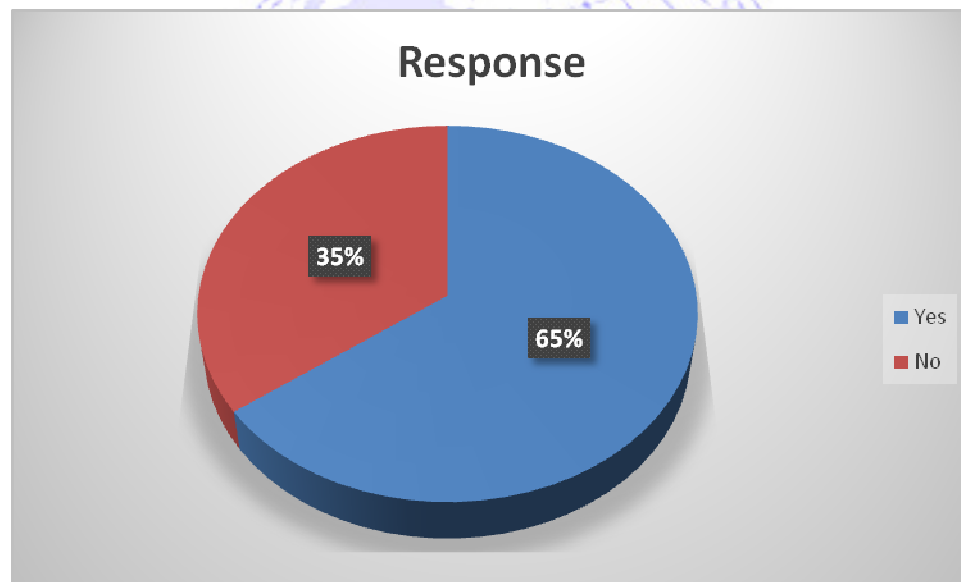
Q 6. Are you able to cover the syllabus on time?

1) Yes

2) No.

Table 4.10: Completion of syllabus on time

	Yes	No
Response	65	35
%	65%	35%



Graph 4.10: Completion of syllabus on time

Observation: 65% of teachers say that they are able to complete their syllabus on time and 35% of teachers say that they are not able to complete their syllabus on time.

Interpretation: From the above result researcher interpretes that most of the teachers are able to complete their syllabus on time but some are not able to complete their syllabus on time due to reasons given in the next question.

Data analysis of the question given below:

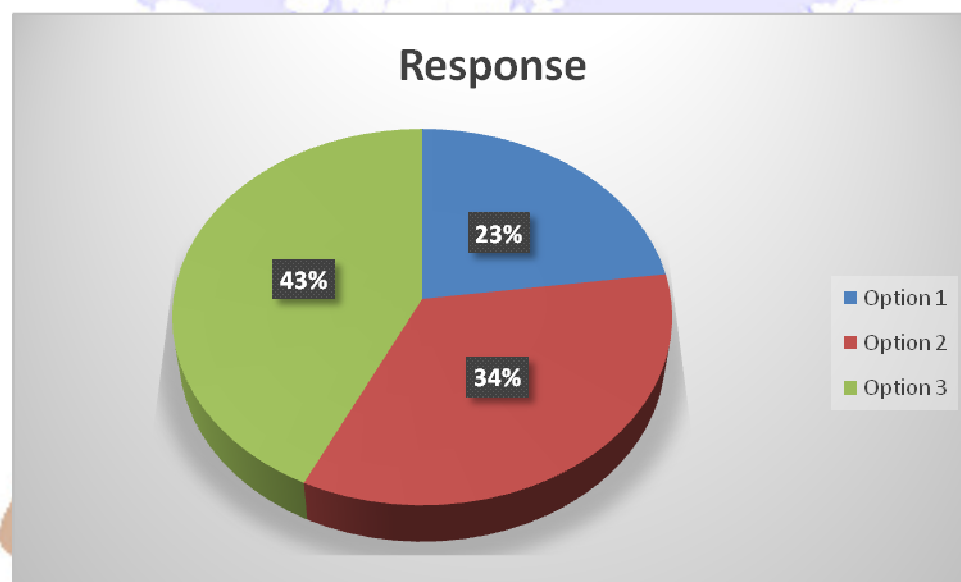
Answer this question if the teacher chooses **No** in above answer

a) What are reasons that teacher is not able to cover the syllabus on time?

- i) Chapters are very lengthy.
- ii) Time period is very limited.
- iii) Teaching finer details of the concepts consumes lots of time.

Table 4.11: Reason why teachers cannot complete their syllabus on time

	Option 1	Option 2	Option 3
Response	8	12	15
%	23%	34%	43%



Graph 4.11: Reason why teachers cannot complete their syllabus on time

Observation: 23% of teachers say that the chapters are very lengthy and therefore they are not able to complete their syllabus on time, 34% of teachers say that time period of lectures are very less due to which they cannot complete their syllabus on time and 43% of teachers say that teaching finer details of the concept take lot of time.

Interpretation: From the above result researcher interpretes that teachers mostly say that teaching finer details of the concept in Biology subject is very time consuming and therefore they are not able to complete their syllabus.

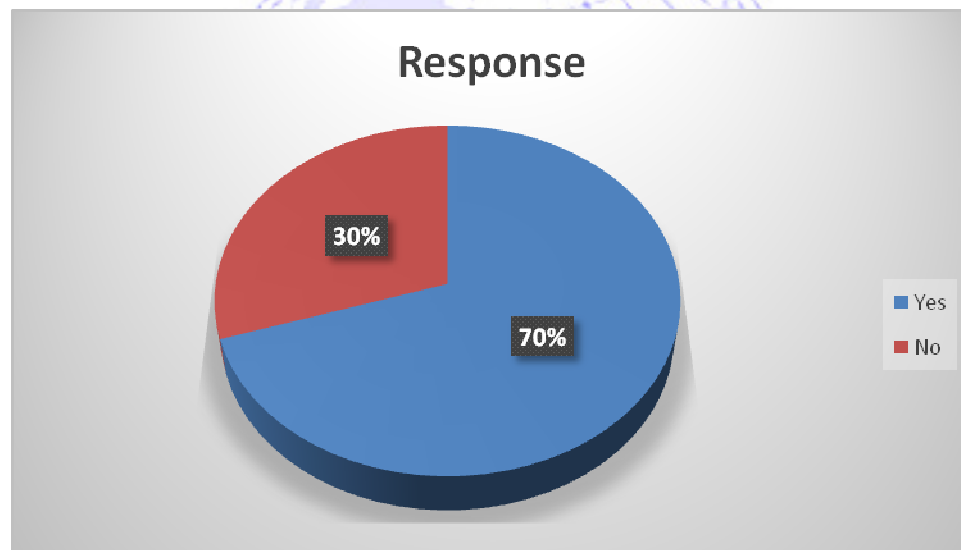
Data analysis of the question given below:

Q 7. Are you sure students are able to concentrate and understand the concepts in the class?

- 1) Yes 2) No

Table 4.12: Students concentration and understanding of concepts

	Yes	No
Response	70	30
%	70%	30%



Graph 4.12: Students concentration and understanding of concepts

Observation: 70% of teachers say that their students are able to concentrate and understand the concepts in the class and 30% of teachers say that their students are not able to concentrate and understand the concepts in the class.

Interpretation: From the above result researcher interpretes that most of the teachers are able to seek concentration of the students and make them understand the concepts easily but some find it difficult to seek concentration and make them understand the concepts due to various reasons given in the next question.

Data analysis of the question given below:

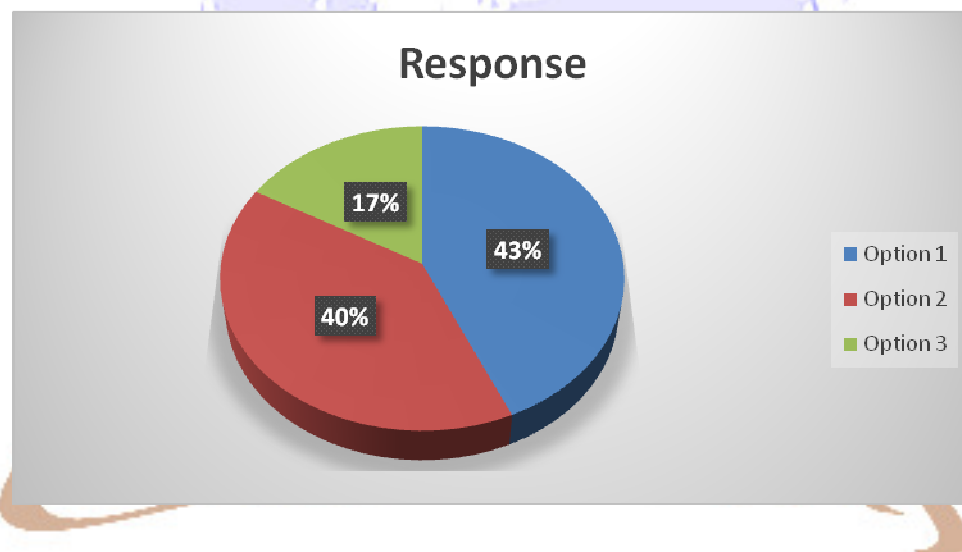
Answer this question if the teacher chooses **No** in above answer

a) What are reasons that students are not able to concentrate and understand the concepts?

- i) Teacher does not use any teaching aids
- ii) Teacher uses only lecture method.
- iii) Teacher is not able to control class and not efficient in time management.

Table 4.13: Reason students are not able to concentrate and understand the concept

	Option 1	Option 2	Option 3
Response	13	12	5
%	43%	40%	17%



Graph 4.13: Reason students are not able to concentrate and understand the concept

Observation: 43% of teachers say that the reason they are not able to seek attention and make the students understand the concept is that they do not use any teaching aids, 40% of teachers say that they only use lecture method and 17% of teachers say that they are not able to control class and not efficient in time management.

Interpretation: From the above result researcher interpretes that teachers mostly say that they do not use teaching aid which is the reason they are not able to seek attention and make understand the concepts to the students.

