

C.U.SHAH UNIVERSITY

WADHWAN CITY

University (Winter) Examination -2013

Course Name: Diploma(Engineering) Sem-I Subject :Fundamentals of Structure and Mechanical Engineering

Marks:70

Duration :- 2:30 Hours

Date : 06/01/2014

Instruction

- (1) Attempt all Questions of both sections in same answer book / Supplementary.
 (2) Use of Programmable calculator & any other electronic instrument is prohibited.
 (3) Instructions written on main answer Book are strictly to be obeyed.
 (4) Draw neat diagrams & figures (If necessary) at right places.
 (5) Assume suitable & Perfect data if needed

SECTION-I

- Q.1 a) Define any four from followings:** 04
- (1) Surveying (2) Bearing (3) Tensile load (4) Shear force
 (5) Operating frequency
- b) Give the name of any four machines which require foundation. 02
- c) Give the meaning of following abbreviation: 01
- (1) hp (2)km/h
- Q.2 a) Write down the instruments used in chain and tap surveying with their uses.** 05
- b) Differentiate: Wood and Steel. 05
- c) Convert following F.B. (force bearing) to B.B. (back bearing): 04
- (1) 210° (2) 115° (3) $320^\circ 15'$ (4) $60^\circ 30'$

OR

- Q.2 a) Differentiate: Internal focusing telescope and external focusing telescope.** 05
- b) Find angle 'A' with help of following bearing: 05
- F.B. of line AB: $45^\circ 30'$ and F.B. of line EA: $55^\circ 30'$
- c) Which points should be kept in mind while stocking cement? 04
- Q.3 a) Explain the need of structural engineering in today's era.** 07
- b) Differentiate: Dumpy level and Y-level 07
- OR**
- Q.3 a) Differentiate: Map and Plan** 07
- b) Write down the types of Cement with its application. 07



SECTION - II

Q.4 Define any seven from followings: 07
(1) Stroke volume (2) Compression ratio (3) Boiler mountings
(4) Boiler accessories (5) Density (6) Viscosity (7) Speed ratio
(8) Boiler (9) Piston Speed.

Q.5 a) Explain MIG welding process with neat sketch. 05
b) Differentiate: Petrol engine and Diesel engine. 05
c) Explain Air pre-heater with neat sketch. 04

OR

Q.5 a) List out types of gear train and explain any one with neat sketch. 05
b) Differentiate: Flat belt and V-belt. 05
c) Write down advantages and disadvantages of pneumatic systems. 04

Q.6 a) Explain working principle of 4-stroke petrol engine with neat sketch. 07
b) Explain working principle of centrifugal pump with neat sketch. 07

OR

Q.6 a) Explain working of any one boiler from following with neat sketch. 07
(1) Babcock & Wilcox boiler (2) Cochran boiler
b) Explain Oxy acetylene gas welding with neat sketch and write down its advantages, disadvantages and applications. 07

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