KRISHNA INSTITUTE OF MEDICAL SCIENCES
Dept. of Community Medicine
M. Sc. Epidemiology
Course:- 1504

Paper – 1st – 1504 – 11

Paper - 2nd -1504 -12

1. Preamble

The purpose of the M. Sc. Epidemiology programme is to train human resources in the science of public health, with a firm understanding of the determinants of health and the public health system in the country, the community context, the determinative influences of globalization urbanization, global and national policies and a strong foundation in research methodology.

2. Objectives

To prepare public health practitioners have the:

At the end of course should be able to

- Knowledge and skills of community diagnosis
- Ability to design strategies to enhance community health
- Skills to implement intervention programs
- Skills to develop public health policy
- Knowledge to evaluate the impact of public health policies on community health
- Leadership skills in public health administration

II To evolve public health as a discipline in Indian Universities, with these

Departments having the objective of training public health researchers who will produce data for planning public health policies

3. Eligibility

The course will be open to students with an undergraduate degree in biological, clinical and Social sciences including B. Sc. (life sciences, nursing, pharmacology dietetics), B.A. (Anthropology, Sociology, Psychology, LL.B. Journalism) MBBS, BAMS, BHMS, BUMS, BDS, MSW Or students from any other discipline with evidence of work in the field of public health

4. Duration of course - Two

5. Medium of Instruction - English

6. Attendance - 80%\

7. Departments Required – Community Medicine Biostatistics

Semester I

A) Paper – I

a) Theory -<u>90 Hrs</u> (Credits – 6)

<u>Epidemiology of communicable diseases.-</u>

- Air borne infections.
- Exanthematous fevers.
- Chicken pox, Rubella, and Measles
- Factors responsible to eradicate small pox.
- Influenza and ARI.
- Diphtheria and Pertussis
- Tuberculosis.
- Faeco-oral infections.
- Poliomyelitis.
- Hepatitis.
- Enteric Fever and Cholera
- Bacillary and Amoebic dysentery.
- Soil transmitted Helminths.
- Tetanus
- Rabies and other Viral Zoonotic disease.
- Leprosy.
- Leprosy.
- Malaria
- Filariasis.
- Arthropod borne viral diseases.
- Sexually transmitted diseases and their control.
- A.I.D.S.

Nutrition and Health.

- Constituents of food.
- Food and food groups.
- Diet planning and recommended dietary allowances.
- Nutritional diseases.
- Iodine deficiency disorders.
- Diseases due to vitamin and mineral imbalance
- Toxins in the food.
- Assessment of Nutritional status.
- Examination

b) Practical - (Hrs 120 , Credits – 4)

Entomology

Medical entomology

- Insects of medical importance

B)Paper - II

a) Theory –

Immunology 90 Hrs (Credits – 6)

Introduction to immunology

- Types of immunity: nonspecificphysiological and cellular barriers
- Acquired immunity- characteristics
- Antigen, Haptens and Adjuvants, Antibody
- Structure and types of immunoglobulins
- Types of immunoglobulins
- Distribution of immunoglobulins
- Function of immunoglobulins
- Cells and Organs of Immune system
- Organs of immune system – primary and secondary
- Cells of immunsystem
- Humoral Immuneresponse
- Cell mediated immuneresponse

b) Practical -(Hrs 120 , Credits – 4)

Inspection of public places

- Hotels & Restaurants
- Slaughter houses
- Roadside vendors

C) Generic electives - (Hrs 120; Theory 30 Practical 90 , Credits – 5)

▪ Stress management

a) Theory -

- Stress Eustress Distress Fight or Flight Negative Coping Techniques

Social Support Nutrition Sleep Time Management

Spirituality Comic Relief Positive Affirmations

b) Practical -

Relaxation Techniques Deep Breathing Muscle Relaxation Visualization Meditation Autogenic Training Yoga

▪ Personality development

a) Theory

- Introduction to Personality Development
- The Developing Personality
- Stages of Development
- 'Need' a little personality?

b) Practical

- Basic Personality Traits
- Moral Development
- What's your personality type?
- Hearing Jung Out
- Personality and Career Choice
- Changing Your Personality

D) Dissertation - (Hrs 60 , Credits – 2)

Selection of research topic
Preparation of protocol
Protocol review and ethical committee review.