Data analysis of the question given below:

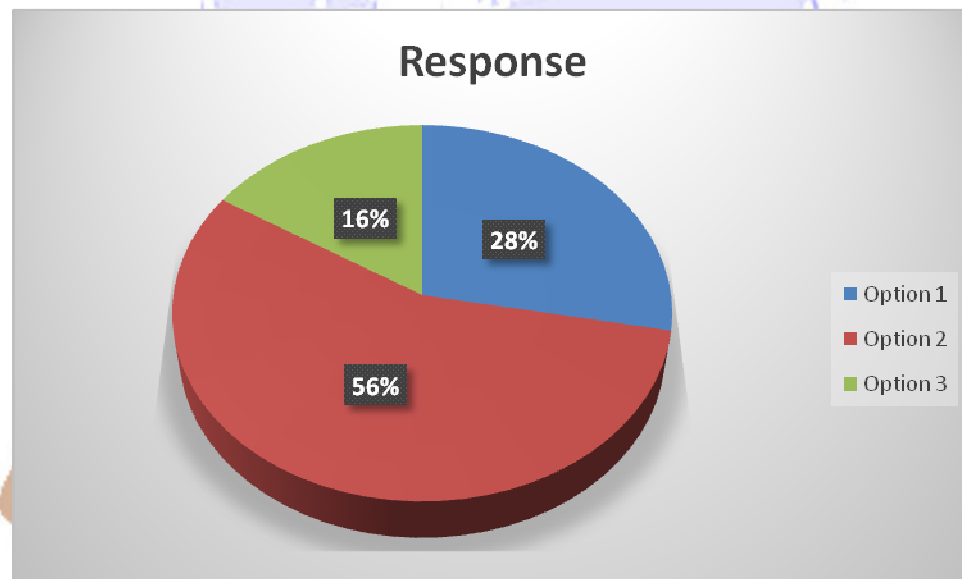
Answer this question if the teacher chooses **No** in above answer

b) What are reasons that teachers do not ask questions?

- i) Students do not respond to questions.
- ii) Lecture time period is limited
- iii) Controlling class is difficult while question answer sessions.

Table 4.15: Reason why teachers do not ask questions

	Option 1	Option 2	Option 3
Response	7	14	4
%	28%	56%	16%



Graph 4.15: Reason why teachers do not ask questions

Observation: 28% of teachers say that the reason for not asking questions is that student do not respond to questions, 56% of teachers say that the lecture time period is limited due to which they are not able to ask questions in the class and 16% of teachers say that controlling class becomes difficult because of question answer sessions.

Interpretation: From the above result researcher interpreates that teachers mostly say their lecture time very less due to which they are not able to ask questions in the class.

Data analysis of the question given below:

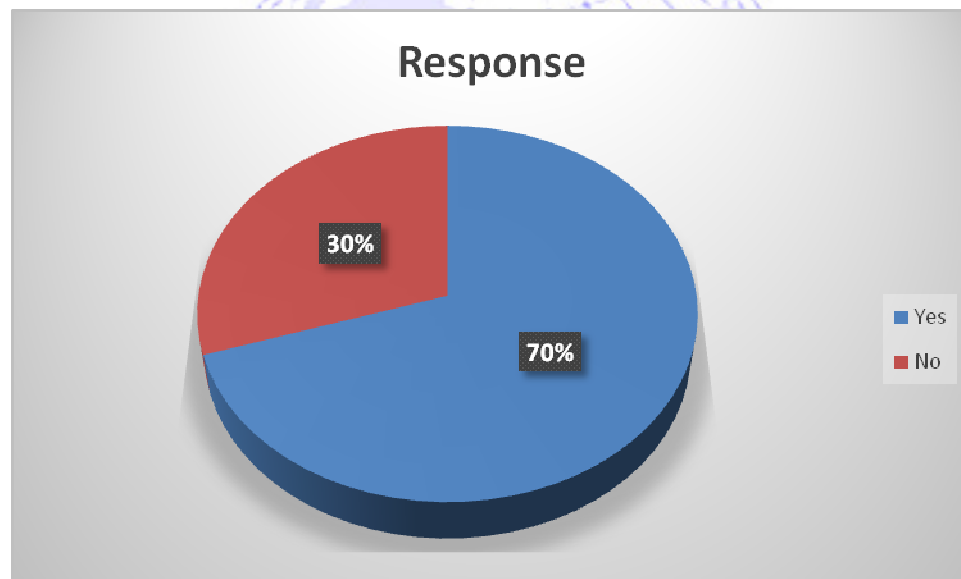
Q 9. Are the dissections done in Laboratory visible to all?

1) Yes

2) No.

Table 4.16: Dissections in laboratory visible or not

	Yes	No
Response	70	30
%	70%	30%



Graph 4.16: Dissections in laboratory visible or not

Observation: 70% of teachers say that the dissections done in laboratory are visible to all and 30% of teachers say that dissections done in laboratory are not visible to all.

Interpretation: From the above result researcher interpretes that most of the teachers say that dissections in the laboratory are visible to all due to the reasons given in next question.

Data analysis of the question given below:

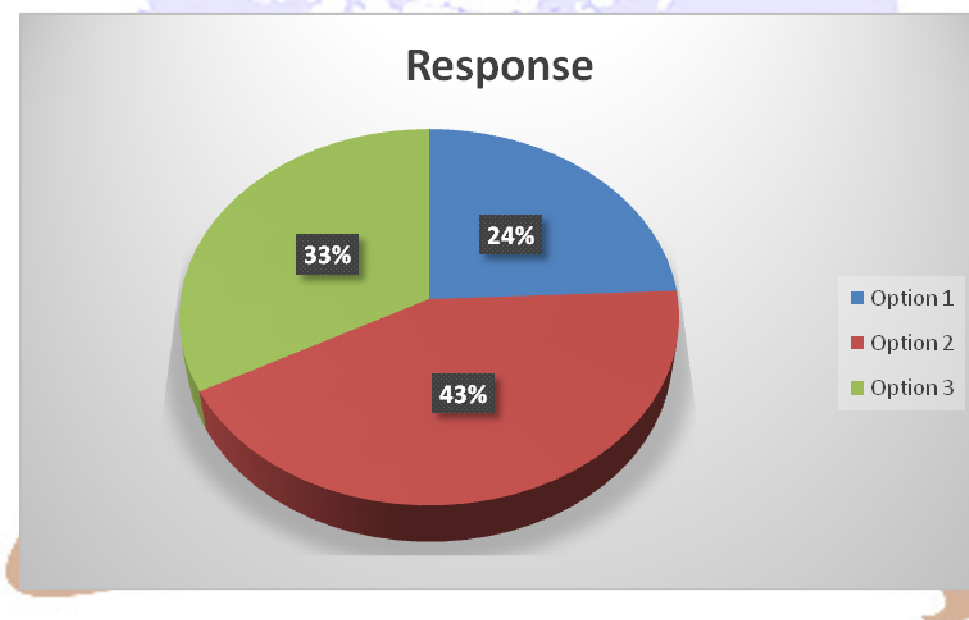
Answer this question if the teacher chooses Yes in above answer

a) What are reasons that dissections are clearly visible to all the students in the laboratory?

- i) Strength of the students is less
- ii) Laboratories are big and well equipped.
- iii) Teacher takes the help of technology in showing dissections.

Table 4.17: Reasons why dissections in laboratory are visible

	Option 1	Option 2	Option 3
Response	17	30	23
%	24%	43%	33%



Graph 4.17: Reasons why dissections in laboratory are visible

Observation: 24% of teachers say that the reason that the dissections are visible in laboratories is that the strength of the students is less 43% of teachers say that they have well equipped laboratories in their college due to which the dissections are visible in laboratories and 33% of teachers say that they use technology in showing dissections which make it easier to understand it to students.

Interpretation: From the above result researcher interpretes that teachers are able to show dissections in laboratories as they have well equipped laboratories and also, they use technology in showing dissections which make it easier for students to understand it.

Data analysis of the question given below:

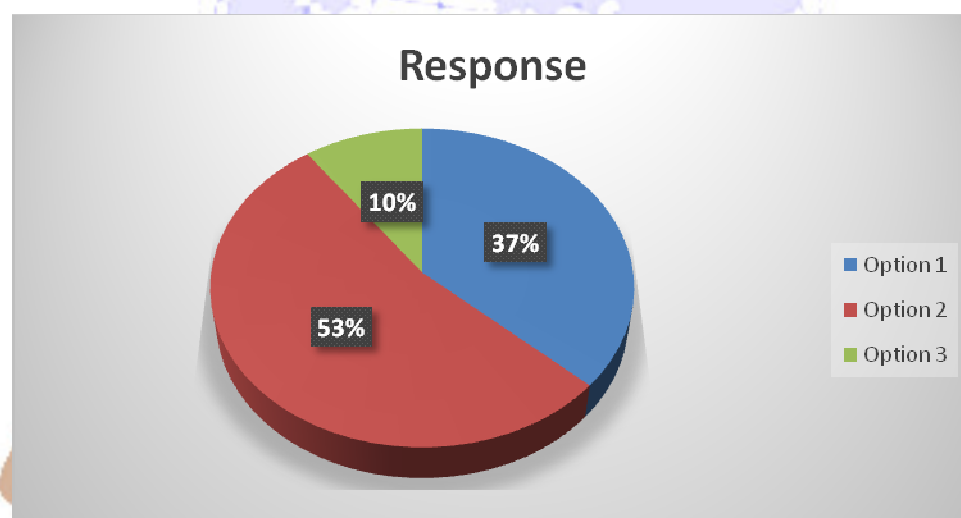
Answer this question if the teacher chooses **No** in above answer

b) What are reasons that dissections are not clearly visible to all the students in the laboratory?

- i) Strength of the students is more
- ii) Laboratories are very small and not well equipped.
- iii) Teacher is not able to control the class and manage the time.

