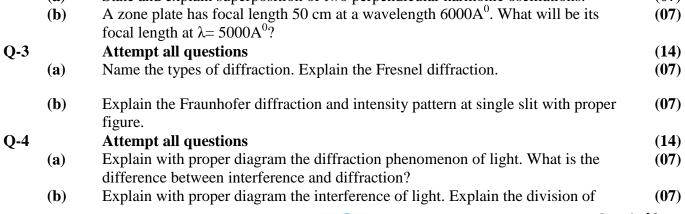
| | Enrollm | ent No: | ~~~ | Exam Seat No: | | | |
|-------|-------------------------|---|--|---|--------------|--|--|
| | | C.U | SHAH U | INIVERSITY | | | |
| | Winter Examination-2018 | | | | | | |
| | Subject 1 | Name: Waves and | Optics | | | | |
| | Subject Code: 4SC04WAO1 | | | Branch: B.Sc. (Chemistry, Physics) | | | |
| | Semester | :: 4 Date: | 31/10/2018 | Time: 10:30 To 01:30 Mark | ks: 70 | | |
| | (2) I (3) I | Use of Programmable instructions written of | on main answer boo and figures (if nece | other electronic instrument is prohibited. ok are strictly to be obeyed. essary) at right places. | | | |
| Q-1 | | Attempt the follow | wing questions: | | (14) | | |
| | a) | Define a Wave from | nt. | | | | |
| | b) | Define Zone plate. | | | | | |
| | c) | What are acoustic | | | | | |
| | d) | Name the types of | polarizations. | | | | |
| | e) f) | Define aperture. What is polarization | an? | | | | |
| | g) | Define beats. | ·11: | | | | |
| | h) | What do you mean | by double slit? | | | | |
| | i) | Write a statement of | on the nature of ligh | | | | |
| | j) | | stand by Electroma | agnetic waves? | | | |
| | k) | Define refractive in | | | | | |
| | l) m) | What is Doppler et | | omatic and polychromatic light. | | | |
| | n) | 1.1 | osition of waves me | ean? | | | |
| Atten | , | Cour questions from | | | | | |
| Q-2 | | Attempt all quest | ions | | (14) | | |
| | (a) (b) | State and explain s | uperposition of two ocal length 50 cm a | o perpendicular harmonic oscillations. t a wavelength 6000A ⁰ . What will be its | (07) (07) | | |
| Q-3 | | Attempt all quest | | | (14) | | |
| - | (a) | | | n the Fresnel diffraction. | (07) | | |
| | (b) | Explain the Fraunh | ofer diffraction and | d intensity pattern at single slit with proper | (07) | | |





| | | amplitude and wave front with proper examples. | | | | |
|-----|------------|---|--------------|--|--|--|
| Q-5 | | Attempt all questions | | | | |
| | (a) | A plane wave front of light of wavelength 5000A ⁰ falls on an aperture and the | (08) | | | |
| | | diffraction pattern is observed in an eyepiece at a distance of 1 meter from the | | | | |
| | | aperture. Find the radius of the 100th half period element and the area of a half | | | | |
| | | period zone. | | | | |
| | (b) | Explain Huygens's principle. | (06) | | | |
| Q-6 | | Attempt all questions | | | | |
| _ | (a) | What is Fresnel Biprism? Explain with suitable diagram how light behaves on | (07) | | | |
| | | passing through a biprism. | | | | |
| | (b) | Explain the process of image formation in Lloyd's Mirror. | (07) | | | |
| Q-7 | | Attempt all questions | (14) | | | |
| | (a) | What are Lissajous figures? How are they produced? | (06) | | | |
| | (b) | Explain the construction and working of Michelson's interferometer with a neat | (08) | | | |
| | . , | diagram. | ` ′ | | | |
| Q-8 | | Attempt all questions | (14) | | | |
| • | (a) | Name and define the two types of interference and give the condition of each | (07) | | | |
| | ` / | type in terms of phase and path difference. | ` ' | | | |
| | (b) | Explain the Young's double slit experiment briefly | (07) | | | |