M.Sc. Epidemiology Semester I

Course	Course title	Number of Hours per semester		Total	Number of Credits / Semester		Total Credits
		Theory	Practical		Theory	Practical	
Paper – I	Infectious disease	90	-	90	6	-	6
Paper - II	Immunology	90	-	90	6	-	6
Paper - I	Entomology I & II	-	120	120	-	4	4
Paper – II	Inspection to public place	-	120	120	-	4	4
GE	▪ Stress management ▪ personality development	30	90	120	2	3	5
	Dissertation	0	60	60	-	2	2
	Total	**210**	**390**	**600**	**14**	**13**	**27**

Semester – II

A) Paper I

a) Theory (Hrs 90, Credits – 06)

General Epidemiology :-

The concepts of disease

- Natural history of disease.
- Epidemiological triad.
- Dynamics of diseases transmission.
- Concept of disease control.

- Epidemiologic Methods-
- Descriptive and analytical
- Randomized control trial
- Infectious disease epidemiology
- Investigation of epidemic

b) Practical - (Hrs 90, Credits – 03)

- Water in relation to health and disease.
- Air pollution and ecological balance.
- Housing and health.
- Visit to water purification plant
- Visit to refuse disposal plant

B) Paper II

a) Theory (Hrs 90, Credits – 06)

Biostatistics

Collection/Organisation of data/measurement scales.
Presentation of data
Measurement of central tendency
Measures of variability.
Sampling and planning of health survey.
Probability, Normal distribution and inductive statistics.
Estimating population values.
Test of significance (parametric/Non-parametric including qualitative methods)
Analysis of variance.
Association, correlation and regression
Vital statistics
Evaluation of health and measurement of morbidity/mortality
Life table and its uses.
Use of computers
Census

Sociology

Basic Concepts in Sociology

- Sociology: Definition, nature and scope; Relationship with other Social Sciences: Psychology,
  Anthropology, History, Economics, Political Science.

- Basic Concepts: Social Structure, Society, Social Organization, Community, Association, Norms, Values,
  Status and Role: Types of status and role and their interrelation
- Socialization: Meaning, types, processes and agencies. Theories of self (Freud, Cooley and

b) Practical - (Hrs 90, Credits – 03)

Horrocks test
OT test
Water quality standards

C) Dissertation--(Hrs 180 , Credits – 6)

- **Data collection**
- **Data feeding**
- **Review of literature**

D) Dissertation (Hrs 180, Credits – 06)

Review of literature
Preparation for data Collection

M.Sc. Epidemiology Semester II

Course	Course title	Number of Hours per semester		Total	Number of Credits / Semester		Total Credits
		Theory	Practical		Theory	Practical	
Paper - I	Gen. Epidemiology	90	-	90	6	-	6
Paper - II	Biostatistics	90	-	90	6	-	6
Paper - I	Practical Course I - Visit to Water purification Plant - Visit to Refuse disposal Plant	-	90	90	-	3	3
Paper - II	Practical Course II	-	90	90	-	3	3

	- Horrock's test - O T Test						
	Dissertation	**0**	**180**	**180**	**0**	**6**	**6**
	Total	**180**	**360**	**540**	**12**	**12**	**24**

Semester – III

A) Paper - I

a) **Theory** (Hrs 60, Credits – 04)

OCCUPATIONAL HEALTH

1. Principles of Occupational Health
   - Occupational Environment
   - Occupational Hazards
   - Absenteeism.
   - Problems of Industrialization
   - Health protection of Worker
   - Prevention of Occupational Diseases
2. Legislation in Occupational Health
   - Factories Act
   - Employees State Insurance Act.
   - Workmen's Compensation Act.
   - Mines Act
   - Plantation Labour Act.
3. Basics of Industrial Toxicology.
4. Principles of Industrial Psychology
5. basics of Ergonomics

b) Practical - (Hrs 60, Credits – 02)

Rural health center posting
OPD
IPD
Community survey in adopted community
Awareness campaign organization

B) Paper II

b) **Theory (**Hrs 60, Credits – 04)

1. **Common Maternal and Child health problems at an individual level**

- Antenatal Care
- Risk Approach
- Antenatal visits.
- Preventive Services.
- Antenatal Care.
- Postnatal Care.
- Care of the Mother.
- Child Health Problems
- Low birth weight.
- Growth & development
- Childhood Infections
- Care of the infant.
-

Structure of MCH and Family Welfare Services in India.