Table 4.18: Reasons why dissections in laboratory are not visible

	Option 1	Option 2	Option 3
Response	11	16	3
%	37%	53%	10%



Graph 4.18: Reasons why dissections in laboratory are not visible

Observation: 37% of teachers say that the reason that the dissections are not visible in laboratories is that the strength of the students is more, 53% of teachers say that they do not have well equipped laboratories in their college due to which the dissections are not visible in laboratories and 10% of teachers say that they are not able to control the class and manage time in laboratories.

Interpretation: From the above result researcher interpretes that teachers are not able to show dissections in laboratories as they do not have well equipped laboratories

Data analysis of the question given below:

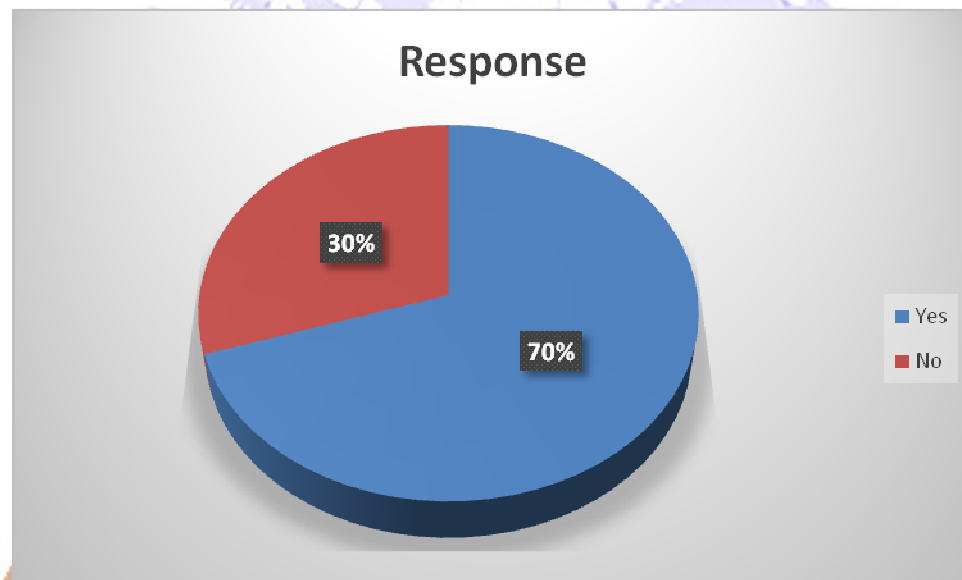
Q 10. Do you use teaching aids?

1) Yes

2) No.

Table 4.19: Use of teaching aids

	Yes	No
Response	70	30
%	70%	30%



Graph 4.19: Use of teaching aids

Observation: 70% of teachers say that they use teaching aids while classroom teaching and 30% of teachers say that they do not use any teaching aids at all.

Interpretation: From the above result researcher interpretes that most of the teachers say that they use teaching aids while classroom teaching.

Data analysis of the question given below:

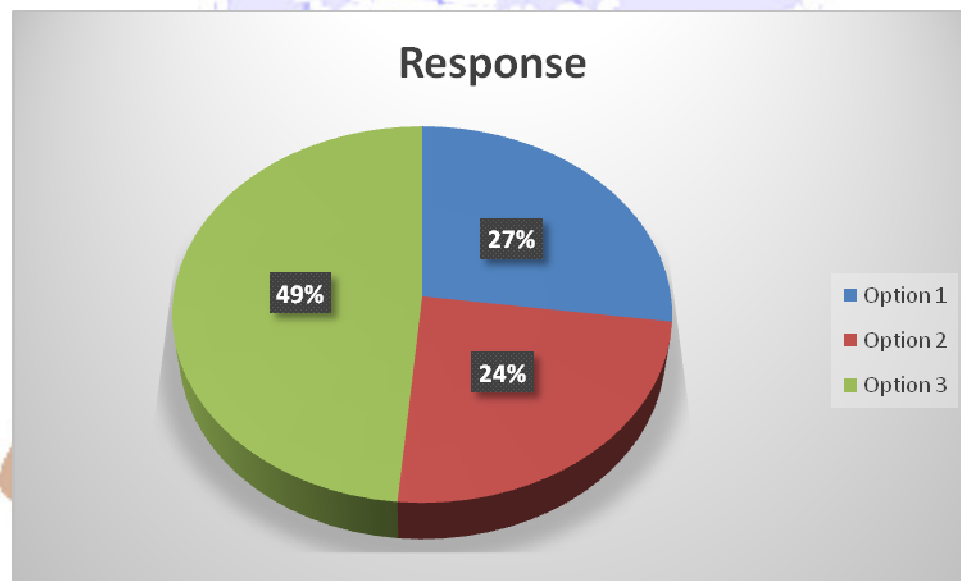
Answer this question if the teacher chooses **Yes** in above answer

a) What type of teaching aids you use?

- i) Are the teaching aids self-made.
- ii) Are the teaching aids bought from the market.
- iii) Are the teaching aids based on technology.

Table 4.20: Types of teaching aids

	Option 1	Option 2	Option 3
Response	19	17	34
%	27%	24%	49%

**Graph 4.20: Types of teaching aids**

Observation: 27% of teachers say that they use self-made teaching aids, 24% of teachers say that they use teaching aids bought from market and 49% of teachers say that they use technology-based teaching aids.

Interpretation: From the above result researcher interpretes that teachers find it convenient to use technology-based teaching aids while teaching in the classroom.

Data analysis of the question given below:

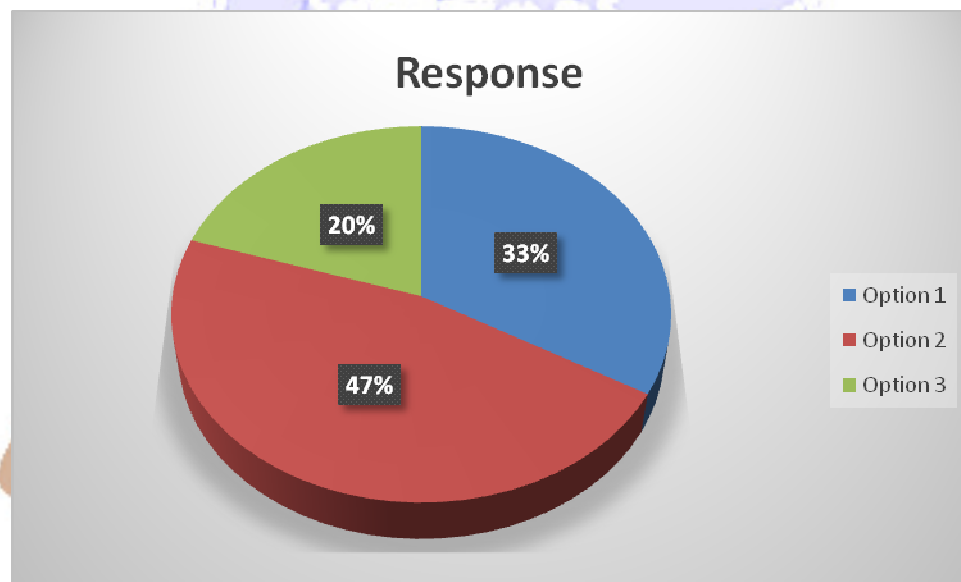
Answer this question if the teacher chooses **No** in above answer

b) What are reasons that you don't use teaching aids?

- i) Getting teaching aids from market is not economical.
- ii) Making teaching aids is a tedious job.
- iii) Self-made teaching aids are not legible in size according to the strength of the class.

Table 4.21: Reason teachers don't use teaching aids

	Option 1	Option 2	Option 3
Response	10	14	6
%	33%	47%	20%



Graph 4.21: Reason teachers don't use teaching aids

Observation: 33% of teachers say that they do not use teaching aids as teaching aids from the market are uneconomical, 47% of teachers say that making teaching aids is a tedious job and 20% of teachers say that self-made teaching is not legible according to the strength of the class.

Interpretation: From the above result researcher interpretes that teachers find it difficult to make teaching aids and think it is tedious job to make teaching aids

Data analysis of the question given below:

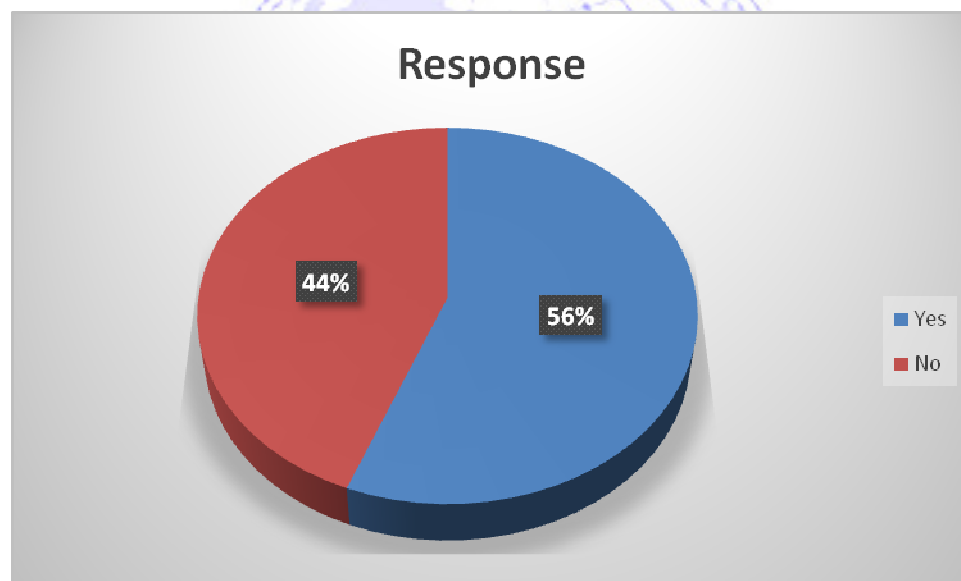
Q 11. Do you use group activities or cooperative task in your teaching method?

1) Yes

2) No.

Table 4.22: Use of group activities or cooperative strategies

	Yes	No
Response	56	44
%	56%	44%



Graph 4.22: Use of group activities or cooperative strategies

Observation: 56% of teachers say that they use group activities or co-operative tasks while classroom teaching and 44% of teachers say that they do not use group activities or co-operative tasks while classroom teaching.

