Section-4 Q1 Ans:-

⇒ **Cutting action of Grinding wheel:-**

- A grinding wheel consists of abrasive particles which are bonded by bond materials and these abrasive material act as cutting tool tip.
- In cutting process, the abrasive particles at cutting edge become dulled, & these becomes cracked along the cleavage planes due to resistance offered by w/p material which resist the cutting action.

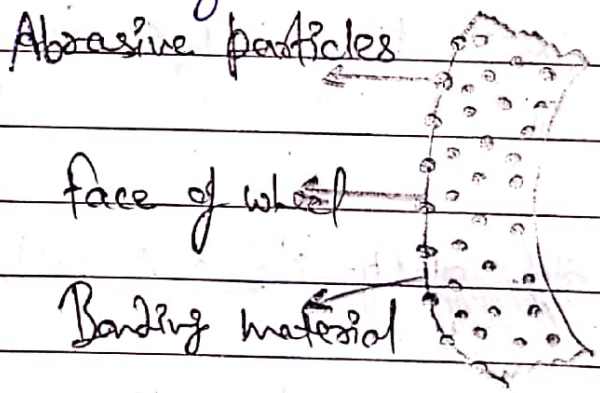

fig:- Grinding wheel.

⇒ **Grinding wheel Specification:-**

- The type of Grit material.
- The grite size.
- The bond strength of the wheel, Commonly known as wheel hardness.
- The str. of wheel denoting the porosity.
- The type of bond material.
- Other than these parameters the wheel manufacturer may add their own identification code prefixing & suffixing the standard code.

Page No.
Date

- A grinding wheel is specified by the following parameters :-

Prefix	Abrasive	Grain Size	Grade	Structure	Bond type	Suffix
W	A	46	K	5	V	17

Prefix → Manufactures abrasive Code

Abrasive
- A → Aluminium Oxide
- C → Silicon Carbide
- Z → Zirconia

Grain Size

Coarse	Fine	Very Fine
8	80	220
10	100	240
12	120	280
14	150	320
16	180	400
20		500
24		600
Medium		
30		
36		
46		
60		

Structure

4	10
5	11
6	12
7	13
8	14
9	15

Bond type
- V → Vitrified
- B → Resin
- R → Rubber
- E → Shellac
- P → Epoxy

Suffix → Manufactures Bond Code

Grade

Soft	Medium	Hard
ABCDEFGHIJK	LMNO	PQRSTUVWXYZ

fig :- Standard marking system for grinding wheels.

(iv) Centre Grinding :- In centre grinding, the part is secured b/w two pointed cone shaped centre.

- It is used to grind multi-diameter shafts & control their concentricity.
- Centre grinding involves the fixturing part on a spindle axis as it is ground.

