EXAMINATION : AUTHORISATION B

April 2016

Practical Test   **Time Allowed - 1Hr**

Name & Surname _____   **Index No.** _____
(In Block letters)

The electrical load of a small factory consists of the following components.

a.   Two - 10KW three phase motors with power factor 0.8 and an efficiency of 85%.

b.   One – 40KW three-phase machine having a power factor of 0.85 and an efficiency of 78%.

c.   Four – 3KW, thermostatically controlled water heaters.

d.   Eight – 32A ring circuits feeding 13 A socket outlets.

e.   15KW of discharge lighting with power factor corrected to 0.85.

f.   Fifty lighting points for filament lamps.

The power supply is three phase 415/240 volts.

i.   Draw a single line diagram of the main switch-board indicating the current rating of each switch and type of protection.

ii.   Calculate the total current demand.

iii. Taking a diversity factor of 80 per cent and allowing a total of 50A for future expansion calculate a suitable size of switch-board and main circuit breaker for the installation.

Show all calculations.

                                                    (Total 40 Marks)