Interpretation: From the above result researcher interpretes that most of the teachers say that they use group activities or co-operative tasks while teaching in classroom.

Data analysis of the question given below:

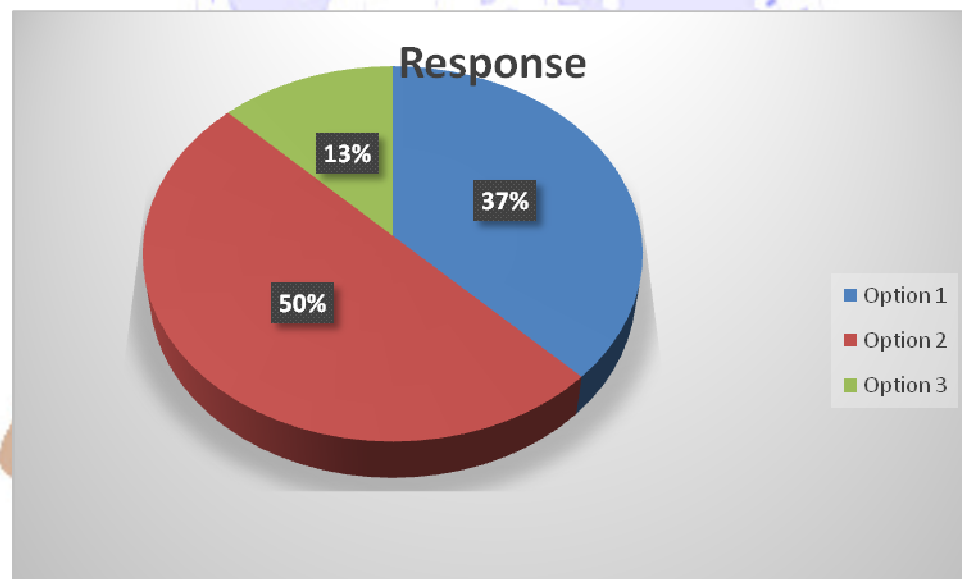
Answer this question if the teacher chooses **Yes** in above answer

a) What are the reasons for taking group activities or cooperative tasks in your teaching method?

- i) It shows active participation of students
- ii) It motivates the students to listen as well as speak like a leader.
- iii) It teaches students not to accept any idea blindly.

Table 4.23: Reasons for taking group activities or cooperative strategies

	Option 1	Option 2	Option 3
Response	21	28	7
%	37%	50%	13%



Graph 4.23: Reasons for taking group activities or cooperative strategies

Observation: 37% of teachers say that they use group activities or co-operative tasks as they show active participation of students, 50% of teachers say that they use group activities or co-operative tasks as it motivates the students to listen as well as speak like a leader, and 13% of teachers say that they use group activities or co-operative tasks as it teaches students not to accept any idea blindly.

Interpretation: From the above result researcher interpretes that according to most of the teachers group activities or co-operative tasks motivates the students and inculcate leadership qualities in the students.

Data analysis of the question given below:

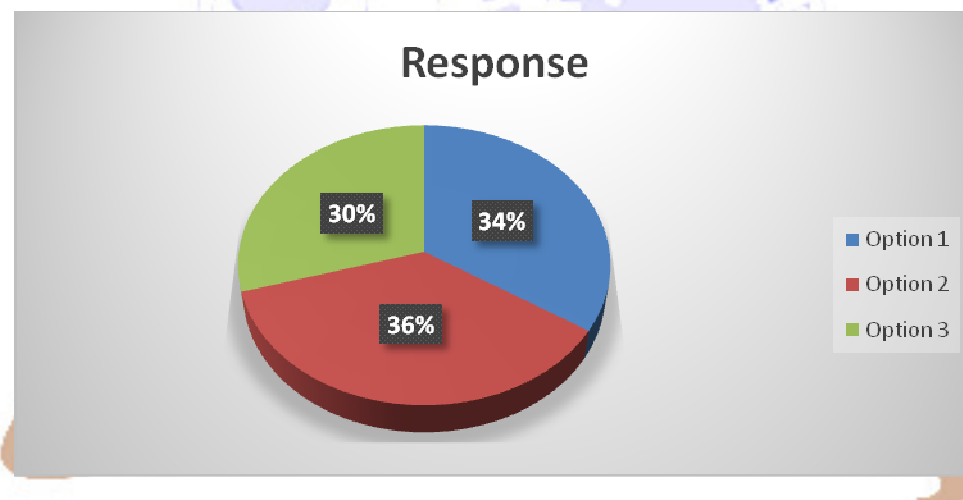
Answer this question if the teacher chooses No in above answer

b) Are the reasons for not taking group activities or cooperative tasks in your teaching method?

- i) It is time consuming.
- ii) Group discussions go out of track
- iii) It requires more space than lecture.

Table 4.24: Reasons for not taking group activities or cooperative strategies

	Option 1	Option 2	Option 3
Response	15	16	13
%	34%	36%	30%



Graph 4.24: Reasons for not taking group activities or cooperative strategies

Observation: 34% of teachers say that they do not use group activities or co-operative tasks as it consumes lots of time, 36% of teachers say that they do not use group activities or co-operative tasks as group discussions go out of track, and 30% of teachers say that they do not use group activities or co-operative tasks as it requires more space than lecture.

Interpretation: From the above result researcher interpretes that according to most of the teachers do not use group activities or co-operative tasks as it is time consuming and also the group discussions go out of the track

Data analysis of the question given below:

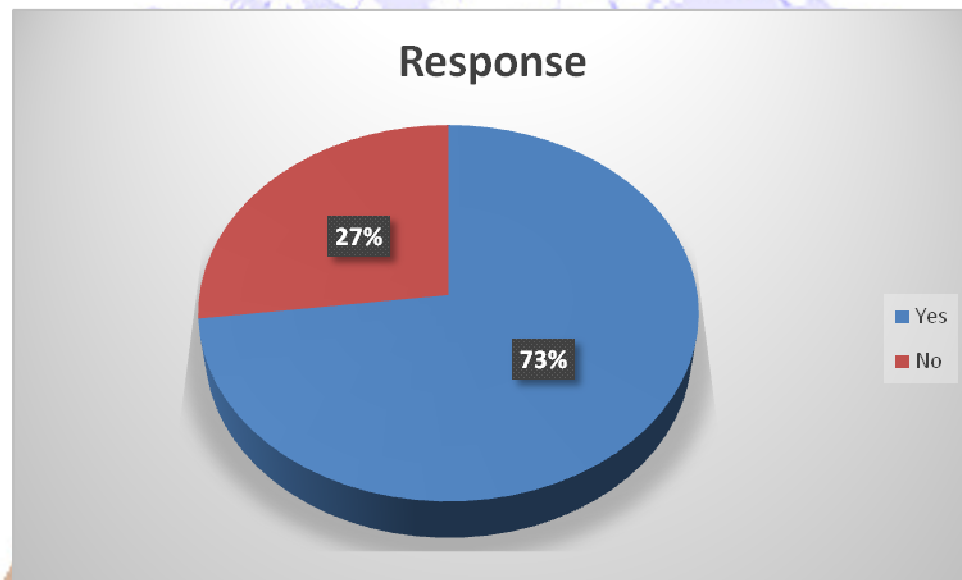
Q 12. Can you explain finer details of the concern topics easily in the class?

1) Yes

2) No.

Table 4.25: Explaining finer concepts and details

	Yes	No
Response	73	27
%	73%	27%



Graph 4.25: Explaining finer concepts and details

Observation: 73% of teachers say that they can explain finer details of the concepts easily and 27% of teachers say that they find it difficult to explain finer details of the concepts in the classroom while teaching.

Interpretation: From the above result researcher interpretes that most of the teachers say that they find it easier to explain the finer details in the concept easily which is due to the following reasons given in the next question.

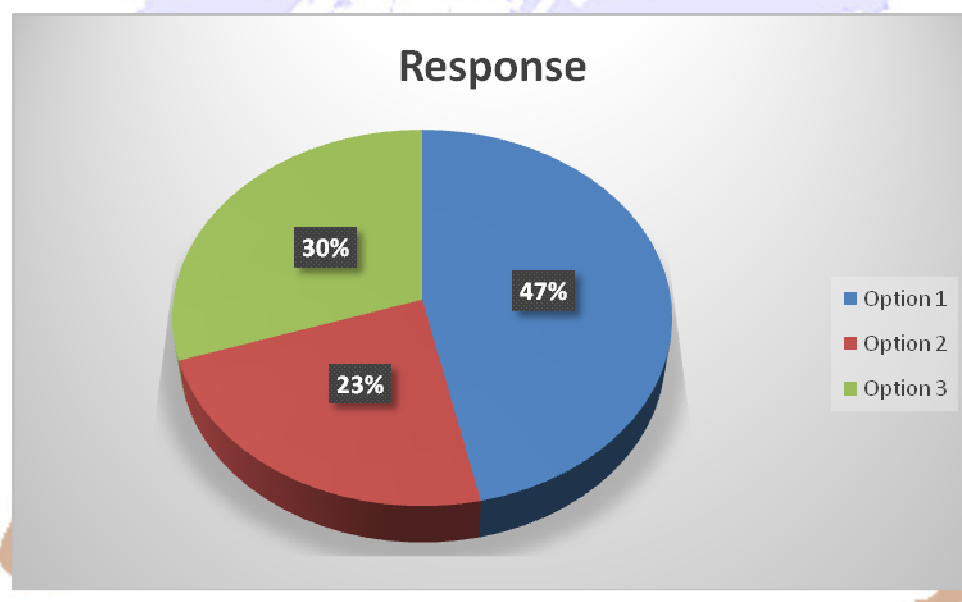
Data analysis of the question given below:

Answer this question if the teacher chooses Yes in above answer

- a) What are the reasons that teacher can explain finer details very easily in the class?**
- i) Teacher explains it by drawing diagrams in class.
 - ii) Teacher shows it practically by making slides.
 - iii) Teacher uses technology-based videos in explaining finer details.