- Problems of Maternal Health in India.
- Delivery of Maternal and Child Health Services.
- Trends in the MCH services.
- MCH related Programmes in India e.g. RCH,CSSM,ICDS.
- Family Planning.
- Methods of Family Planning.
- Indicators of MCH care.

b) Practical -(Hrs 60, Credits – 02)

Urban health center posting
OPD
Community survey in adopted community
Awareness campaign organization

C. Discipline specific electives - (Hrs Theory60;Practical 90, Credits –7)

i) Research Methodology

a) Theory

- Introduction to research
- Framing of research question
- Study designs

b) Practical

- Data collection tools
- Tests of significance
- Softwares used in data analysis
- Ethics in medical research

ii) International health agencies

a) Theory

- WHO
- UNICEF
- UNFPA
- Rockfellar foundation
- SIDHA
- DANIDA

b) Practical

- WHO
- UNICEF
- UNFPA
- Rockfellar foundation
- SIDHA
- DANIDA

D) Dissertation - (Hrs Practical 120, Credits –4)

Data feeding and analysis

M.Sc. Epidemiology Semester III

Course	Course title	Number of Hours per semester		Total	Number of Credits / Semester		Total Credits
		Theory	Practical		Theory	Practical	
Paper – I	Occupational health	60	-	60	4	-	4
Paper – II	MCH & geriatrics	60	-	60	4	-	4
Paper – I	Course I Rural Health Training Center	-	60	60	-	2	2
Paper – II	Course II Urban Health Training Center	-	60	60	-	2	2
DSE	▪ Research Methodology ▪ International health agencies	60	90	150	4	3	7
	Dissertation	-	120	120	-	4	4
	Total	**180**	**330**	**510**	**12**	**11**	**23**

Semester – IV

A) Paper I

a) **Theory (**Hrs 60, Credits – 04)

Demographic trends in India.

- Demographic cycle
- Trends in the world.
- Demography related indicators.
- Demographic trends in India.

School Health services.

- Objectives.
- Components of school health services.
- Planning of school health services.
- Care of handicapped children.
- Behavioural and learning problems in Children.

Social Paediatrics.

- Juvenile Delinquency.
- Child abuse.
- Child labour.
- Street children
- Child guidance clinic.
- Child marriage.
- Child placement

b) Practical - (Hrs 60, Credits – 02)

Industrial visits
Visit to public health laboratory
Visit to rehabilitation center

B) Paper II

a) **Theory** (Hrs 60, Credits – 04)

National Health Programmes

The origin,historical development,interventions,current state and critique of the different National Health Programmes: National Family Welfare Programme(NFWP).

- National Tuberculosis Control Programme
- National Leprosy Eradication Programme.
- National Diarrhoeal Diseases Control Programme
- National Malaria Eradication Programme
- National Filariasis Control Programme
- National Acute Respiratory Infections(ARI)Control programme.
- National AIDS control Programme.
- National Guinea Worm Eradication Programme
- National Kala Azar Control Programme.
- National Japnese Encephalits (JE) Control Programme
- National Iodine Deficiency Disorders(IDD)Control Programme
- National Programme for the control of Blindness.
- National Cancer Control Programme
- National Mental Health Programme
- National Diabetes Control Programme
- Child Survival and Safe Motherhood (CSSM)

- Reproductive Child Health (RCH)
- Universal Immunization Programme.(UIP)
- National Water Supply and Sanitation Programme.
- Minimum Needs Programme.