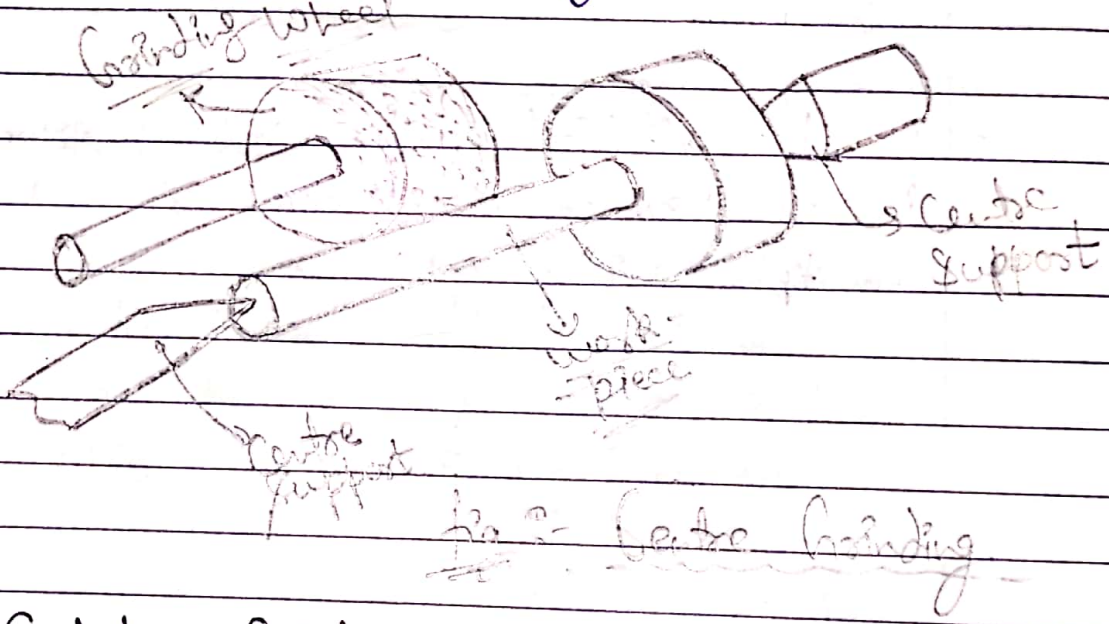

fig :- Centre Grinding

(v) Centreless Grinding :- It is the combination of grinding wheel & regulating wheel. Thus centreless grinding does not requires centre holes & fixtures for holding the workpiece.

- Centreless grinding is popular as a high speed, low cost operation.
- Centreless grinding is similar to centred grinding except that there is no spindle.

Page No.
Date

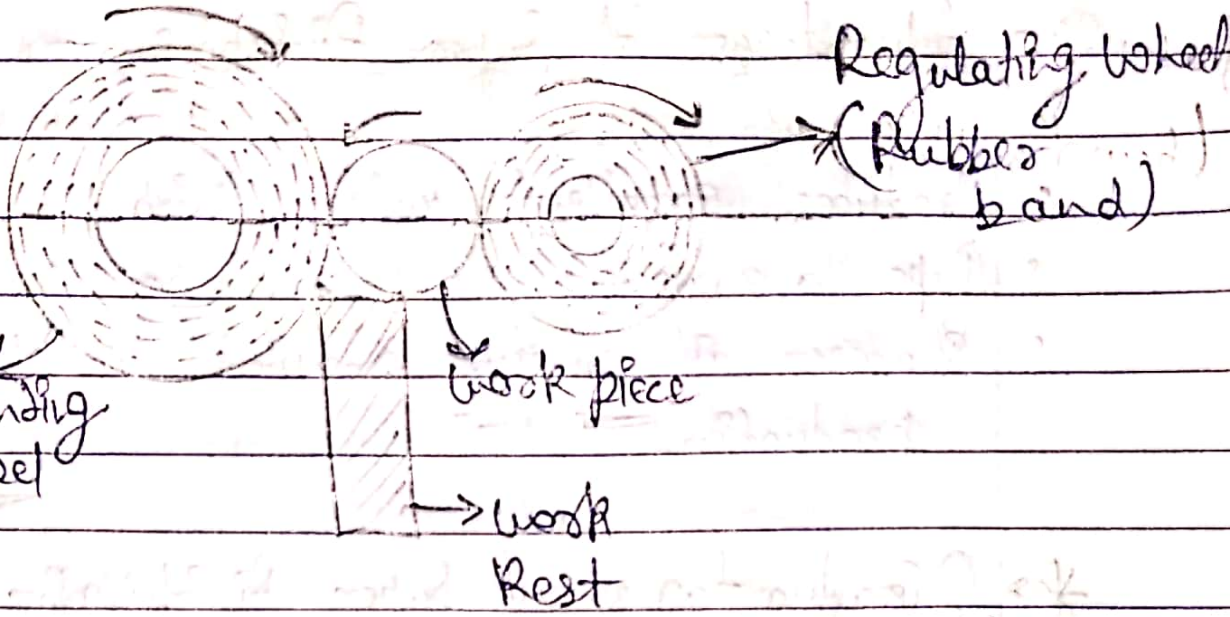

Fig:- Centreless Grinding.

* Types of Centreless grinding :-

(a) Through feed Grinding.
(b) In-feed Grinding.
(c) End-feed Grinding.