Table 4.26: Reasons why teacher can explain finer concepts and details

	Option 1	Option 2	Option 3
Response	34	17	22
%	47%	23%	30%



Graph 4.26: Reasons why teacher can explain finer concepts and details

Observation: 47% of teachers say that they can explain finer details of the concept easily by drawing diagrams in the class, 23% of teachers say that they can explain finer details of the concept by making slides practically, and 30% of teachers say that they explain finer details of the concepts by technology-based videos.

Interpretation: From the above result researcher interpretes that according to most of the teachers they can explain finer details of the concept by drawing diagrams on the black board or by using technology-based videos.

Data analysis of the question given below:

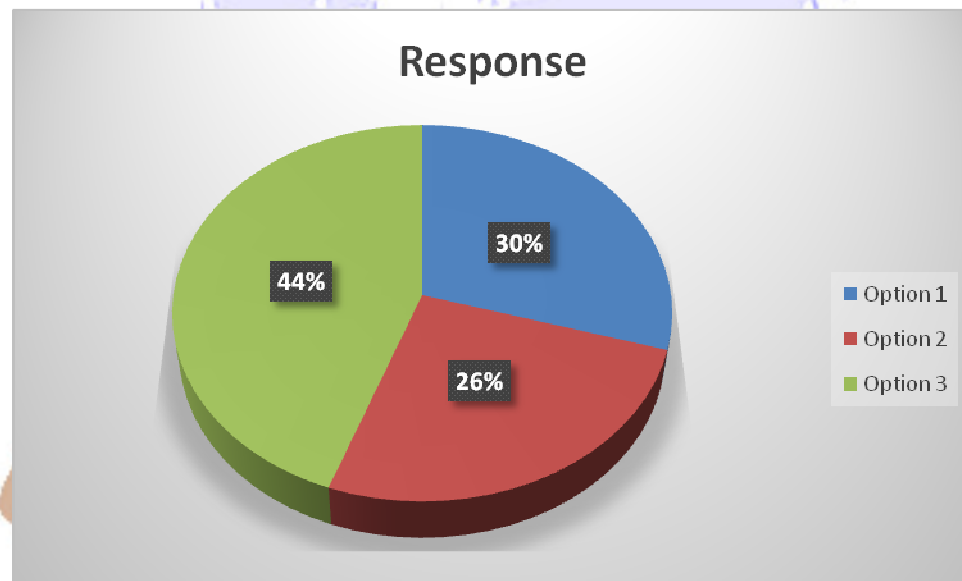
Answer this question if the teacher chooses No in above answer

b) What are the reasons that teacher cannot explain finer details very easily in the class?

- i) Teacher is not good in drawing
- ii) Teacher’s practical skills are not good.
- iii) Teacher has very less knowledge of technology.

Table 4.26: Reasons why teacher can explain finer concepts and details

	Option 1	Option 2	Option 3
Response	8	7	12
%	30%	26%	44%



Graph 4.27: Reasons why teacher cannot explain finer concepts and details

Observation: 30% of teachers say that they cannot explain finer details of the concept easily as they are not good in drawing diagrams, 26% of teachers say that they cannot explain finer details of the concept as they are not good in practical skills, and 44% of teachers say that they cannot explain finer details of the concepts as they have less knowledge of technology.

Interpretation: From the above result researcher interpretes that according to most of the teachers they cannot explain finer details of the concept as they have less knowledge of technology.

Data analysis of the question given below:

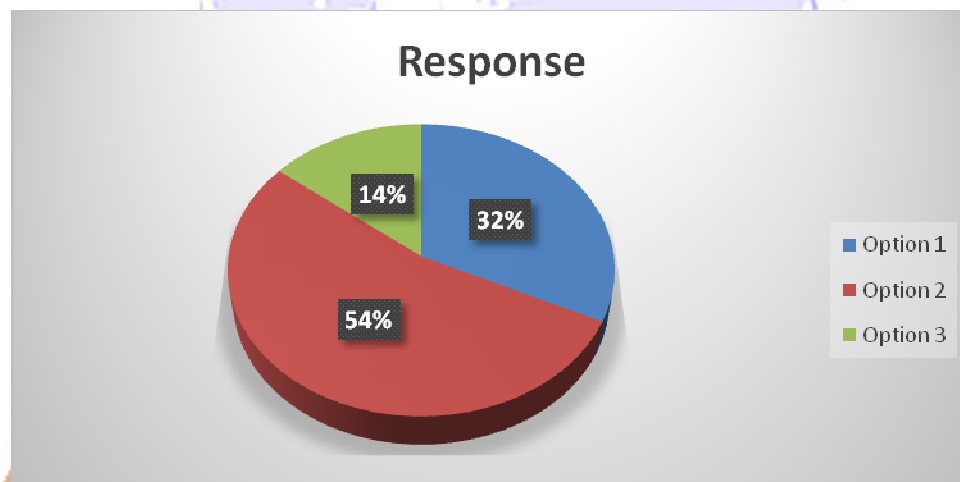
Answer this question if the teacher chooses **No** in above answer

What are the reasons that teaching method does not develop interest among students?

- i) Teacher only uses the same traditional method.
- ii) No models of teaching methods used.
- iii) Teacher’s knowledge of technology is negligible.

Table 4.29: Reason why teacher cannot develop interest among the students

	Option 1	Option 2	Option 3
Response	9	15	4
%	32%	54%	14%



Graph 4.29: Reason why teacher cannot develop interest among the student

Observation: 32% of teachers say that their teaching methods cannot create interest as they use traditional method of teaching, 54% of teachers say that they not use any models of teaching due to which they cannot create interest among the students, and 14% of teachers say that their technology knowledge is negligible due to which they cannot create interest among the students.

Interpretation: From the above result researcher interpreates that according to most of the teachers their teaching methods does not create interest among the students as they do not use any models of teaching and they only use the old traditional method of teaching.

Data analysis of the question given below:

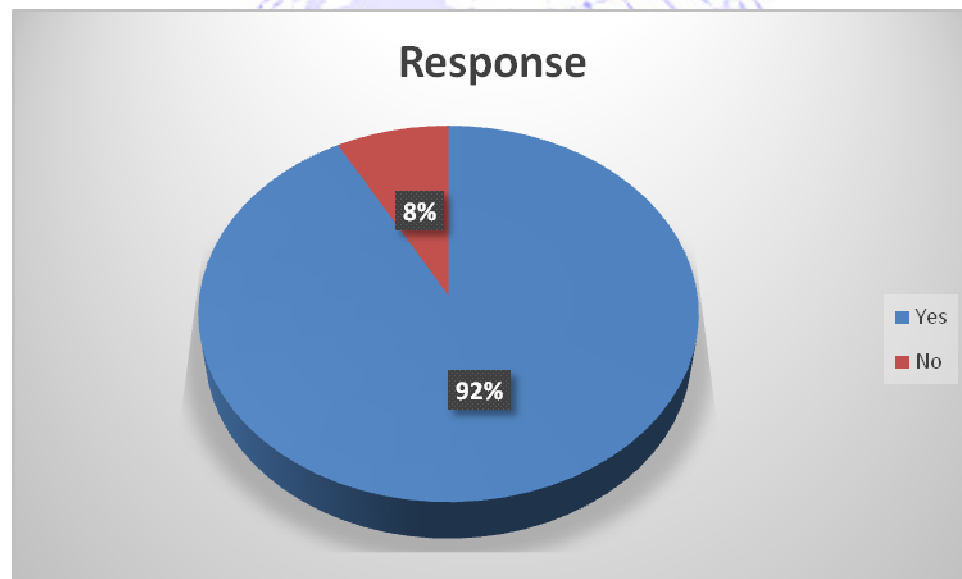
Q 14. Can you control the class easily in your lecture?

1) Yes

2) No.

Table 4.30: Controlling the class

	Yes	No
Response	92	8
%	92%	8%



Graph 4.30: Controlling the class

Observation: 92% of teachers say that they can control their class very easily and 8% of teachers say that it becomes difficult for them to control the class.

Interpretation: From the above result researcher interpretes that most of the teachers say that they can control their class very easily

Data analysis of the question given below:

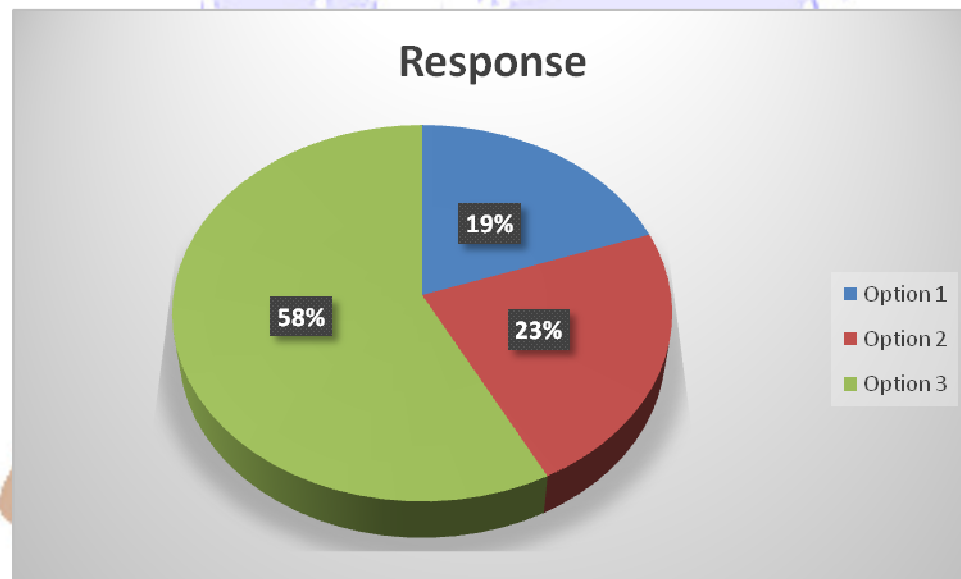
Answer this question if the teacher chooses yes in above answer

a) What are the reasons that you can control the class very easily?