The implementation of NHPs at a programme level and in the community.

b)Practical - (Hrs 60, Credits – 02)

Posting to Obstetrics and Gynecology

1. Obstetrics

-Antenatal care
-High risk pregnancy
-Intranatal care-The management of normal labour.
-Postnatal care
-Family Welfare

2. Gynaecology

- Adolescent health
- Reproductive Tract infections
- Cancer of the reproductive tract especially carcinoma cervix

Posting to Paediatrics (Hospital and ICDS)

- Paediatrics Infectious diseases.
- Nutritional problems
- Immunization
- Neonatal problems.
- Growth and Development monitoring
-

C. Discipline specific electives - (Hrs Theory60;Practical 90, Credits –7)

- **Qualitative research-**

a) Theory

Study design
Methodology
Data analysis
Focus group discussion

b) Practical

Study design
Methodology
Data analysis
Focus group discussion

- **Evaluation of national health policies**
- **a) Theory**
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  National health policy 1983
  National health policy 2002
  National health policy 2017
  Millenium development goals
  Sustainable development goals

  b) Practical

  National health policy 1983
  National health policy 2002
  National health policy 2017
  Millenium development goals
  Sustainable development goals

D) Dissertation --(Hrs Practical 120, Credits –4)

Dissertation presentation and viva voce

M.Sc. Epidemiology Semester IV

Course	Course title	Number of Hours per semester		Total	Number of Credits / Semester		Total Credits
		Theory	Practical		Theory	Practical	
Paper – I	Demography	60	-	60	4	-	4
Paper – II	National Health Programmes	60	-	60	4	-	4
Paper – I	Industrial Visit (ergonomics)	-	60	60	-	2	2
Paper – II	▪Pediatrics posting ▪Ob./Gyn. Posting	0	60	60	-	2	2
DSE	▪ Qualitative Research . ▪ Evaluation of	60	90	150	4	3	7

	national health policies						
	Dissertation	-	120	120	-	4	4
	Total	**180**	**330**	**510**	**12**	**11**	**23**

Books

TEXT BOOKS AND OTHER REFERENCES

1. Maxy Roseman John M. Last. Maxcy-Roseman Public Health and Preventive Medicine, Appleton-Century-Crofit, Newyork
2. Hobson W., The Theory and Practice of Public Health, Oxford Med. Publication
3. Barker D.J.P. Practical Epidemiology, Churchill Livingstone.
4. Park J. E. & K. Park. Text book of P. & S.M. M/S Banarsidasm Bhanot.
5. Mahajan B.K. and M. C. Gupta, Text book of P & S. M. Jaypee Publications.
6. Sir Austin Bradford Hill, Principles of Medical Statistics, the Lancet Ltd. No.7 Adam Street, Adelphine, London, 1967.
7. John J. Hanlon, Public Health Administration and Practice, MOSBY.
8. Mac. Mohan & Pugh Epidemiology Principles and Methods, Little Brown & Co. Boston. U.S.A.
9. Robert S. Goodheart Maulice E.Shills, Modern Nurtitionin Health, K. M. Varghes & Co.
10. Mawner & Kramer, Epid: An Introductory Text, 1985 W.B. Sanuders Co.,
11. Hunters Diseases of Occupations: Edited by P.A.B. Raffle, P.H. Adams, P. J. Baxter and W. R.

    Lee Edward Arnold Publishers (1994), Great Britain.
12. Committee reports and policy documents- medical education and health policy;

    1. Bhore Committee Report (1946) Health Survey and Development Committee, Govt. of

India, Delhi.

2. Mudaliar Committee Report (1961) Health Survey and Planning Committee, Govt. of India, Delhi.
3. Shrivastav Report (1974). Health Services and Medical Education-A Programme for immediate action, Group on Medical Education and Support Manpower, Ministry of Health and Family Welfare, Govt. of India. New Delhi.
4. ICSSR/ICMR (1981).Health for All- An alternative strategy- Report of a Joint study group of ICSSR/ICMR. Indian Institute of Education, Pune.
5. National Health Policy, (1982) Ministry of Health and Family Welfare, Govt. of India, New Delhi.
6. Compendium of Recommendation of various committees on health and Development (1943)-1975).Central Bureau of Health Intelligence (1985) Directorate General of Health Services, Ministry of Health and Family Planning, New Delhi.
7. Bajaj, J. S. etal (1990) Draft National Education Policy for Health Sciences, I.J.M.E., Vol. 29, No.1 &2(Jan-August 1990)