- i) Teacher has documented strict rules for discipline in class.
- ii) Teacher encourages initiative of students in the class.
- iii) Teacher uses motivational and behavior reinforcement techniques.

Table 4.31 Reasons why teacher cannot control the class

	Option 1	Option 2	Option 3
Response	18	21	53
%	23%	19%	58%



Graph 4.31: Reasons why teacher cannot control the class

Observation: 23% of teachers say that they have documented strict rules for discipline in class due to which they can control the class easily, 19 % of teachers say that they encourage initiative of students in the class which helps them to control the class, and 58% of teachers say that they use motivational and behavior reinforcement techniques which helps them to control the class easily.

Interpretation: From the above result researcher interpretes that according to most of the teachers they can control the class easily by using motivational and behavior reinforcement techniques.

Data analysis of the question given below:

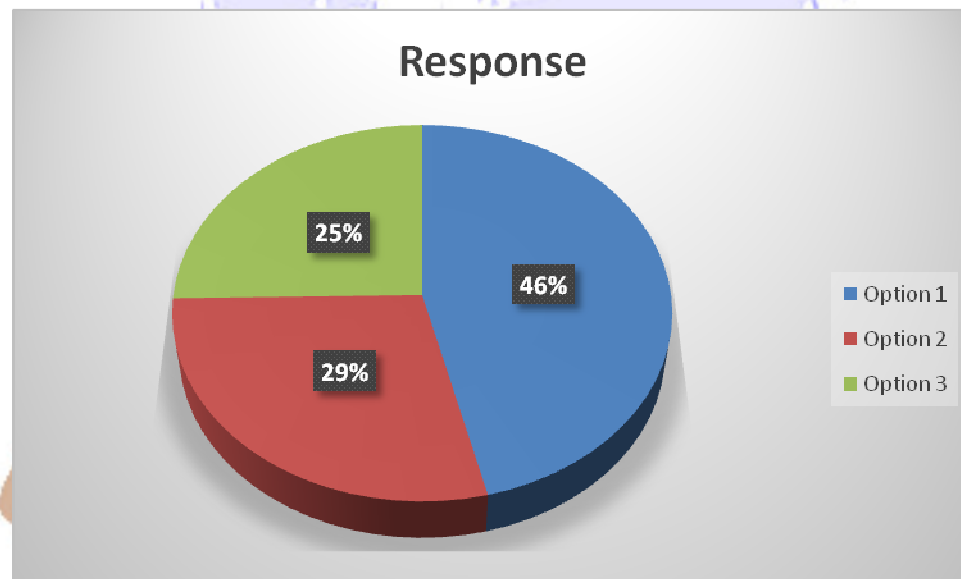
Answer this question if the teacher chooses **Yes** in above answer

a) Which methods does teacher use to create scientific attitude among the students?

- i) Teacher used constructive approach of teaching.
- ii) Teacher uses learning by doing method.
- iii) Teacher uses the method of self-study and self-direction

Table 4.33: Methods used to create scientific attitude among the students

	Option 1	Option 2	Option 3
Response	42	26	23
%	47%	28%	25%



Graph 4.33: Methods used to create scientific attitude among the students

Observation: 47% of teachers say that they are able to create scientific attitude among the students by using constructive approach of teaching, 28 % of teachers say that they create scientific attitude among the students by using learning by doing method, and 25% of teachers say that they create scientific attitude among the students by using method of self-study and self-direction.

Interpretation: From the above result researcher interpreates that according to most of the teachers they are able to create scientific attitude among the students by constructive approach of teaching.

Data analysis of the question given below:

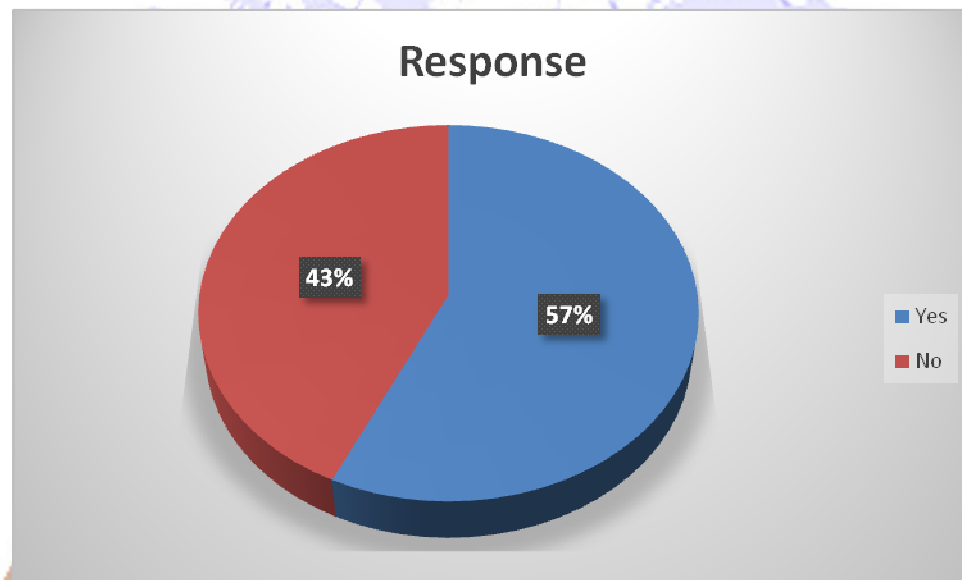
Q 16. Do you use project method in your teaching?

1) Yes

2) No.

Table 4.34 Use of project method

	Yes	No
Response	57	43
%	57%	43%



Graph 4.34 Use of project method

Observation: 57% of teachers say that they use project method in their teaching method and 43% of teachers say that they do not use project method in their teaching method.

Interpretation: From the above result researcher interpretes that most of the teachers say that they use project method in their teaching. The reasons for using project method are given in the next question.

Data analysis of the question given below:

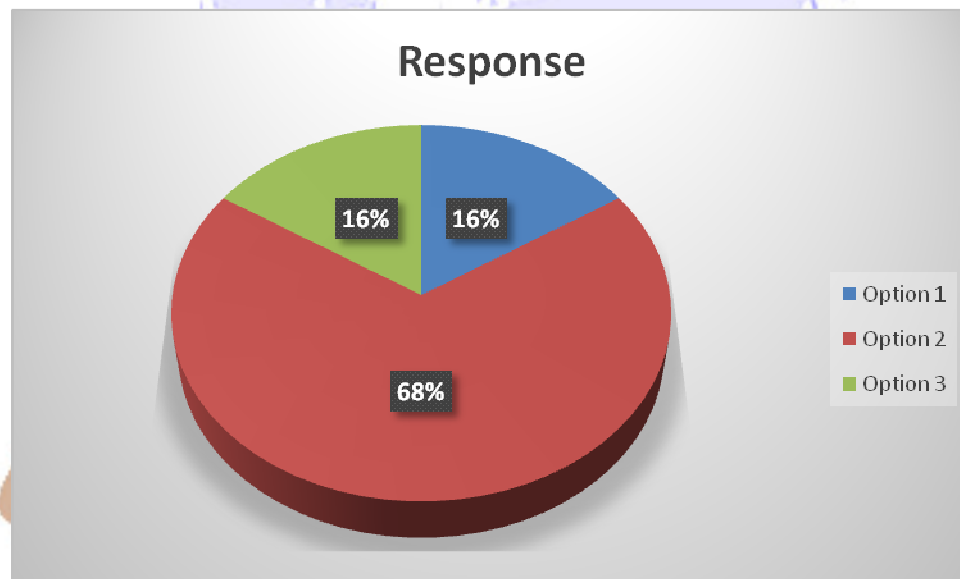
Answer this question if the teacher chooses yes in above answer

a) What are the reasons for using project method in you teaching method?

- i) It widens the mental horizons of the students.
- ii) It stimulates constructive and creative thinking.
- iii) Students develop coordination between body and mind.

Table 4.35: Reasons for using project method in teaching

	Option 1	Option 2	Option 3
Response	9	39	9
%	16%	68%	16%



Graph 4.35: Reasons for using project method in teaching

Observation: 16% of teachers say that project method widens the mental horizons of the students, 68 % of teachers say that project method stimulates constructive and creative thinking, and 16% of teachers say that project method develops co-ordination between body and the mind.

Interpretation: From the above result researcher interpreates that according to most of the teachers say that project method stimulates constructive and creative thinking among the students.

Data analysis of the question given below:

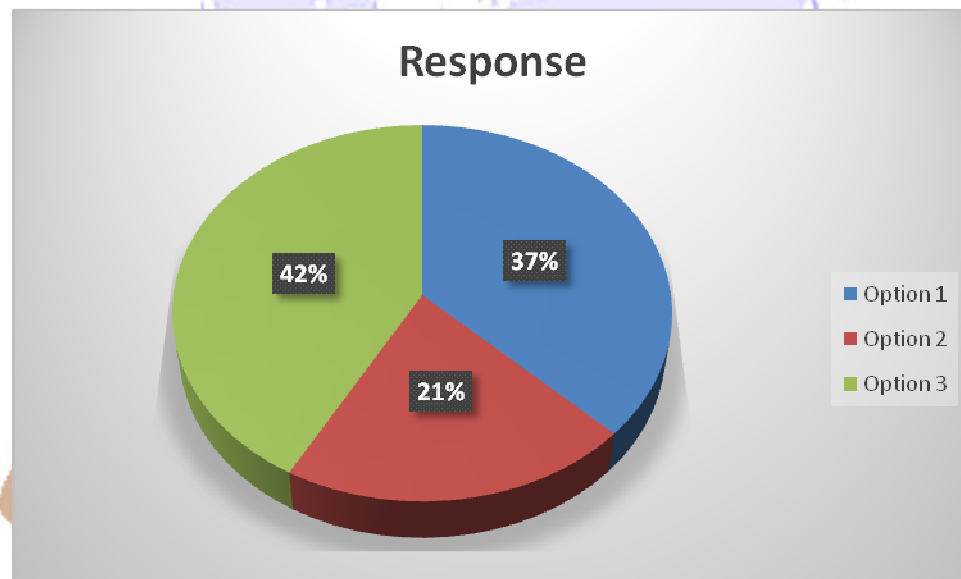
Answer this question if the teacher chooses **No** in above answer

b) What are the reasons for not using project method in you teaching method?

- i) It takes lot of time to plan and execute.
- ii) It requires large number of financial resources.
- iii) It is difficult to cover all topics in single project.

Table 4.36: Reasons for not using project method in teaching

	Option 1	Option 2	Option 3
Response	16	9	18
%	37%	21%	42%



Graph 4.36: Reasons for not using project method in teaching

Observation: 37% of teachers say that they do not use project method as it takes lots of time to plan and execute, 21 % of teachers say that they do not use project method as it requires lots of financial resources, and 42% of teachers say that they do not use project method as it is difficult to cover many topics in single project.

Interpretation: From the above result researcher interpreates that according to most of the teachers, they do not use project method as it is difficult to cover many topics in single project.

Data analysis of the question given below:

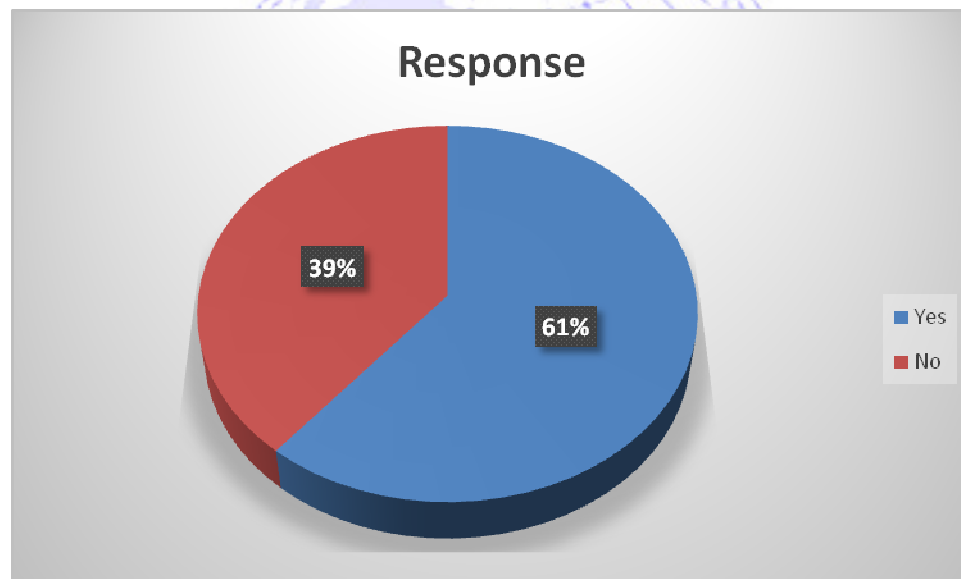
Q 17. Do you use ICT while teaching your subject?

1) Yes

2) No.

Table 4.37: Use of ICT while teaching

	Yes	No
Response	61	39
%	61%	39%



Graph 4.37: Use of ICT while teaching

Observation: 61% of teachers say that they use ICT in their teaching method and 39% of teachers say that they do not use ICT in their teaching method.

Interpretation: From the above result researcher interpretes that most of the teachers say that they use ICT in their teaching. The reasons for using ICT are given in the next question.

Data analysis of the question given below:

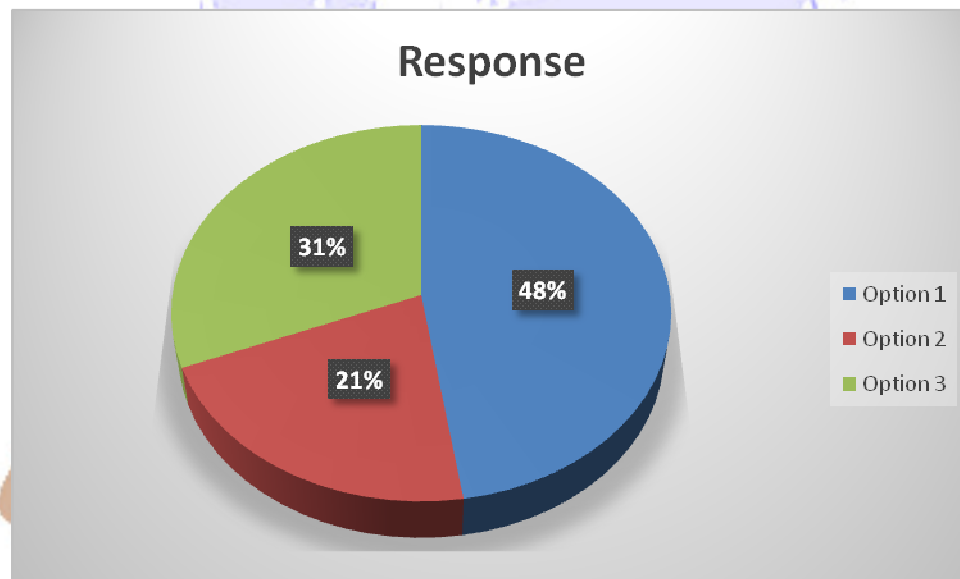
Answer this question if the teacher chooses **Yes** in above answer

a) What are the reasons for using ICT method in you teaching method?

- i) Learning with technology is much more interesting.
- ii) It provides access to numerous resources instantly.
- iii) It creates collaborative approach and makes it easy to learn core vocational skills.

Table 4.38: Reasons for using ICT while teaching

	Option 1	Option 2	Option 3
Response	29	13	19
%	48%	21%	31%



Graph 4.38: Reasons for using ICT while teaching

Observation: 48% of teachers say that learning with technology is much more interesting, 21 % of teachers say that technology provides access to numerous resources instantly, and 31% of teachers say that technology creates collaborative approach and makes it easy to learn core vocational skills.

Interpretation: From the above result researcher interpretes that according to most of the teachers learning with technology is much more interesting.

Data analysis of the question given below:

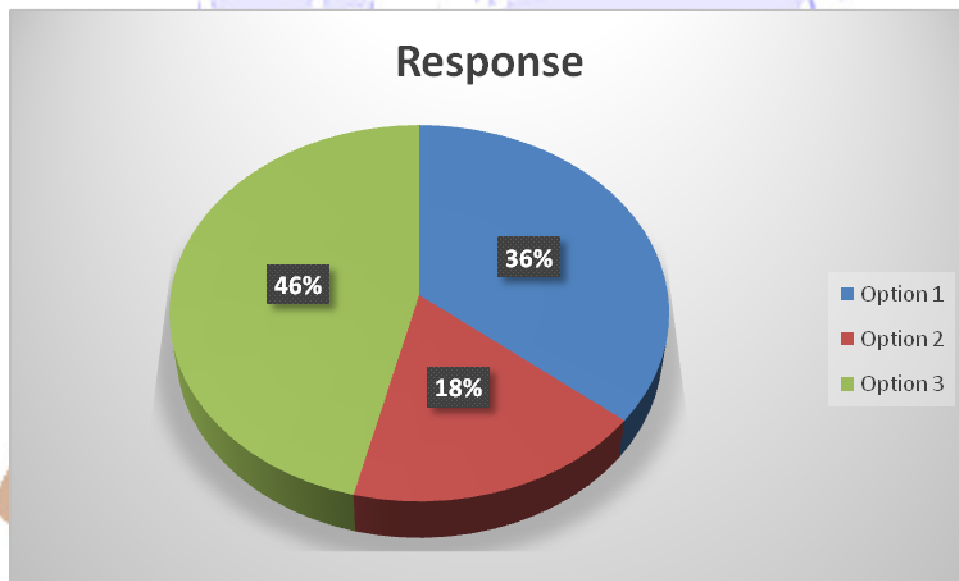
Answer this question if the teacher chooses **No** in above answer

b) What are the reasons for not using ICT method in you teaching method?

- i) It makes curriculum planning more difficult and expensive.
- ii) It results in a lack of interest in studying.
- iii) There are lot of instructional challenges faced by teachers.

Table 4.39: Reasons for not using ICT while teaching

	Option 1	Option 2	Option 3
Response	14	7	18
%	36%	18%	46%



Graph 4.39: Reasons for not using ICT while teaching

Observation: 36% of teachers say that they do not use ICT method as it makes curriculum planning more difficult and expensive., 18 % of teachers say that ICT results in a lack of interest in studying, 46% of teachers say that they face lot of instructional challenges.

Interpretation: From the above result researcher interpreates that according to most of the teachers, they do not use ICT as they face instructional challenges due to lack of knowledge.

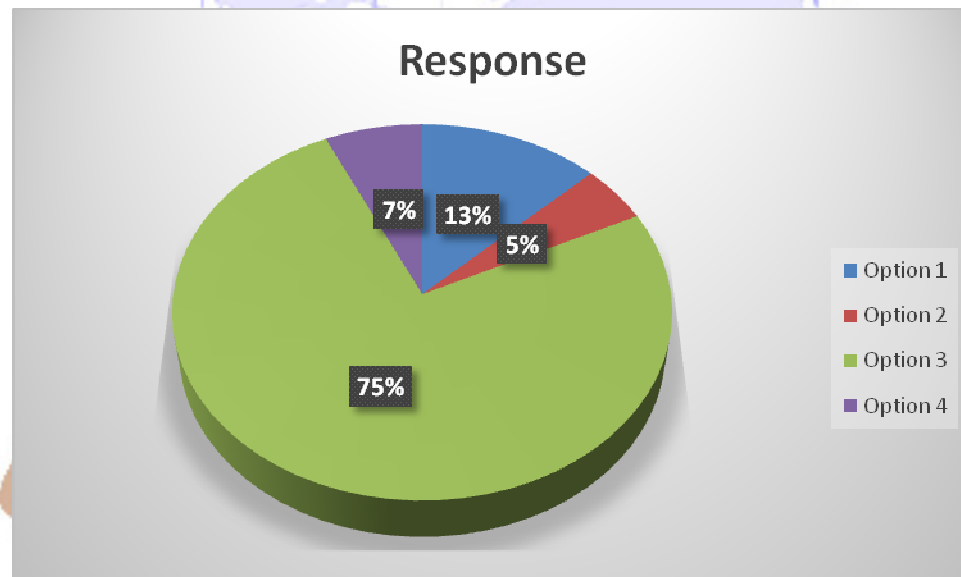
Data analysis of the question given below:

Q 18. Which method of instructional technology do you use in teaching?