Additional Reading:

1. Indian Council of Medical Research, "Policy Statement of Ethical considerations involved in Research on Human Subjects", 1982, ICMR New Delhi.
2. Code of Medical Ethics framed under section 33 of the Indian Medical Council Act.1956. Medical Council of India, Kotla Road, New Delhi.
3. Francis C.M. Medical Ethics, J. P. Publication, Bangalore, 1993.
4. Indian National Science Academy, Guidelines for care and use of animals in Scientific Research, New Delhi,1994.
5. Internal National Committee of Medical Journal Editors, Uniform requirements for manuscripts submitted to biomedical journal , N Eng. J. Med 1991: 424-8.

6. Kirkwood B. R., Essentials of Medical Statistics, 1st Ed Oxford: Blackwell Scientific Publications 1988.

7. Mahajan B.K. Methods in Bio statistics for medical students, 5th Ed. New Delhi. Jaypee Brothers Medical Publishers, 1989.

Journals:

1. Indian Journal of Community Medicine.

2. Indian Journal of Public Health.

3. Indian Journal of Community Health

4. Journal of Communicable Diseases.

5. Indian Journal of Maternal & Child Health.

6. Indian Journal of Preventive & Social Medicine.

7. Indian Journal of Occupational Health &Industrial Medicine.

8. Indian Journal of Medical Research

9. National Medical Journal of India.

10. Indian Journal of Malariology.

11. Indian Journal of Environmental Health.

12. Indian journal of Medical Education.

13. Journal of Indian Medical Association.

14. Journal of Medicine, Paediatrics, OBG, Skin & STD, Leprosy, Tuberculosis & Chest Diseases (For Reference)

International Journals:

1. WHO Publications- All

2. Journal of Epidemiology & Community Health.

3. Tropical Diseases Bulletin.

4. Vaccine.

5. American Journal of Public Health.

6. Lancet.

7. New England Journal of Medicine.

Examination Pattern:-

Internal assessment examination will be converted to of 20 marks theory and 20 marks practical and will be added in End semester examination.

End semester examination:

Question Paper Pattern:

Theory: 80 Marks

Answer all the questions.

I. Multiple Choice Question (MCQ) = 20 X 20 = 20
II. Essay question : 20 x1 =20
III. Long Answers(Answer 2 out of 3) = 2 X 10 = 20
IV. Short Answers (Answers 4 out of 6) = 4 x 5 = 20

Total = 80 Marks

Practical:

Oral Examination: 30 Marks

Practical Examination 50 Marks

Total Marks : 80.

Total exam marks for end semester are 100 marks theory and 100 marks practical.

1. Promotion and award ofgrades

A student shall be declared PASS and eligible for getting he/she secures at least 50% marks in that particular course including internal assessment..

2. Carry forward ofmarks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified ,then he/she shall reappear for the end semester examination of

that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

3. Improvement of internalassessment

A student shall have the opportunity to improve his/her performance only once in the Sessional exam component of the internal assessment. The re-conduct of the Sessional exam shall be completed before the commencement of next end semester theory examinations.

Grading ofperformances

Letter grades and grade pointsallocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in table I

Table –I Letter grades and grade points equivalent to Percentage of marks and performances

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00 – 100	O	10	Outstanding
80.00 – 89.99	A	9	Excellent
70.00 – 79.99	B	8	Good
60.00 – 69.99	C	7	Fair
50.00 – 59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

18. The Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses(Theory/Practical) in a semester with credits C1, C2, C3, C4 and C5 and the student's grade points in these courses are G1, G2, G3, G4 and G5, respectively, and then students' SGPA is equalto:

$$SGPA = \frac{C1G1 + C2G2 + C3G3 + C4G4 + C5G5}{C1 + C2 + C3 + C4 + C5}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:

$$\mathbf{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO} + C_5G_5}{\mathbf{C_1 + C_2 + C_3 + C_4 + C_5}}$$

Cumulative Grade Point Average(CGPA)

The CGPA is calculated with the SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s),till the course(s) is/are passed. When the course(s)is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculatedas:

$$CGPA = \frac{C1S1 + C2S2 + C3S3 + C4S4 + C5S5 + C6S6 + C7S7 + C8S8}{C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8}$$

where C_1, C_2, C_3,.... is the total number of credits for semester I,II,III,…. and S_1,S_2, S_3,....is the SGPA of semester I,II,III,…. .