- 1) Power point presentation
- 2) Animated videos
- 3) Both
- 4) None of these

Table 4.40: Methods of instructional design

	Option 1	Option 2	Option 3	Option 4
Response	13	5	75	7
%	13%	5%	75%	7%



Graph 4.40: Methods of instructional design

Observation: 13% of teachers say that they use only PowerPoint presentation in their teaching, 5% of teachers say that they use animated videos in their teaching, 75% of teachers say that they use PowerPoint presentation and animated videos both in their teaching, and 7% of teachers say that they use neither PowerPoint presentation nor animated videos in their teaching.

Interpretation: From the above result researcher interprets that according to most of the teachers, they use PowerPoint presentation and animated videos both in their teaching.

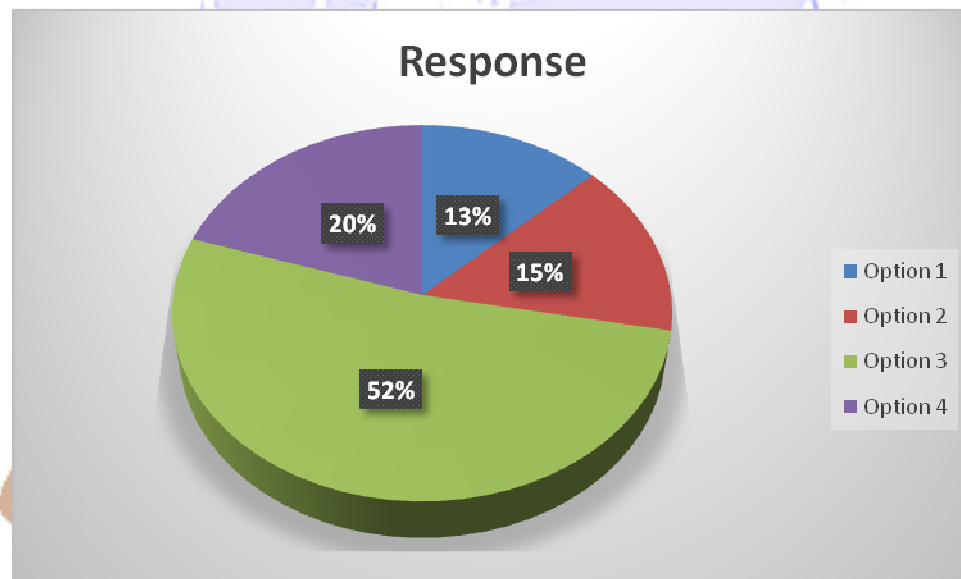
Data analysis of the question given below:

Q 19. Which animated videos do you use?

- 1) 2 D animation
- 2) 3 D animation
- 3) Both
- 4) None of these

Table 4.41 Types of animated videos

	Option 1	Option 2	Option 3	Option 4
Response	13	15	52	20
%	13%	15%	52%	20%



Graph 4.41: Types of animated videos

Observation: 13% of teachers say that they use only 2D animated videos in their teaching, 15% of teachers say that they use 3D animated videos in their teaching, 52% of teachers say that they use 2D animated videos and 3D animated videos both in their teaching, and 20% of teachers say that they use neither 2D animated videos nor 3D animated videos in their teaching.

Interpretation: From the above result, the researcher interprets that according to most of the teachers, they use 2D animated videos and 3D animated videos both in their teaching.

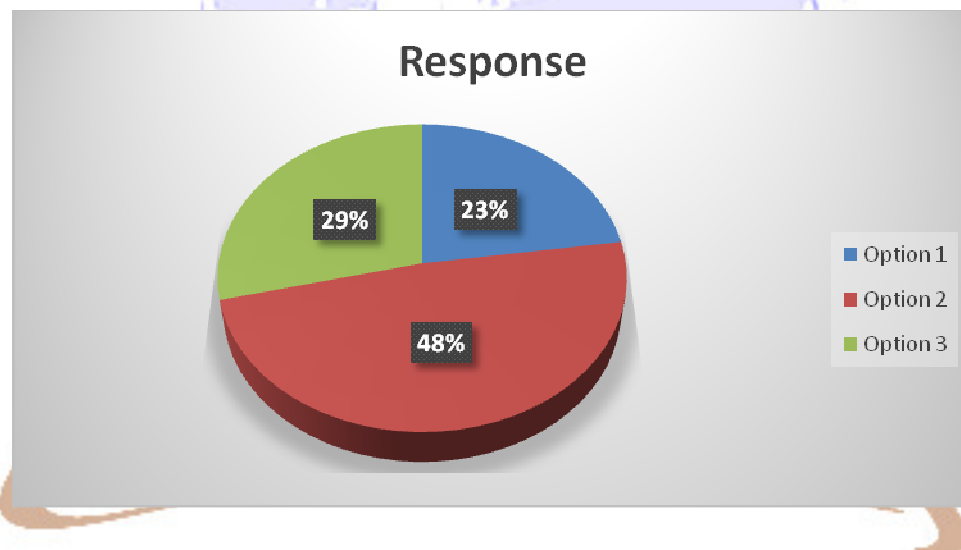
Data analysis of the question given below:

a) Why was it easy for you teach with animated videos during online lectures in Covid period?

- i) Animation videos holds the student’s attention.
- ii) It helps in imagining and learning the concepts with ease.
- iii) Animation adds fun to learning and motivates one to look for more information to learn.

Table 4.43: Reasons why teaching with 3D animated videos was easy during covid period

	Option 1	Option 2	Option 3
Response	15	32	19
%	23%	48%	29%



Graph 4.43: Reasons why teaching with 3D animated videos was easy during covid period

Observation: 23% of teachers say that Animation videos holds the student’s attention, 48 % of teachers say that Animated videos helps in imagining and learning the concepts with ease, and 29% of teachers say that Animation adds fun to learning and motivates one to look for more information to learn.

Interpretation: From the above result researcher interpreates that according to most of the teachers learning with 3D animation videos helps in imagining and learning the concepts with ease.

Data analysis of the question given below:

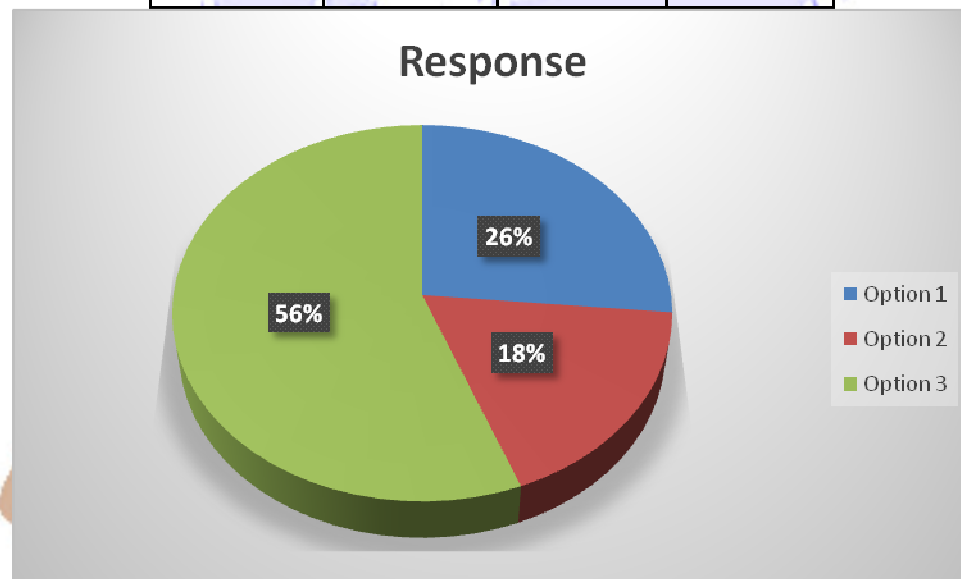
Answer this question if the teacher chooses **No** in above answer

b) Why was it difficult for you teach with animated videos during online lectures in Covid period?

- i) Animation videos required high speed and uninterrupted net connection.
- ii) It is difficult to handle for teachers from technical perspective.
- iii) All the content related videos were not available on internet.

Table 4.44: Reasons why teaching with 3D animated videos was difficult during covid period

	Option 1	Option 2	Option 3
Response	9	6	19
%	26%	18%	56%



Graph 4.44: Reasons why teaching with 3D animated videos was difficult during covid period

Observation: 26% of teachers say that they do not use Animation videos as they require high speed and uninterrupted net connection, 18 % of teachers say that they do not use Animation videos as it is difficult to handle for teachers from technical perspective and 56% of teachers say that they do not use Animation videos as all the content related videos are not available on internet.

Interpretation: From the above result researcher interpreates that most of the teachers say that they do not use Animation videos as all the content related videos are not available on internet.

Conclusions of the data of survey method

1. The teachers use technology while teaching.
2. Technology based methods keeps students much more active.
3. The teachers think learning with technology is much more interesting.
4. Teachers dictates self-made notes during classroom teaching.
5. Teachers use technology in showing dissections in practicals which make it easier for students to understand it.
6. The teachers use technology for teaching finer details in biology.
7. The teachers use technology-based teaching aids in their teaching.
8. Teachers use Cooperative tasks or group activities in the class.
9. Teachers use constructivist type of teaching.
10. Teacher uses project method in teaching subject Biology.
11. Teachers find it difficult to teach finer concepts in Biology due to which they are not able to complete their syllabus on time.
12. Most of the teachers use power point presentation and animated video as teaching aids.
13. Teachers have used 2D and 3D animated videos during online classes in Covid period.
14. Learning with 3D animation videos helps in imagining and learning the concepts with ease.
15. Teachers faced lots of difficulties in using animated videos as they could not find content related videos on internet.

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