19. Declaration ofclass

The class shall be awarded on the basis of CGPA as follows:

First ClasswithDistinction= CGPA of. 7.50 andabove

FirstClass= CGPA of 6.00 to7.49

SecondClass= CGPA of 5.00 to5.99

20. Award ofRanks

Ranks and Medals shall be awarded on the basis of final CGPA.

21. Award ofdegree

Candidates who fulfill the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

Final Mark list Of University Examination

Sr. No.	Semester	Internal Assessment		End Semester Examination		Total	
		Theory 20 marks	Practical 20 marks	Theory 80 marks	Practical 80 marks	Theory 100 marks	Practical 100 marks
1	Semester I						
2	Semester II						
3	Semester III						
4	Semester IV						

CBCS FOR Epidemiology

Program: M.Sc. **Department: KIMS** **Subject: Epidemiology** **Scheme: CBCS**

Subject		Sem-I			Sem-II			Sem-III			Sem-IV			Total		
		T	**P**	**Total**	**T**	**P**	**Total**	**T**	**P**	**Total**	**T**	**P**	**Total**	**T**	**P**	**Total**
Core-I	Hr	90	120	210	90	90	180	60	60	120	60	60	120	**300**	**330**	**630**
	Cr	6	4	10	6	3	9	4	2	6	4	2	6	**20**	**11**	**31**
Core-II	Hr	90	120	210	90	90	180	60	60	120	60	60	120	**300**	**330**	**630**
	Cr	6	4	10	6	3	9	4	2	6	4	2	6	**20**	**11**	**31**
Total	**Hr**	**180**	**240**	**420**	**180**	**180**	**360**	**120**	**120**	**240**	**120**	**120**	**240**	**600**	**660**	**1266**
	Cr	**12**	**8**	**20**	**12**	**6**	**18**	**8**	**4**	**12**	**8**	**4**	**12**	**40**	**22**	**62**

Generic Elective – Any One

1. Stress Management
2. Personality Development

Discipline Specific Elective – Any One

Semester III- 1. Research Methodology

2. International Health Agencies

Semester IV- 1**.** Qualitative Research

2**.** Evaluation of National Health Policies

CBCS FOR Epidemiology

Program: M.Sc. **Department: KIMS** **Subject: Epidemiology** **Scheme: CBCS**

Subject		Sem-I			Sem-II			Sem-III			Sem-IV			Total		
		T	**P**	**Total**	**T**	**P**	**Total**	**T**	**P**	**Total**	**T**	**P**	**Total**	**T**	**P**	**Total**
AEC	Hr	-	-	-	-	-	-	60	90	150	60	90	150	**120**	**180**	**300**
	Cr	-	-	-	-	-	-	4	3	7	4	3	7	**8**	**6**	**14**
Generic	Hr	30	90	120	-	-	-	-	-	-	-	-	-	-	-	-
	Cr	2	3	5	-	-	-	-	-	-	-	-	-	-	-	-
Dissertation	Hr	0	60	60	0	180	180	0	120	120	0	120	120	**0**	**480**	**480**
	Cr	0	2	2	0	6	6	0	4	4	0	4	4	**0**	**16**	**16**
Grand Total	**Hr**	**210**	**390**	**600**	**180**	**360**	**540**	**180**	**330**	**510**	**180**	**330**	**570**	**750**	**1410**	**2160**
	Cr	**14**	**13**	**27**	**12**	**12**	**24**	**12**	**11**	**23**	**12**	**11**	**23**	**50**	**47**	**97**